



# VCU

Virginia Commonwealth University  
VCU Scholars Compass

---

Theses and Dissertations

Graduate School

---

2007

## Resilience and Risk-Taking Behavior Among Thai Adolescents Living in Bangkok, Thailand

Patcharin Nintachan  
*Virginia Commonwealth University*

Follow this and additional works at: <https://scholarscompass.vcu.edu/etd>



Part of the [Medicine and Health Sciences Commons](#)

© The Author

---

Downloaded from

<https://scholarscompass.vcu.edu/etd/1464>

This Dissertation is brought to you for free and open access by the Graduate School at VCU Scholars Compass. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of VCU Scholars Compass. For more information, please contact [libcompass@vcu.edu](mailto:libcompass@vcu.edu).



## DEDICATION

This dissertation is dedicated to the memory of my father, Komon Nintachan, who inspired me to become a nurse, and my mother, Sommas Nintachan, who passed away with Hepatoma during my doctoral studies. In everything I do whether as a nurse, a teacher, a researcher, or a human being, their memory will forever be in my work and in my heart. After all, they instilled in me the value of an education and the desire to care for others.

RESILIENCE AND RISK-TAKING BEHAVIOR AMONG THAI ADOLESCENTS  
LIVING IN BANGKOK, THAILAND

A Dissertation submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy at Virginia Commonwealth University.

by

PATCHARIN NINTACHAN

B.Sc. (Nursing and Midwifery), Mahidol University, Thailand, 1987  
M.N.S (Psychiatric and Mental Health Nursing), Chiang Mai University, Thailand, 1995

Director: MARTHA W. MOON, RN, PhD, MPH  
Associate Professor  
Virginia Commonwealth University School of Nursing

Virginia Commonwealth University  
Richmond, Virginia  
May, 2007

## ACKNOWLEDGEMENT

This dissertation would not have been possible without the support of so many individuals. To each, I would like to express my deepest appreciation for the help provided to me.

I can't begin to adequately express what Dr. Martha W. Moon, my academic advisor and chairperson of my dissertation committee, has meant to me during my doctoral program. Her in-depth knowledge and caring attitude made my Ph.D. study very meaningful. She not only provided academic support, but also provided needed emotional support during the very trying time when I was grappling with the loss of my beloved mother. I also benefited greatly from the opportunity to work with her on several research projects.

I would like to also extend my deepest appreciation and gratitude to the other members of my dissertation committee. First, Dr. Nancy L. McCain who provided important scholarly guidance and encouragement, and assisted me in using computer scan answer sheets for collecting data in Thailand. Second, to Dr. Judith A. Lewis who not only encouraged me in my endeavors, but showed her understanding, and belief in me. Third, to Dr. Robert L. Andrews who demonstrate remarkable patient, and I might add, fortitude, in helping overcome the many obstacles I encountered in data analyses. Both he and his wife, Wilma Andrews, were always support me and kind to me in pursuit of my doctorate at VCU.

It was a great honor to have Dr. Edith H. Grotberg, Director of the International Resilience Project and the faculty member of George Washington University, provided valuable suggestions on the conceptual framework of my study. In fact, her three resilience factors - I HAVE, I AM and I CAN - form an essential part of the study.

I would also like to extend my appreciation to Dr. Chok Hiew, University of New Brunswick, Canada and Associate Prof. Siriperm Chowsilpa, Department of Psychology, Faculty of Humanities, Chiang Mai University, Chiangmai, Thailand, who allowed me to use the Thai version of State-Trait Resilience Inventory (STRI).

It would be remiss if I did not acknowledge also the support and help of two other faculty members of VCU School of Nursing. Dr. Inez Tuck, the former Director of the doctoral program, was very kind and attentive to my study needs. In taking the course on Instrument Development taught by Dr. Janet B. Younger, Associate Dean, knowledge gained enabled me to properly design the instrument used in my study.

I'm deeply appreciative of the editorial assistance provided by Larry G. Young throughout my doctoral study and his wife, Uraikaew Young, who consistently provided their support and encouragement during my doctoral studies. They were a source of inspiration, treated me as a daughter, and coached me on how to cope successfully with the cultural differences between Thailand and the United States.

My sincere thanks also go to the principals, teachers, and students in the six schools in Bangkok, Thailand where the study was conducted. Without them, this dissertation would not have been possible. I also would like to thank Erica Gregory, Project Coordinator of the Center for Biobehavioral Clinical Research, Virginia Commonwealth University, who prepared the data so that I could easily use it for purposes of this dissertation.

I would like to acknowledge the following individuals in Nursing Department, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand for their support and encouragement in undertaking the doctoral program at VCU: Associate Prof. Supanee Sanadisai, the former Director of Nursing Department; Prof. Dr. Somchit Hanujaroenkul, Chairman of the Doctoral Program in Nursing; Associate Prof. Prakong Intarasombati; Associate Prof. Titiwon Thumapirode, the former Psychiatric and Mental

Health Nursing Coordinator; and Assistant Prof. Phayao Poolcharoen, the current Psychiatric and Mental Health Nursing Coordinator.

My deepest gratitude and particular appreciation go to those experts who assisted in providing the bilingual expertise in translating and back-translating the study instrument - Dr. Suthida Masuthon, Assistant Prof. Dr. Nopawan Piaseu and Dr. Tusana Tweekoon; cross-cultural equivalence expertise - Assistant Prof. Dr. Rungnapa Panitrat and Ms. Sawana Pobsuk; native English speakers - Larry G. Young, Linda Bennington, Kathleen Putnam, Stephen P. Jones, and Lea Marshall.

My study aboard would have been impossible without financial support from the Ramathibodi School of Nursing, Nursing Department, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand. Thanks also go to my colleagues in the Psychiatric and Mental Health Nursing Division, Ramathibodi School of Nursing for kindly permitting me to take study leave to pursue the doctoral program at VCU.

I am grateful to the Gamma Omega Chapter of Sigma Theta Tau International Honor Society of Nursing for the Research Award and the Lynn Bell Scholarship Award for providing partially funding for my study. Thanks go also to the VCU School of Nursing for providing partial financial assistance during the last year of my study.

I would like to also express my everlasting gratitude to several of my friends in Thailand: Dr. Jintana Sirivarasai, Prapai Ariyaprayoon, and Jongjit Lertwiboonmongkol who spent so much time and effort in taking care of my mother and my sisters and providing me with an incredible amount of supports; Dr. Suthida Masuthon, who during the processes of IRB approval, assisted in obtaining letters from the six schools in Thailand for their participation; Assistant Prof. Wareerat Thanoi, Yuwadee Mahachairachan, and Amporn Tungkaoroungroeng who assisted in collecting data; and Dr. Sophin Sangon for her support and management of all my official documents during the period of my doctoral study. My special gratitude and appreciation also go to Mr. Sirichai Singkaew for his love, understanding, encouragement, and support.

Finally, my deepest appreciation goes to my four sisters and three brothers-in-law: Rungporn Nintachan, Prateep and Saowaros Khammuang, Jumnieen and Raneer Sitthikul, and Sarun and Anchalee Chuvej. They always had faith in me and I will never be able to fully express my gratitude for their unconditional love, understanding, support, and sacrifice. My warm thanks go as well to my nieces and nephews, Paweena and Thitima Khammuang, Chanyawan and Bovonvit Sitthikul, Kasamson and Chutipong Chuvej for their love and believing in me. I hope they know what I have accomplished now is also for their future, needless to say, I love them very much.



## Table of Contents

	Page
Acknowledgements .....	ii
List of Tables .....	ix
List of Figures .....	xiv
Abstract.....	xv
 Chapter	
1 BACKGROUND AND SIGNIFICANCE .....	1
Conceptual framework .....	7
Study purposes.....	9
Research questions.....	10
Hypotheses .....	11
Definitions of terms .....	11
2 LITERATURE REVIEW.....	15
Thailand .....	15
Adolescence .....	18
Risk.....	21
Risk-taking behavior.....	23
Resilience .....	44
3 METHODOLOGY.....	57
Research design.....	57
Instruments for data collection.....	58
Modification of the instrument and translation .....	61
Modification of the instrument.....	62
Translation process of the modified instrument .....	66
Equivalence testing.....	67
Pilot study.....	71
Test-retest reliability study .....	80

Present study.....	104
Sample.....	104
Sampling technique.....	106
Sample criteria/sample recruitment and data collection .....	106
Data analysis.....	108
4 FINDINGS.....	110
The sample’s demographic characteristics.....	110
Resilience .....	114
Risk-taking behavior.....	116
Relationships between resilience and risk-taking behavior .....	171
5 DISCUSSION AND CONCLUSIONS.....	178
Hypothesis I.....	179
Hypothesis II .....	238
Study limitations.....	243
Conclusions and recommendations .....	245
References.....	249
Appendices	
A Explanatory Letter.....	271
B Documentary Proof of VCU IRB .....	272
Research Subject Information and Parental Permission Form.....	274
Youth Assent Form.....	277
C Documentary Proof of Ethical Clearance Committee on Human Rights Related to Research Involving Human Subjects, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.....	279

D	Thai Adolescent Resilience and Risk Survey (English version).....	281
E	Thai Adolescent Resilience and Risk Survey (Thai version).....	307
	Vitae.....	327

## List of Tables

	Page
Table 1: Estimated Population and Percent of Total Population Ages 12-65 Years Using Illegal Substances within One Year and 30 Days Immediately Preceding the Survey in 2003.....	37
Table 2: Three Components of Resilience Characteristics. ....	60
Table 3: Number by Number Comparison of Items in the Original Version of 2003 YRBS with the Modified Version by Categories.....	63
Table 4: Items Before and after Modification of 2003 Youth Risk Behavior Survey (YRBS). ....	64
Table 5: Demographic Characteristics of the Pilot Study Sample (N = 254).....	77
Table 6: Correlation Coefficients (r) between Resilience and Risk-taking Behavior....	79
Table 7: Kappa Interpretation Criteria.....	84
Table 8: Layout of Calculated Measures by Respondent Characteristics.....	88
Table 9: Percent Observed Agreement, Kappa Statistic and Kappa P-value, by Item...	89
Table 10: Frequencies of Kappa Values Using Landis and Koch's Kappa Interpretation Criteria.....	94
Table 11: Mean Percent Observed Agreement and Kappa Coefficient by Gender and Grade Level.....	95
Table 12: Risk Behavior Category Mean Values Presented in Descending Order for Percent Observed Agreement and Kappa Coefficient.....	98
Table 13: Mean Percent Observed Agreement and Mean Kappa by Time Reference Period.....	100
Table 14: Demographic Characteristics of the Study Sample. ....	112

Table 15: Minimum, Maximum, Mean and Standard Deviation of Resilience and Resilience Factors of Thai Students Living in Bangkok.....	114
Table 16: Minimum, Maximum, Mean and Standard Deviation of Resilience by Grade of Thai Students Living in Bangkok.....	115
Table 17: Minimum, Maximum, Mean and Standard Deviation of Resilience by Age of Thai Students Living in Bangkok .....	115
Table 18: Percentage of Secondary School Students Who Rarely or Never Wore a Motorcycle Helmet, Used Walking Bridges, Used Crosswalks, and Wore a Seat Belt, by Grade and Gender .....	147
Table 19: Percentage of Secondary School Students Who Rode with a Driver Who Had Been Drinking Alcohol, Who Drove When Drinking Alcohol, Carried a Weapon, and Carried a Weapon on the School Property, by Grade and Gender.....	148
Table 20: Percentage of Secondary School Students Who Felt Too Unsafe to Go to School, Threatened or Injured with a Weapon on School Property, Had Property Stolen or Damaged on School Property, and In a Physical Fight by Grade and Gender.....	149
Table 21: Percentage of Secondary School Students Who Were Injured in a Physical Fight, In a Physical Fight on School Property Experienced Dating Violence, and Ever Forced to Have Sexual Intercourse, by Grade and Gender.....	150
Table 22: Percentage of Secondary School Students Who Felt Sad or Hopeless, Seriously Considered Attempting Suicide, Made a Suicide Plan, Attempted Suicide, and Suicide Attempt Treated by a Doctor or Nurse, by Grade and Gender.....	151
Table 23: Percentage of Secondary School Students Who Lifetime Cigarette Use, Current Cigarette Use (1 Day or More), Current Frequent Cigarette Use (20 Days or More), Smoked >10 Cigarettes/Day, Smoked >20 Cigarettes/Day, by Grade and Gender.....	152

Table 24: Percentage of Secondary School Students Who Bought Cigarettes in a Store or Gas Station, Lifetime Daily Cigarette Use, and Tried to Quit Smoking Cigarettes, by Grade and Gender.....	153
Table 25: Percentage of Secondary School Students Who Had Lifetime Alcohol Use, Current Alcohol Use, Episodic Heavy Drinking, Lifetime Marijuana Use, and Current Marijuana Use, by Grade and Gender.....	154
Table 26: Percentage of Secondary School Students Who Had Lifetime Yaba (Methamphetamine) Use, Current Yaba Use, Lifetime Daily Yaba Use, and Tried to Quit Yaba Use, by Grade and Gender.....	155
Table 27: Percentage of Secondary School Students Who Had Lifetime Cocaine Use, Current Cocaine Use, Lifetime Inhalant Use and Current Inhalant Use, by Grade and Gender.....	156
Table 28: Percentage of Secondary School Students Who Had Lifetime Heroin Use, Current Heroin Use, Lifetime Yae (Ecstasy) Use, and Current Yae (Ecstasy) Use, by Grade and Gender.....	157
Table 29: Percentage of Secondary School Students Who Had Lifetime Illegal Injection Drug Use and Non-Prescriptive Medicine Use, by Grade and Gender.....	158
Table 30: Percentage of Secondary School Students Who Smoked a Whole Cigarette Before Age 13 Years, Drank Alcohol before Age 13 Years, and Tried Marijuana before Age 13 Years, by Grade and Gender.....	159
Table 31: Percentage of Secondary School Students Who Smoked Cigarettes on School Property, Drank Alcohol on School Property, Used Marijuana on School Property, Used Yaba on School Property, and Offered, Sold, or Given an Illegal Drug on School Property, by Grade and Gender.....	160
Table 32: Percentage of Secondary School Students Who Identified Their Sexual Orientation as Bisexual or Homosexual, Had Sexual Intercourse With the Same Sex or Both the Opposite Sex and the Same Sex, Had Someone Make Negative Comments Because They Thought These Students Were Gay or Lesbian, by Grade and Gender.....	161

- Table 33: Percentage of Secondary School Students Who had Lifetime Sexual Intercourse, Had First Sexual Intercourse Before Age 13 Years, Had Sexual Intercourse with Four or More Persons During Their Life, and Currently Sexually Active, by Grade and Gender.....162
- Table 34: Percentage of Secondary School Students Who Had Alcohol or Drug Use Before Last Sexual Intercourse, Had Condom Use during Last Sexual Intercourse, Had No Method of Family Planning before Last Sexual Intercourse, Had Been Pregnant or Had Gotten Someone Else Pregnant, and Taught in School about AIDS or HIV Infection, by Grade and Gender.....163
- Table 35: Percentage of Secondary School Students Who Ate Fruits  $\geq 3$  Times/Day, Ate Vegetables  $\geq 3$  Times/Day, and Drank  $>3$  Glasses of Milk/Day, by Grade and Gender.....164
- Table 36: Percentage of Secondary School Students Who Ate food from a Street Vender, Ate food or Drank with Someone Else Sharing the Same Bowl or Glass, and Ate food with Someone Else without a “Serving Spoon,” by Grade and Gender.....165
- Table 37: Percentage of Secondary School Students Who Described Themselves as Overweight, Were Trying to Lose Weight, Exercised to Lose Weight or to Keep From Gaining Weight, Ate Less Food, Fewer Calories, or Foods Low in Fat to Lose Weight or to Keep From Gaining Weight, by Grade and Gender.....166
- Table 38: Percentage of Secondary School Students Who Went Without Eating for  $>24$  Hours to Lose Weight or to Keep From Gaining Weight, Took Diet Pills, Powders, or Liquids to Lose Weight or to Keep from Gaining Weight, and Vomited or Took Laxatives to Lose Weight or to Keep from Gaining Weight, by Grade and Gender.....167
- Table 39: Percentage of Secondary School Students Who Had Sufficient Vigorous Physical Activity, Did not Participate in Any Vigorous Physical Activity, Had Sufficient Moderate Physical Activity, and Did Not Participate in Moderate Physical Activity, by Grade and Gender.....168

Table 40: Percentage of Secondary School Students Who Had Done Strengthening Exercises, Attended Physical Education Classes, Exercised or Played Sports, and Played on Sport Teams, by Grade and Gender.....	169
Table 41: Percentage of Secondary School Students Who Watched Television and Used Computers, by Grade and Gender .....	170
Table 42: Correlation Coefficients ( $r$ ), <i>Positive Correlation</i> , between Resilience and Risk-taking Behavior.....	175
Table 43: Correlation Coefficients ( $r$ ), <i>Negative Correlation</i> , between Resilience and Risk-taking Behavior.....	176



## List of Figures

	Page
Figure 1: Thailand Map.....	15
Figure 2: Examples of Comparability/Interpretability Questionnaire (Items Number 2 and 7).....	69
Figure 3: Two Judges' Ratings of 20 Items.....	70
Figure 4: The State-Trait Resilience Scale Format Before Modification.....	74
Figure 5: The State-Trait Resilience Scale Format After Modification.....	75
Figure 6: Calculation of Observed and Expected Agreement Proportions.....	83
Figure 7: Calculation of K When Percent Observed Agreement Is 100%.....	91
Figure 8: Demonstration of K as Negative Number When Percent Observed Agreement Is High .....	92
Figure 9: Two Factor ANOVA Post Hoc Significant Differences in Percent Observed Agreement Means.....	96
Figure 10: Two Factor ANOVA Post Hoc Significant Differences in Kappa Coefficient Means.....	96
Figure 11: Single Factor ANOVA Post Hoc Significant Differences in Percent Agreement Means .....	99
Figure 12: Single Factor ANOVA Post Hoc Significant Differences in Kappa Coefficient Means.....	99

## Abstract

### RESILIENCE AND RISK-TAKING BEHAVIOR AMONG THAI ADOLESCENTS LIVING IN BANGKOK, THAILAND

By Patcharin Nintachan, BSc, MNS

A dissertation submitted in partial fulfillment of the requirements for the degree of  
Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2007

Major Director: Martha W. Moon, RN, PhD, MPH  
Associate Professor  
School of Nursing, Virginia Commonwealth University

The major purposes of this study were to determine the relationships among resilience, risk-taking behavior and personal characteristics of Thai adolescents living in Bangkok and to examine the differences in risk-taking behavior by school grades or gender. To accomplish these, a cross-sectional correlational research design was conducted. Resilience was measured by using the State-Trait Resilience Inventory developed by Hiew, Mori, Shimizu and Tominaga.

Risk-taking behavior was measured by the Risk-taking Behavior Questionnaire for Thai Adolescents which is a modified version of the 2003 Youth Risk Behavior Survey (YRBS) originally developed by the U.S. Centers for Disease Control and Prevention. In order to make it more applicable to the Thai setting, the author modified the 2003 YRBS. The modified instrument was then translated and back translated; equivalence testing was performed; a pilot study was conducted; and test-retest reliability was measured. Overall, these procedures indicated that the modified version of YRBS had evidence of equivalence (semantic, content, and conceptual), feasibility and acceptability as well as good reliability for use among Thai adolescents to measure risk behavior. Risk-taking behavior in this study includes six categories of behavior: (1) behavior that contributes to unintentional injuries and violence; (2) tobacco use; (3) alcohol and other drug use; (4) sexual behavior contributing to unintended pregnancy and sexually transmitted diseases, including HIV infection; (5) unhealthy dietary behavior; and (6) inadequate physical activity.

In all, 1409 students, grades 7 to 12 from six secondary schools in Bangkok, Thailand, participated in the study. Their mean age was  $14.9 \pm 1.8$  years, and 54% were female. Data sets were analyzed using the SPSS for Windows, version 14.0 statistical software program. Resilience scores ranged from 72 to 161 with a mean of 125.55 and standard deviation of 11.44. There were significant positive and negative relationships between resilience and various risk-taking behavior ( $p < 0.5$ ). Risk-taking behavior occurred at all grade-levels studied (Grade 7-12) and both males and females reported participating in a variety of risk behavior.

Overall findings from this study provided more understanding of risk-taking behavior and its relationship with resilience among Thai adolescents. The recommendations for implementation and further studies were discussed.

## CHAPTER 1

### Background and Significance

Adolescence is a difficult period for children during which they experience dramatic physical, emotional, psychological, and social changes. Adolescence usually involves a period of experimentation, with importance attached to being a part of a peer group and peer pressure identification which contribute heavily to behavioral habits (Berk, 1996; Durkin, 1995; Erikson, 1963). These changes can be daunting to the extreme and often create a life-style leading to various types of risky behavior including smoking, drinking, drug abuse, and unhealthy sexual practices. The environment in which adolescents live can create an atmosphere conducive to such risky behavior representing increased threats to their health and well-being. For example, in 2001 approximately three-fourths of all deaths in the United States among persons ages 10-24 years resulted from four major causes: motor vehicle crashes, other unintentional injuries, homicide, and suicide (CDC, 2002).

Risk-taking behavior may fulfill the evolving needs of adolescents for autonomy, mastery and intimacy. In addition, once risky behavior is established during adolescence and young adulthood, its negative potential consequences often serve as major contributors to health problems during adult life (Igra & Irwin, 1996). Trends indicate that adolescents' risk-taking behavior may become increasingly problematic in the future (DiClemente,

Hensen, & Ponton, 1996) thus increasing one's chance of early morbidity and mortality (Adler, Kegeles, & Genevro, 1992; Ministry of Public Health, 1999). Garnezy (1993) observed that the values of an exciting life and pleasure are related to an increase in high risk-taking behavior, while the value of good health relates to a decrease in such behavior.

Numerous epidemiological studies find that risk-taking behavior does not occur in isolation; rather it tends to cluster in a somewhat predictable way (Felner, 1991; Rutter, 1988). Many studies concentrate on various behavioral problems, for example, stealing, fighting, risky sexual behavior, drugs and alcohol use, and smoking, among others. Rarely do any of these problems exist in isolation; rather, the same individual often manifests multiple problems simultaneously (Costello, Erkanli, Federman, & Angold, 1999; Jensen et al., 2001; Nagin & Tremblay, 1999; Praisri, 2001; Sornsri, 1998; Wilens, Biederman, Mick, Farone, & Spencer, 1997). Over time, involvement in one type of risky behavior has also been found to increase the likelihood of becoming involved in other risky behavior (Brener & Collins, 1998; Irwin & Shafer, 1992).

Most adolescents engage in several types of risk-taking behavior. This is demonstrated in various adolescent population groups (Farrell, Anchors, Danish, & Howard, 1992; Koopman, Rosario, & Rotheram-Borus, 1994; Milstein et al., 1992; Moon & Henry, 2001; Praisri, 2001; Sornsri, 1998). In the United States, results from the 2003 National Youth Risk Behavior Surveillance demonstrated that during the 30 days immediately preceding the survey, 30.2 % of adolescents had ridden with a driver who had been drinking alcohol; 17.1 % had carried a weapon; 44.9 % had drunk alcohol; and 22.4 % had used marijuana. During the 12 months immediately preceding the survey,

33.0 % of high school students had been in a physical fight, and 8.5 % had attempted suicide. Moreover, the survey results showed that 37 % of sexually active students had not used a condom during their last sexual intercourse; 21.9 % of high school students had smoked cigarettes; 3.2 % had injected an illegal drug; 33.4 % had participated in an insufficient amount of physical activity; and 13.5% were overweight (CDC, 2004). The 2001 Youth Risk Behavior Survey of Albemarle County middle and high school students in Virginia found that during the 30 days immediately preceding the survey, 4.9% of middle school and 9.8% of high school students had carried a weapon on the school property; 9.7% of middle school and 29.6% of high school students had smoked cigarettes; and 7% of middle school and 30% of high school students had used marijuana. During the 12 months immediately preceding the survey, 19.3% of middle school and 13.4% of high school students had been in a physical fight on school property; and 33.3% of middle school and 33.5% of high school students had had their property stolen or deliberately damaged on school property. Additionally, 26.9% of middle school and 59.2% of high school students had tried smoking cigarettes; 39.3% of middle school and 74.7% of high school students reported having had at least one drink of alcohol during their lifetime; and 14.8% of middle school and 40% of high school students reported having had sexual intercourse during their lifetime (Moon & Henry, 2001).

Efforts in Thailand to become a newly industrialized country have created major societal changes, some of which are not in the best interests of the country including risk-taking behavior among her urban youth. Among the rapid socio-economic changes in Thailand, the family structure especially in urban areas has shifted from the extended

family to a nuclear family consisting of father, mother, and their children. Moreover, since both parents are often required to work in order to finance the family's material needs, they have less time for their children. This means that their love for their children is often expressed by the providing them with material goods and money. Too often, urban children lack someone with whom they can consult when having problems. Good role models are also lacking. The children have no direction in life and are easily influenced by their peers, and social and economic conditions around them can lead them to engage in risky behavior (Department of Mental Health, 2004; Ministry of Public Health, 2005).

Research conducted in 2001 with adolescents living in Bangkok, the major metropolitan area of the country, documented the extent to which they engaged in risk-taking behavior. The research included 1825 students from eight secondary schools (grades 7 to 12); 426 teenagers from 13 communities in the Bangkok metropolitan area; and 60 teenagers from the male and female Juvenile Home Institutions (JHI). A modified version of the U.S. Youth Risk Behavior Survey Form was used to collect data for the months of January and February 2001. The mean and standard deviation of participants' age were 15.5 and 1.8 years, respectively. The research findings follow (Ruangkanchanasetr, S, Plitponkarpim, Hetrakul, & Kongsakon, 2005):

- Potential for serious traffic crashes: During the six months immediately preceding the survey, 30.6% rarely or never wore a seat belt; 66.9% rarely or never wore a helmet while bicycling and 50.1% rarely or never wore a helmet while motorcycling. During the 30 days immediately preceding the



survey, 18.8% had ridden with a driver who had consumed alcohol; and 12.1% drove vehicles after consuming alcohol.

- Violence: 8.5% carried a weapon; and 7.1% had felt insecure on the way to school during the 30 days immediately preceding the survey.
- Assaults: 13.9% had been physically assaulted of whom 6.7% required hospitalization; 2.4% had been raped.
- Depression: During the 12 months immediately preceding the survey, 19.9 % suffered from depression with 12 % reporting suicidal tendencies; and 8% attempted suicide.
- Sexual activity: 10% reported having had sexual intercourse, of whom 7% had never used a condom; 2.1% became pregnant; and 1% reported sexual intercourse with the same gender.
- Drug and substance abuse: 5.4% reported smoking; 37.3% reported using alcohol; 37.8% reported amphetamine use; and 37.9% reported using other drugs.

A report in 2003 by the Population and Social Research Institute of Mahidol University and Thai Health Promotion Foundation which summarized findings from various Thai studies indicated that, among the 15.8 million people in the 10-24 year-old age group representing approximately 25% of the total population of 63.3 million people (Kanjanchittra et al., 2004):

- 1.5 million smoked regularly;
- 20,000 had been treated for drug abuse;

- more than 8,000 were found to be HIV-positive;
- approximately 6,000 suffered complications from abortion;
- 4 million never exercised or engaged in sports activities; and
- approximately 4,000 died from traffic crashes during that year.

These studies clearly demonstrate the extent to which young Thais engage in risky behavior and the consequent need to identify resilience factors which can be used to effectively address such behavior. Most risk-taking behavior is voluntary and threatens the well-being of adolescents, thereby limiting their potential for becoming responsible adults. Many others, although facing similar problems, are able to avoid them (Masten & Coatsworth, 1998). Their ability to do so has been defined as *resilience* (Brooks-Gunn & Paikoff, 1993; Grotberg, 1995b, 1995c, 1996; Perkins, Luster, & Villarruel, 1998; Small & Luster, 1994; Stronski, Ireland, Micaud, Narring, & Resnick, 2000). Resilience is an increasingly popular concept for research and application in preventing risky behavior in high-risk individuals (Kumpfer, 1999). Specifically, there is a growing interest in utilizing resilience techniques/approaches in addressing the risky behavior of adolescents (Aronowitz & Morrison-Beedy, 2004; Lindenberg et al., 1998; Rew & Horner, 2003; Rouse, Ingersoll, & Orr, 1998). Research on resilience demonstrates that it has been defined by different researchers as virtually all internal and external variables, transactional and moderating or mediating variables which affect an adolescent adapting to everyday life.

### *Conceptual Framework*

In summarizing the concept of resilience from data of the International Resilience Research Project in which individuals from 30 countries, including Thailand, participated, Grotberg defines resilience as “the human capacity to face, overcome and be strengthened or even transformed by the adversities of life” (Grotberg, 1997, Clarifying the vocabulary of resilience, para. 1). To overcome adversities, children draw from three sources of resilience features labeled: “I HAVE,” “I AM,” and “I CAN.” The “I HAVE” factors are the external supports and resources that promote resilience. The “I AM” factors are the child's internal, personal strengths: feelings, attitudes, and beliefs within the child. The “I CAN” factors are the child's social and interpersonal skills. Children learn these skills by interacting with others and from those who teach them. Research conducted and reported by Grotberg (1999; 2001; 2003) tested the conceptual framework that individuals, families and groups would use identifiable resilience factors as they responded to a structured situation of adversity and as they reported on their responses to a personal or group experience of adversity. Inherent in the conceptual framework of resilience is the fact that humans have a recognizable psychological growth and development sequence: i.e., trust, autonomy, initiative, identity, and intimacy (Erikson, 1963). For example, in terms of resilience, a 2-year-old child, who is becoming aware of being separated from others, is not able to solve interpersonal problems that require further development. In terms of *adolescents*, who are at the psychological developmental stage of identity, their concerns are to answer such questions as: Who am I? What are my new relationships with

my parents? How do I compare to my classmates? What is my future going to be? It is in answering these questions and being confused about role identity that some adolescents take risks that endanger their development and, indeed, may create serious behavior problems, requiring attention from family and society.

If, however, resilience can be promoted in Thai adolescents living in urban areas, the assumption is that they will be able to avoid risk-taking behavior by drawing on external support, inner strengths, and interpersonal and problem-solving skills. Resilient people address adversity more successfully than those who are not resilient. Resilient people trust and enjoy secure attachments to others, confident that others will be there for them. They thus seek and find emotional support and are confident of their right to such support. They relate to others in a positive manner and have the ability to see humor in difficult situations. They also discuss difficulties with people whom they trust and respect. Such traits help children to develop relationships and a network of support from others they can draw on when difficulties arise. Such relationships serve as a buffer during adversity and create opportunities for positive interaction, messages and experiences. The ability to find and make use of social support outside of the family also improves communication skills and problem-solving ability. Werner and Smith (1992) found that the positive personal characteristics (self-esteem and easy temperament, for example) of the resilient child were also major predictors of positive outcomes. Rutter (1985) indicated that some adolescents who face adversity in their life are still able to have positive outcomes. Therefore, those adolescents who have higher resilience would have less tendency to engage in risk-taking behavior whereas those who live in an adverse

environment and have the fewest resilience factors are at the highest risk for developing problems (Rogers, 1997). Aronowitz and Morrison-Beedy (2004) as well as Kittivongvisut (2001) note that there is a negative correlation between resilience and risk-taking behavior. Gordon Rouse, Ingersoll, and Orr (1998) found that resilient adolescents were less likely than non-resilient adolescents to initiate a variety of risky behaviors. Also, Flay and Weeks (1993) found that, in general, adolescents with higher resilience and higher self-esteem were more likely to abstain from sexual activity and to use condoms when they have sexual intercourse. A study of resilience among children in the eastern part of Thailand found that resiliency ameliorated some children's negative behavior, such as stealing and lying (Somchit, 1998). Lhimsoonthon (2000) found that adolescents living in the slum areas in Bangkok who were more resilient had significantly less drug-use behavior. A better understanding of the relationship between resilience and risk-taking behavior is required if actionable steps can be realized to address risk-taking behavior among Thai adolescents.

#### *Study Purposes*

This study has the following purposes:

1. To identify the personal characteristics, resilience factors, and trends for engaging in risk-taking behavior by Thai adolescents living in Bangkok, Thailand.
2. To identify the ages of participants in their initial use of tobacco, alcohol, and marijuana, and when they first engaged in sexual intercourse.

3. To explore differences in risk-taking behavior by school grades and gender.
4. To determine the relationships among resilience, risk-taking behavior and personal characteristics of the participants involved in the study.

### *Research Questions*

The study seeks answers to the following questions:

1. What are the trends regarding engaging in risk-taking behavior by Thai adolescents who are students in grades 7 through 12 living in Bangkok for: (a) behaviors that contribute to unintentional injuries and violence; (b) tobacco use; (c) alcohol and other drug use; (d) sexual behavior contributing to unintended pregnancy and sexually transmitted diseases, including human immunodeficiency virus infection; (e) unhealthy dietary behaviors; and (f) inadequate physical activity?
2. At what age do participants report the first time use of smoking cigarettes, drinking alcohol, using marijuana, and engaging in sexual intercourse?
3. What are the differences among gender and grade subgroups in various risk-taking behaviors?
4. What is the relationship between resilience, personal characteristics and risk-taking behavior among Thai adolescents living in Bangkok, Thailand?

### *Hypotheses*

The study hypotheses are as follows:

1. Statistically, there are significant differences among gender and grade subgroups in various risk-taking behaviors.
2. Statistically, there is a significant relationship between resilience and risk-taking behavior among Thai adolescents living in Bangkok, Thailand.

### *Definitions of Terms*

The following definitions are used in this study:

#### *Adolescents*

Adolescents are youths ranging in age from 11-19 years old.

#### *Personal Characteristics*

Personal characteristics include age, gender, grade level, ethnicity, financial status, family atmosphere, living alone or with others, grades in school, and spending time with friends after school without an adult present.

#### *Resilience*

Resilience is defined as those factors that adolescents may use to overcome any risk-taking behavior they face. Grotberg's three dimensions of resilience--I HAVE, I AM, and I CAN-- are used for this study. Resilience can be measured by the total score of the State-Trait Resilience Inventory (STRI) developed by Hiew, Mori, Shimizu, and Tominaga (2000).

### *Risk-Taking Behavior*

Risk-taking behavior is defined as volitional behavior in which the outcomes remain uncertain but with the possibility of an identifiable negative health outcome (Irwin, 1993) including: (a) behaviors that contribute to unintentional injuries and violence; (b) tobacco use; (c) alcohol and other drug use; (d) sexual behavior resulting in unintended pregnancy and sexually transmitted diseases, including HIV infection; (e) unhealthy dietary behaviors; and (f) inadequate physical activity.

Risk-taking behavior can be measured by the Risk-taking Behavior Questionnaire for Thai Adolescents which the researcher modified from the Youth Risk Behavior Survey (YRBS), (CDC, 2003).

The following definitions are based on those by the CDC which are included in the Youth Risk Behavior Survey (CDC, 2004):

#### *Lifetime Cigarette Use*

Participants had tried cigarette smoking one or more times during their lifetimes.

#### *Current Cigarette Use*

Participants had smoked cigarettes on one or more of the 30 days immediately preceding the survey.



*Current Frequent Cigarette Use*

Participants had smoked cigarettes on more than twenty of the 30 days immediately preceding the survey.

*Lifetime Daily Cigarette Use*

Participants had ever smoked one or more cigarettes every day for 30 days.

*Lifetime Alcohol Use*

Participants had had one or more drinks of alcohol on one or more day during their lifetimes.

*Current Alcohol Use*

Participants had had one or more drinks of alcohol on one or more of the 30 days immediately preceding the survey.

*Episodic Heavy Drinking*

Participants had had five or more drinks of alcohol in a row (i.e., within a couple of hours) on one or more of the 30 days immediately preceding the survey.

*Lifetime Drug Use*

Participants had used marijuana or yaba (methamphetamine), cocaine or glue or heroin, or yae (ecstasy) one or more times during their lifetimes.

*Lifetime Illegal Injection-Drug Use*

The participants had used a needle to inject any illegal drug into their body one or more times during their lifetimes.

*Lifetime Glue Use*

The participants had sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high one or more times during their lifetimes.

*Current Drug Use*

The participants had used marijuana, yaba (methamphetamine), cocaine, glue, heroin, and yaae (ecstasy) one or more times during the 30 days immediately preceding the survey.

*Currently Sexually Active*

The participants had had sexual intercourse during the 3 months immediately preceding the survey.

## CHAPTER 2

### Literature Review

#### *Thailand*

Thailand, approximately twice the size of the state of Wyoming, is located in Southeast Asia bordering the Andaman Sea and the Gulf of Thailand. The country obtained independence in 1239 and has never been colonized although Japan was supported during World War II. Neighboring countries include Malaysia, Laos, Cambodia, and Burma (see Figure 1).

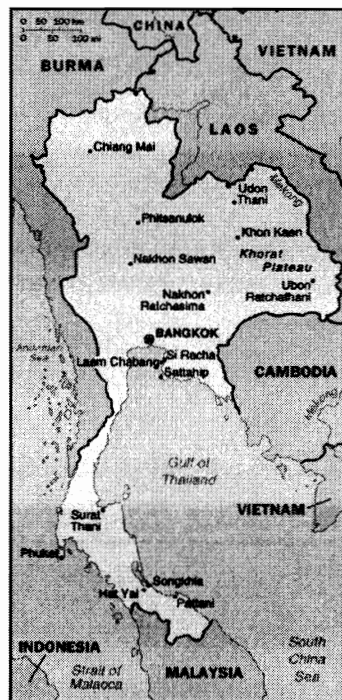


Figure 1. Thailand Map.<sup>1</sup>

<sup>1</sup>From "The World Factbook," by The Central Intelligence Agency, 2005, Retrieved July 21, 2005, from <http://www.cia.gov/cia/publications/factbook/geos/th.html>

The country's climate is tropical with three different weather patterns: (a) warm, with cloudy southwest monsoons from mid-May to September; (b) dry, with cool northeast monsoons from November to mid-May; and (c) consistently hot and humid in the southern isthmus.

The country's population is approximately 65 million broken down into the following age groups:

- 0-14 years, 23.9%;
- 15-64 years, 68.6%; and
- 65 years and older, 7.5%

Other relevant facts about the country's population include the following:

- Annual population growth, 0.93% annually;
- Infant mortality rate, 20.46 deaths per 1000 live births;
- Life expectancy at birth, 71.57 years;
- Ethnicity: Thai, 75%; Chinese, 14%; other, 11%;
- Religion: 94.62%, Buddhists; 4.6%, Muslims; 0.7%, Christians; and 0.1%, other; and
- Language: principally Thai with English as the second language, especially among the elite.

Thailand is a constitutional monarchy headed by His Royal Majesty, King Bhumibol Adulyadej. The parliamentary form of government is used at the national level to govern and guide the day-to-day public operations of the country. The government, officially referred to as the Royal Thai Government, is headed by a prime minister selected

from among the majority of elected members of the lower house. The country is divided into 76 changwads (provinces), each of which is headed by a governor who is appointed by the central government. Bangkok is the nation's capital and the seat of government, with a population of almost 8 million. The gross national product is comprised of 39% from industry, 12% from agriculture, and 49 % from services, the majority of which is made up of the tourist industry. Major exports include computer parts, textiles and rice with the United States receiving over 22% of Thailand's exports. From 1985 to 1995, Thailand enjoyed the world's highest economic growth rate of almost 9% annually. This spectacular rate of growth came to a halt due to speculation in the national currency, the baht, which led to a financial and economic crisis in 1997. However, the government, by instituting a series of reforms, was able to resume economic growth in 1999 although not at the earlier rate (The Central Intelligence Agency, 2005).

### *Bangkok*

Bangkok has not only the largest population of any jurisdiction, but also serves as the principal economic and financial hub of Thailand. These facts, compounded by unplanned and uncontrolled growth as is the case for the city, contribute substantially to risky behavior among young people. Slum areas have accelerated; the traditional family structure has weakened; and the availability of illegal substances and drugs has increased. Trying to keep up with their peers--the so-called modernization effect-- has led too many youths to adopt habits and practices which are not in their best interests nor those of Thailand. These include smoking, using marijuana and other illegal substances;

unprotected sex with unintended sexual diseases including human immunodeficiency virus (HIV) infection; pregnancies; and drinking alcohol, among others (The Central Intelligence Agency, 2005). For these reasons, Bangkok has been selected as the principal focus for a study of risky behavior practices among Thailand's urban youth. This study, more specific and detailed than earlier studies, is designed to identify specific risk-taking behaviors and their correlations with resilience, which ultimately may be used to counteract and overcome such behavior.

### *Adolescence*

The term "*adolescence*" comes from the Latin verb "*adolescere*," which means "to grow up" or "to grow to maturity" (Dusek, 1991, p. 4). Adolescence can be defined from several different developmental perspectives as the following.

Adolescence can be seen as *a chronological age*. The World Health Organization defines adolescents as those individuals between the ages of 10-19 years. This definition was adopted at the South Asia Conference on Adolescents in 1998 and followed by most other organizations of the United Nations (WHO, 2005). Others offer different definitions. For example, Gemelli (1996) defines adolescents as persons between 12 and 19 years old. Rew (2005) points out that adolescence is viewed as consisting of three general development stages: (a) early adolescence, from 10-13 years old; (b) middle adolescence, from 14-17 years old; and (c) late adolescence, from 18-21 years old.

Adolescence has also been defined according to *physical criteria*, with puberty taken as the starting point. Puberty marks a phase in human development that is characterized by the individual's ability to reproduce sexually. Pubertal changes are controlled by pituitary hormones which lead to rapid changes in body composition, size and shape. These changes result in the development of mature secondary sexual characteristics (e.g., beard in males, breast enlargement in females) and maturation of genitalia, with concurrent processes of ovulation and spermatogenesis (Plant, 2002). Muuss (1990) states that sex hormones cause a rapid increase in adolescent height. In adolescent females, breasts and hips begin to enlarge, menses begin, and pubic and axillary hair appears. For boys, changes in the testes and scrotum and the appearance of pubic hair are among the first noticeable signs. At the beginning of adolescence, accumulation of body fat begins to differ from that of childhood, especially in female adolescents, in whom thick fat in the breast, the upper arm, the hip, and the calf appear which prepares the female body for childbirth (Muuss, 1990). Adolescents can become preoccupied with body image and physical attractiveness, particularly in relation to their peers or in relation to media models or ideals. They may be early-or late-maturing and, in being one or the other may experience particular problems, e.g., fears and doubts about what is normal development for their age. Additionally, they may engage in risky behavior and be catapulted into early adulthood (Nicolson & Ayers, 1997). In adolescence, the physiological maturity of puberty within a social context influences behavior and health in a variety of ways. Harrel, Bangdiwala, Deng, Webb, & Bradley (1998) found that experimental smoking was significantly related to pubertal development.

Specifically, children who were at a more mature level of pubertal development were more likely to experiment with smoking. Wichstrom (2001) examined the relationship between the timing of puberty and selected health risk behaviors, i.e., alcohol use and intoxication, sexual behavior, and substance use. His findings showed that the early timing of puberty was associated with increased alcohol use, especially among males.

In terms of *psychological development*, Erikson (1968) states that adolescence is a period during which individuals must form a personal identity and avoid role diffusion and identity confusion. Each adolescent must address a number of identity questions: “Where do I originate from?” or “Who am I?” and “What do I want to be?” The goal is to achieve an integrated synthesis of one’s past, present and future which, together, contribute to an adolescent identity. This identity is also the product of reciprocal interaction between the individual and significant others, i.e., peer groups and role models. The adolescent also needs to come to terms with physical changes and sexual desire. If personal identity is poorly formed the risks of delinquency and *psychological problems* are exacerbated. These problems can emerge due to past difficulties with mistrust, shame, doubt, guilt, and feelings of inferiority.

For *cognitive development*, according to Piaget’s Theory of Formal Operations, adolescence should be in the formal operational stage, which means that adolescents should be able to reason logically and abstractly, consider hypothetical possibilities, and engage in problem-solving activities. They should also have the ability to compare themselves with their peers and to what they perceive as ideal standards. This may lead them to become self-conscious and can adversely affect their self-esteem, particularly with



regard to their own perceived lack of physical attractiveness. Low self-esteem may contribute to particular problems, e.g., loneliness, depression, suicide, anorexia, and conduct disorders (Gumbiner, 2003; Moshman, 1999; Nicolson & Ayers, 1997; Piaget, 1972).

In studying *social development*, Steinberg (1993) found that perhaps no aspect of adolescence provokes as much anxiety among adults as the presumed power of the peer group over young people's values and behaviors. Given that adolescents spend more time with their friends and less time with their parents than they did as young children, the concerns of adults about the influence of friends are understandable.

Given the definitions just spelled out, adolescents are those individuals in a developmental period of rapid physical, psychological, socio-cultural, and cognitive changes which can lead to negative behaviors and contribute to their engaging in high risk-taking behavior.

### *Risk*

The concept of "*risk*" originated in the fields of commerce and insurance. Centuries ago, merchants who faced frequent disasters in shipping their goods across the seas wanted to estimate the risk of losing their cargo in order to insure them against potential loss. Gradually, individual bargaining and haggling about the odds of disaster and the cost of protection gave rise to the insurance industry, which relied on actuarial data concerning mortality and other natural catastrophes that affect sailors and their ships (Cowan, Cowan & Schulz, 1996).

“*Risk*” has been defined in various ways. A Dictionary of Epidemiology defines risk as the probability that an event will occur, e.g., that an individual will become ill or die within a stated period of time or specified age (Last, 1995). Harper (1986) provides a medical definition based on the association between disease and some attributes of risk factors. A risk factor implies association and not causation; for example, irradiation, asbestos, or cigarettes are not causative agents. A risk factor, in contrast to the cause of a disease, does not explain why the disease has developed, or why some individuals exposed to the risk factor do not become ill. Harper notes that some risks are also considered acceptable risks. For example, flying in a plane can be dangerous, but the risk of a plane crash is infinitely lower than the risk of a car crash which most people accept as a normal part of everyday life. The mere presence of a risk is not the same as the presence of disease. More relevant to the present discussion is the risk of illness or death resulting from internal (psycho-behavioral) or external (socio-environmental) causes.

The word “risk” has appeared often in the nursing and medical literature in the last 20 years. Skolbekken (1995) identified a “risk epidemic” in medicine that emerged in the 1980s. This epidemic refers to a dramatic surge in the medical literature of references containing “risk(s)” in the title, abstract, or both. The most notable increase was found in epidemiologic journals. Studies of risk perception, health behavior modifications, health education, and risk communication in the social sciences also have contributed to the “risk epidemic.”

Rodgers (1993) observed that attributes constitute the real definition of a concept and are identified by analyzing the literature for recurrent dimensions or categories of the

concept. Although “hazard” is used interchangeably with “risk” in some literature, hazard implies the existence of some threat, whereas risk implies both the existence of a threat and potential for its occurrence (Peters, 1994; Rowan, 1996). “Danger,” “hazard,” “probability” (odds ratio), “uncertainty,” and “ambiguity” are the descriptive terms identified in the literature that discusses risk. These terms constitute the attributes of the risk concept that were synthesized from the literature reviewed.

The meaning of the word “risk” has changed throughout history. Nevertheless, it is not entirely clear that the various acknowledged elements of risk can be consistently aggregated to form an overall definition. Currently, the presence of uncertainty and adversity are relevant and necessary aspects of our view of risk (Palmer & Sainfort, 1993). A synthesis of the literature reviewed leads to the conclusion that the concept of risk can be defined today as the probability of an adverse, unpleasant, or dangerous event occurring, or the potential realization of unwanted consequences of an event (Cohen & Frank-Stromborg, 1997; Frank-Stromborg, Heusinkveld, & Rohan, 1996; Palmer & Sainfort, 1993). By defining risk, we can look further at behavior that leads to risk-taking.

### *Risk-taking Behavior*

Risk taking is increasingly used to describe patterns of behavior which are responsible for the majority of negative health outcomes occurring in the second decade of life. Such behavioral patterns are usually initiated during adolescence. With risk defined as the chance of loss, risky behavior has been characterized as that which entails the possibility of subjective loss (Furby & Beyth-Maron, 1990). Risk behaviors are voluntary

behaviors that threaten the well-being of adolescents and limit their potential for achieving responsible adulthood (Elliott, 1993; Resnick & Burt, 1996). Such behavior also is commonly referred to as “problem behavior” (Jessor & Jessor, 1977).

Irwin (1990) stated that the ability to identify adolescents who may initiate health-damaging behaviors during adolescence requires a basic understanding of the mortality and morbidity patterns of the second decade of life; how adolescents interact with the environment; and the concepts adolescents associate with risk. Irwin (1993) noted that behaviors associated with some of the major mortalities and morbidities of adolescents share a common theme: risk-taking, which he defines as volitional behavior in which the outcomes remain uncertain, with the possibility of an identifiable negative health outcome. Adolescents with limited or no experience engage in risky behavior with anticipation of benefits and without understanding of either the immediate or long-term consequences of their actions.

Risk-taking behaviors and their associated adverse health outcomes represent a serious threat to adolescents’ health. Unfortunately, risk behaviors are likely to cluster. Adolescent risk behaviors are correlated; that is, engaging in one behavior may indicate an increased likelihood for engaging in other behaviors or patterns of risk behavior (DiClemente, Hensen, & Ponton, 1996; Dryfoos, 1990, 1991; Irwin & Shafer, 1992). Empirical evidence for this phenomenon follows.

Millstein et al. (1992) found the co-occurrence of risk behavior among early adolescents. Those who were sexually active were more likely than their non-sexually active peers to report driving or riding in cars under the influence of substances.

DuRant, Smith, Kreiter, and Krowchuk (1999) studied the relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. A modified version of the CDC Youth Risk Behavior Survey was administered to 2227 sixth through eighth grade students attending 53 randomly selected middle schools in North Carolina. A Health Risk Behavior Scale was constructed from 16 behaviors, including indicators of violence and weapon carrying; current substance use; nonuse of helmets when biking, in-line skating or skateboarding; not wearing a seat belt; and riding with a driver who had been drinking alcohol; and suicide plans. Results showed that of the 16 variables, middle school students in this sample reported engaging in an average of four health risk behaviors. The percentage of students who reported engaging in substance use at age 11 years or younger was 45.9% for alcohol, 25% for cigarettes, 5.8% for marijuana, and 1.7% for cocaine. These same students also reported engaging in a significantly greater number of health risk behaviors than students whose ages at the onset of using these substances were 12 years or older or students who reported never using these substances.

Lindberg, Boggess, Porter and Williams (2000) conducted a study on adolescent risk-taking on behalf of the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. The data and discussions were based on analyses of three recent national surveys: the Youth Risk Behavior Survey (YRBS), the National Survey of Adolescent Males (NSAM), and the National Longitudinal Study of Adolescent Health (Add Health), which provide data on 10 risk behaviors. These include regular alcohol use, regular binge drinking, regular tobacco use, marijuana use, other

illegal drug use, fighting, weapon carrying, suicidal thoughts, suicide attempts, and risky sexual activity. In total, 28% of students participated in multiple risk behaviors, that is, two or more of the 10 behaviors under study. When evaluating multiple-risk-taking by type of behavior, at least 75% of students who engaged in one risk behavior also engaged in another. For example, among the 11% of students reporting regular tobacco use, 85% were multiple risk-takers. Among the 6% of students who carried weapons at school, 89% were also involved in at least one additional risk behavior. The share of highest-risk students -- those involved in five or more risk behaviors -- did not change from 1991 to 1997. Throughout this period, about 16% of all students participated in five or more health risk behaviors. Within this group, the average number of health risk behaviors remained fairly stable. The share of students engaging in multiple risk behaviors increased by grade level. Among students in grades 7 and 8, 19% engaged in two or more risk behaviors, with the percentage rising to 30% among 9th and 10th graders and to 36% among 11th and 12th graders.

This study used Irwin's (1993) definition of risk-taking behavior, which is volitional behavior in which the outcomes remain uncertain with the possibility of an identifiable negative health outcome. Risk-taking behaviors of interest in this study include:

1. Behaviors that contribute to unintentional injuries and violence;
2. Tobacco use;
3. Alcohol and other drug use;

4. Sexual behavior contributing to unintended pregnancy and sexually transmitted diseases, including HIV infection;
5. Unhealthy dietary behavior; and
6. Inadequate physical activity.

The following literature review concentrates principally on these risk-taking behaviors in the United States and in Thailand.

#### *Behaviors that Contribute to Unintentional Injuries and Violence*

Aggressive and violent behavior is a significant public health problem worldwide. A cross-national study of violence-related behaviors in adolescents determined and compared frequencies of adolescent violence-related behavior in five countries -- Ireland, Israel, Portugal, Sweden, and the United States -- and examined associations between violence-related behavior and potential explanatory characteristics. Results show that the frequency of fighting among U.S. youth was similar to that of all five countries (non-fighters: U.S. = 60.2%; mean frequency of five countries = 60.2%), as were the frequencies of weapon carrying (non-carriers: U.S. = 89.6%; mean frequency of five countries = 89.6%) and fighting injury (non-injured: U.S. = 84.5%; mean frequency of five countries = 84.6%). Bullying frequency varied widely cross-nationally (non-bullies: U.S. = 60.8%; from 57.0% for Israel to 85.2% for Sweden). Fighting was most highly associated with smoking, drinking, feeling irritable or bad tempered, and having been bullied (Smith-Khuri, Iachan, Scheidt, Overpeck, Gabhainn, Pickett et al., 2004).

The U.S. 2003 Youth Risk Behavior Survey (CDC, 2004) showed that:

- Slightly more than eight percent (8.2%) of students had rarely or never worn seat belts when riding in a car driven by someone else. Overall, the prevalence of having rarely or never worn seat belts was higher among male (21.5%) than female (14.6%) students; and higher among 10th grade male (20.4%) and 12th grade male (21.1%) than 10th grade female (13.3%) and 12th grade female (10.9%) students. During the 30 days immediately preceding the survey, 30.2% of students nationwide had ridden in a car or other vehicle one or more times with a driver who had been drinking alcohol.

- Among the 62.3% of students nationwide who had ridden a bicycle during the 12 months immediately preceding the survey, 85.9% had rarely or never worn a bicycle helmet. During the 30 days immediately preceding the survey, 12.1% of students nationwide had driven a car or other vehicle one or more times after drinking alcohol.

- Almost nine percent (8.5%) of students had actually attempted suicide one or more times during the 12 months immediately preceding the survey. Overall, the prevalence of having attempted suicide was higher among female (11.5%) than male (5.4%) students.

- Slightly more than six percent (6.1%) of students had carried a gun on  $\geq 1$  of the 30 days immediately preceding the survey. Overall, the prevalence of having carried a gun was higher among male (10.2%) than female (1.6%) students. A total of 33.0% of students had been in a physical fight one or more times during the 12 months immediately preceding the survey. Overall, the prevalence of having been in a physical fight was higher among male (40.5%) than female (25.1%) students. Slightly more than four percent



(4.2%) had been in a physical fight one or more times during the 12 months immediately preceding the survey which resulted in injuries requiring treatment by a doctor or nurse. Overall, the prevalence of having been injured in a physical fight was higher among male (5.7%) than female (2.6%) students.

- During the 12 months immediately preceding the survey, 8.9% of students nationwide had been hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend (i.e., dating violence). Nine percent (9.0%) of students had been physically forced to have sexual intercourse when they did not want to do so. Overall, the prevalence of having been forced to have sexual intercourse was higher among female (11.9%) than male (6.1%) students.

In Thailand, the Verbal Autopsy Study on Causes of Death in Thailand which verified all cases of death within one year (1 July 1997 - 30 June 1998) indicated that the major cause of death among youth and young adults ages 15-24 years was from unintentional injuries, i.e., traffic crashes. The next most frequent causes of mortality were intentional injuries, mainly suicides and homicides, and acquired immunodeficiency syndrome (AIDS) (Chuprapawan et al., 2000).

*The Survey on the Rate of Safety Belt Use* among all driver categories in Thailand revealed that there was a rise in constant safety belt use from 4.3% in 1991 to 35.8 % in 1997, but usage decreased to 13.7 % in 2001. The percentage of people using safety helmets climbed from 29.0% in 1996 to 32.0% in 2000, but decreased to 12.3 % in 2001 (Ministry of Public Health, 2005).

In 2001, research was conducted among adolescents living in Bangkok, the major metropolitan area of Thailand, involving 1825 students from eight secondary schools (grades 7 to 12), 426 teenagers from 13 communities in the Bangkok metropolitan area and 60 teenagers from the male and female Juvenile Home Institutions (JHI) (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005). The results indicated that:

- During the 6 months immediately preceding the survey, 67% and 50.1% of surveyed adolescents, respectively, had rarely or never worn a bicycle helmet or a motorcycle helmet while riding, whereas 30.6% had rarely or never worn a seat belt when riding in a car. During the 30 days immediately preceding the survey, 18.8% of them had ridden with a driver who had been drinking alcohol and 12.1% had driven a car or other vehicle after drinking alcohol.

- During the 12 months immediately preceding the survey, 19.9% of adolescents had experienced depression. Regarding suicide, 12% had seriously considered attempting suicide, 15.9% had made a specific plan, and 8% had actually attempted suicide, of whom 1.7% had been hospitalized.

The 2001 study of secondary schools and vocational schools in the metropolitan area in northern Thailand found that 81.2% of students did not cross streets by using a walking bridge or crosswalk; 68.5% of students reported never using or only sometimes using a helmet when they rode a motorcycle; and 14.8% reported driving a car after drinking alcohol (Praisri, 2001).

### *Tobacco Use*

The U.S. 2003 Youth Risk Behavior Survey (CDC, 2004) showed that 58.4% of all students had tried cigarette smoking (i.e., lifetime cigarette use). Overall, the prevalence of lifetime cigarette use was higher among 10th grade (58.3%), 11th grade (60.0%), and 12th grade (65.4%) students than 9th grade (52.0%) students; higher among 11th grade (59.8%) and 12th grade females (65.9%) than 9th grade (50.9%) and 10th grade females (57.7%); and higher among 12th grade male (64.7%) than 9th grade male (53.0%) students.

In Thailand, approximately 42,000 people die each year from smoking-related diseases, which translates to 115 people a day, or approximately five people an hour. Studies have shown that smoking causes serious diseases: 90% of male lung cancer cases, 82% of esophageal cancer cases, and 80% of laryngeal cancer cases are associated with a history of smoking (Ministry of Public Health, 2005).

Since 2001, the approximate costs of treatment for lung cancer, coronary heart disease and chronic obstructive pulmonary disease (COPD) have surpassed the revenues obtained through tax collected on tobacco products. The cost – including that paid by patients and that provided by government medical institutions – of treating these three diseases in 2001 was Bt40.94 billion (approximately U.S. \$1.024 billion), compared with Bt40.72 billion (approximately \$1.018 billion) in revenue drawn from tobacco taxes. The study showed that the trend continues, with the gap between expenditures and revenues becoming greater. In 2003, treatment costs increased to Bt45.55 billion (approximately \$1.39 billion), while tobacco tax revenue was just Bt43.20 billion (approximately \$1.08 billion). Treatment costs are predicted to hit Bt53.67 (approximately \$1.34 billion) in

2007, when tobacco-tax revenues are expected to be only Bt48.63 billion (approximately \$1.22 billion) (Thai Health Promotion Foundation, 2005).

Although Thailand has laws to control the sale of tobacco products, and to protect the health of non-smokers, the number of smokers is still high. In 2001, a report released by the National Statistical Office indicated that 15.9% (1,822,100 people) of Thailand's young people ages 15-24 reported smoking. A report released in May 2004 shows that, in the overall picture, the number of smokers in Thailand is declining. However, both males and females ages 15-24 are highly likely to smoke, especially females. This finding corresponds to the WHO's forecast that the rate of female smokers in developing countries (in 2025) will increase from 8% to 20 %, while the rate of male smokers will decline from 60% to 45% (The Government Public Relations Department, 2004).

Sornsri (1998) stated that 22% of high school students in Bangkok reported smoking cigarettes. Furthermore, research conducted in 2001 with adolescents living in Bangkok showed that, among the 5.4% who had reported cigarette smoking, 90.4% of them were lifetime cigarette users; 6.1% of them smoked < 20 cigarettes/month, and 3.5% of them smoked > 20 cigarettes/month. Their motivations for smoking included peer influence (8.9%), parental influence (1.1%), and movie star influence (0.2%). Seven percent (7.0) had purchased their cigarettes by themselves, 4.2% had obtained cigarettes from their friends, and a few had obtained them by stealing (0.2%) or by physical assault (0.1%). Two-thirds of those who had smoked cigarettes had tried to quit smoking (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005). Additionally, the findings of the 2001 study of secondary schools and vocational schools in the metropolitan

area in northern Thailand found that 25.1% of students in high schools and vocational schools in a metropolitan area in northern Thailand had ever tried cigarettes and that 13.0% of those students were active smokers (Praisri, 2001).

### *Alcohol and Other Drug Use*

*Alcohol Use.* Alcohol use among adolescents represents a significant public health problem. Teen drinking is associated with a range of health and social problems (Treiman & Beck, 1996). Despite a gradual overall decrease in alcohol consumption, alcohol remains the most widely used and abused drug (Valois, Thatcher, Drance, & Reininger, 1997). Moreover, alcohol use is associated with early initiation of sexual intercourse, which increases the risk of sexually transmitted diseases and pregnancy (Alexander, 1991). Alcohol abuse is also associated with violence, dropping out of school, and the use of other drugs (Hawkins, 1996). The U.S. 2003 Youth Risk Behavior Survey (CDC, 2004) found that approximately three fourths (74.9%) of students had had one or more drinks of alcohol on  $\geq 1$  day during their lifetime (i.e., lifetime alcohol use).

During an earlier 10 year period, 1988 to 1997, alcohol consumption in Thailand increased from 721.8 million liters to 1,604.3 million liters, representing an increase of approximately 126%. Despite a decline during 1998 and 1999, alcohol consumption increased to 1,926.1 million liters by 2001. Furthermore, a survey conducted of alcohol users by the National Statistical Office found that the percentage of drinkers had increased from 31.5% in 1991 to 32.6 % of the total population in 2001. It also found that females in all age groups were highly likely to drink alcoholic beverages. A survey conducted by the Population and Social Research Institute, Mahidol University, showed that 30.8 % of

Thailand's young people between the ages of 15-24 consumed alcoholic beverages (Ministry of Public Health, 2005; Population and Social Research Institute, 1998). The 2001 report from the National Statistical Office indicated that 21.6% of country's young people ages 15-24 reported drinking alcohol and 29% of the same age group in Bangkok reported drinking alcohol at least once weekly.

Sornsri (1998) noted that 62% of high school students in Bangkok reported drinking alcohol while 4% reported using marijuana, inhalants or other illegal drugs. Research conducted in 2001 among adolescents living in Bangkok showed that of those 37.3% who had reported alcohol use, 42.1% were lifetime alcohol users, 56.1% were frequent drinkers (1-20 days of the 30 days immediately preceding the survey), and 1.7% were heavy drinkers (more than 20 days of the 30 days immediately preceding the survey). Teenagers drank alcohol for social purposes (33%), 3.8% drank alcohol with peers, and 2.4% drank alcohol alone when they had life problems. Regarding access to alcohol, two-thirds of the adolescents surveyed had purchased alcohol by themselves, 13.4% had obtained alcohol from their friends, 4.2% from others and 0.2% by stealing (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005). Additionally, the findings of the 2001 study of secondary schools and vocational schools in the metropolitan area in northern Thailand found that 48.5% of student had ever drunk alcohol (Praisri, 2001)

The U.S. 2003 Youth Risk Behavior Survey (CDC, 2004) reported the following for other drug use:

*Marijuana use.* Slightly more than forty percent (40.2%) of students had used marijuana one or more times during their life, i.e., lifetime marijuana use. Overall, the prevalence of lifetime marijuana use was higher among male (42.7%) than female (37.6%) students; 22.4% of students had used marijuana one or more times during the 30 days immediately preceding the survey (i.e., current marijuana use). Overall, the prevalence of current marijuana use was higher among male (25.1%) than female (19.3%) students.

*Cocaine use.* Almost nine percent (8.7%) of students had used a form of cocaine one or more times during their life (i.e., lifetime cocaine use). The prevalence of lifetime cocaine use was higher among 12th grade male (12.9%) than 12th grade female (7.9%) students; and 4.1% of students had used a form of cocaine one or more times during the 30 days immediately preceding the survey (i.e., current cocaine use).

*Inhalant Use.* Almost four percent (3.9%) of students had used inhalants one or more times during the 30 days immediately preceding the survey (i.e., current inhalant use). The prevalence of current inhalant use was higher among 10th grade male (4.3%) and 11th grade male (4.1%) than 10th grade female (2.6%) and 11th grade female (2.0%) students.

Thailand has experienced a long-term problem related to substance abuse. The manifestation of the problem has varied considerably from time to time. The illicit drug problem in Thailand, including the use and selling of amphetamines, is complicated by economic and social changes and is affecting local communities, business facilities and educational institutions.

The Academic Committee on Substance Abuse Network at the Office of the Narcotics Control Board of the Ministry of Justice (2003) analyzed the 2003 use of various substances by the user population in a national household survey. Responses related to the use of nine potentially addictive substances: ganja (marijuana), kratom (*Mitragyna speciosa*, an indigenous plant containing the mild stimulant mitragynine), opium, heroin, inhalants (benzene, paint thinner and glue), yaba (an illicit stimulant tablet with varying combinations of methamphetamine, ephedrine and/or caffeine), ecstasy, ketamine, and cocaine. Involved in the survey were 45,419,100 participants, ages 12 to 65 years old, residing in Bangkok, three provinces surrounding Bangkok, and 36 provinces located in the central, northern, northeastern, and southern regions of the country. Data collection took place between March and November 2003. Results showed that 3,155,500 persons, representing 6.9% of the targeted population, reported using at least one of the substances during their lifetime. Furthermore, the number of persons in the target population who used at least one of the substances within one year and 30 days immediately preceding the survey totaled 445,500 (1%) and 257,800 (0.6%), respectively. Table 1 provides more data with respect to the use of each the nine substances.



Table 1. Estimated Population and Percent of Total Population Ages 12-65 Years Using Illegal Substances within One Year and 30 Days Immediately Preceding the Survey in 2003<sup>1</sup>

Substance	Estimated population that used illegal substances x 1000(%)		
	Ever used	Used within 1 year	Used within 30 days
Yaba	1,094.0 (2.4)	83.8(0.2)	34.1(0.1)
Ecstasy	119.7 (0.3)	13.3(0.0)	7.4(0.0)
Ketamine	23.4 (0.1)	1.0(0.0)	0.04(0.0)
Cocaine	29.4 (0.1)	7.4(0.0)	1.0(0.0)
Marijuana	2019.1 (4.4)	83.4(0.2)	18.7(0.0)
Kratom	1160.0 (2.6)	344.7(0.8)	221.6(0.5)
Opium	323.7 (0.7)	0.6(0.0)	0.3(0.0)
Heroin	192.6 (0.4)	1.4(0.0)	-
Inhalants	477.9 (1.1)	21.2(0.1)	13.2(0.0)

<sup>1</sup>From: *The Academic Committee on Substance Abuse Network at the Office of the Narcotics Control Board of Ministry of Justice*, 2003, p.4.

Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon (2005) noted that 37.8% of adolescents in Bangkok had used at least one illegal drug during their lifetime. Heavy drug use was defined as using drugs >3 times within a 30 days period. Overall, 4.6% of adolescents reported having purchased drugs, while 2.7% reported they were involved in selling drugs. The frequency of purchasing drugs during the 30 days immediately preceding the survey was: 1–9 times (3%), 10–99 times (1.5%), and  $\geq 100$  times (0.1%). Motivation for drug use included peer influence (3.3%), parental influence (0.4%), and having been assaulted (0.2%). The majority of those adolescents (87.8%) knew of at least one method for preparing illegal drugs including tablets (85.1%), inhalants (79.5%), injections (76.3%), powder (74.4%), and smoking (62.5%). Additionally, the findings of the 2001 study of secondary schools and vocational schools in the metropolitan area in northern Thailand found that a minority of students had used illegal drugs: heroin (3.8%), inhalants (5.4%); amphetamine (6.9%); marijuana (8.3%) and other illegal drugs (3.6%) (Praisri, 2001).

### *Sexual Behavior*

Unhealthy sexual practices are a prime determinant in spreading sexually transmitted diseases, especially HIV. Data taken from the *2004 Thailand Country Profile, HIV/AIDS Situation in Thailand and National Response to the Epidemic*, indicated that from 1984 to January 31, 2004, there were a total of 317,065 AIDS and symptomatic HIV patients and 72,965 deaths (UNAIDS, 2005). By the end of March 2004, there were 236,099 AIDS patients and 86,466 with symptomatic HIV disease (Bureau of

Epidemiology, 2004). The data released by the Bureau of Epidemiology, Department of Disease Control indicated that during 1999-2002, 11% of all AIDS patients were adolescents. In 2003, approximately 16,000 adolescents, ages 14-15 years, had HIV infection. For other sexual transmitted diseases such as syphilis and gonorrhea, 32% of all infected patients who registered at public health hospitals were in the age group of 14-15 years old (Bureau of Epidemiology, Department of Disease Control, 2003).

The U.S. 2003 Youth Risk Behavior Survey (CDC, 2004) reported that:

- Almost half (46.7%) of students had had sexual intercourse during their lifetime; 7.4% of students had sexual intercourse for the first time before they were 13 years old.

- Approximately one third (34.3%) of students nationwide had had sexual intercourse during the three months immediately preceding the survey (i.e., they were currently sexually active).

- Over fourteen percent (14.4%) of students had had sexual intercourse during their lifetime with  $\geq 4$  sex partners. Overall, the prevalence of having had  $\geq 4$  sex partners was higher among male (17.5%) than female (11.2%) students.

- Among the 34.3% currently sexually active students, 63.0% reported that either they or their partner had used a condom during the last sexual intercourse. Overall, the prevalence of having used a condom during the last sexual intercourse was higher among male (68.8%) than female (57.4%) students.

- Seventeen percent (17%) of both male and female students reported either they or their partner had used birth control pills to prevent pregnancy before the last sexual intercourse. Overall, the prevalence of reporting birth control pill use before the last sexual

intercourse was higher among female (20.6%) than male (13.1%) students reporting use by their female partners. [Note: Table 44 included in the report of the U.S. 2003 YRBS provided percentage of currently sexually active participants who used a condom or birth control pills before last sexual intercourse to prevent pregnancy. Both females and males indicated that they used birth control pills. It is assumed that the male participants were reporting on the use of birth control pills by their female partners.]

- Almost ninety percent (87.9%) of students had been taught in school about acquired immunodeficiency syndrome (AIDS) or HIV infection.

In Thailand, an analysis (Isaranurak, 2000) of sexual behavior among children and youths ages 6-24 years who were attending educational institutions during the period of 1989-1999 found that:

- In Bangkok: Thirteen percent (13.2%) of male students and 0.85 up to 5.7% of female students reported having had sexual intercourse.

- Northeastern provinces: Approximately 16.0% up to 25.8% male students reported having had sexual intercourse, with the youngest age of first-reported sex being 12 years old. Almost one percent (0.5%-0.9%) of female students had sexual intercourse, with the youngest age reported of first having sex being 15 years old.

- Northern provinces: The percentage of male students who reported having had sexual intercourse was 13.4 up to 48.1% while 8.8% of female students reported having had sexual intercourse.

- Eastern and Central provinces: Approximately 21.2% to 23.2% of male and 5.6% to 15.2% of female students reported having had sexual intercourse.

- Southern region: In the survey of 624 students, grades 10-12, in Phuket Province, 24.7% of male and 5.0% of female students reported having had sexual intercourse.

The 2003 surveillance report of HIV infection-related behavior among 11th grade students in 20 provinces noted that 15% of male and 5.7% of female students had had sexual intercourse. Approximately 6.6% of male and 1.4% of female students had more than one sexual partner in the last year (Areechokchai et al., 2003).

In Bangkok, among the 10% of adolescents surveyed who had had sexual intercourse, 1% reported sex with a partner of the same gender; 6% had more than two partners during the 3 months immediately preceding the survey; 1.7% had used alcohol or drugs before sexual intercourse; 7% reported that they had never used a condom; and 2.1% had become pregnant. For those who practiced contraception, the methods used were birth control pills (2%), condoms (2.1%), injected contraceptives (2%), external ejaculation (1.4%), and spermicides (0.1%) (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005). Praisri (2001) stated that 23% of students in secondary and vocational schools in a metropolitan area in northern Thailand reported having had sexual intercourse. Among these, 67% reported not using a condom while 42.7% reported not using any birth control methods to prevent pregnancy, and 28.2% drank alcohol or used drug before having had sexual intercourse.

### *Unhealthy Dietary Behaviors*

The U.S. 2003 Youth Risk Behavior Surveillance (CDC, 2004) reported that:

- Approximately one fifth (22.0%) of students nationwide had eaten fruits and vegetables  $\geq 5$  times/day during the seven days immediately preceding the survey. Overall, the prevalence of having eaten fruits and vegetables  $\geq 5$  times/day was higher among male (23.6%) than female (20.3%) students; and higher among 9th grade male (25.3%) and 11th grade male (24.5%) than 9th grade female (21.2%) and 11 grade female (18.3%) students.

- Slightly more than seventeen percent (17.1%) of students had drunk  $\geq 3$  glasses/day of milk during the seven days immediately preceding the survey. Overall, the prevalence of having drunk  $\geq 3$  glasses/day of milk was higher among male (22.7%) than female (11.2%) students.

In Thailand, with rapid changes in the social and economic fabric of the country, including the influx of western culture, people's lifestyles are changing, in particular the culture of food consumption. A study conducted by Suwan et al. (1996) showed that youths, housewives and factory workers adopt unhealthy eating habits, regardless of nutritional risks. Increasingly, the major content of dietary intake includes high carbohydrates and sugar. For example, sugar intake per person increased from 12.7 in 1983 to 29.1 kilograms/person/year in 2001 (Ministry of Public Health, 2005).

A growing number of Thais tend to favor eating out and buying pre-cooked food from restaurants, fresh markets and street vendors. Not only are these foods expensive, but they also include incomplete nutrients and excessive calories, consequently causing nutritional problems such as obesity and high blood-fat levels. According to the 3rd and 4th National Nutrition Surveys, the prevalence of obesity increased in all age groups from 1986 to 1995 (Ministry of Public Health, 2005).

### *Inadequate Physical Activity*

The U.S. 2003 Youth Risk Behavior Surveillance (CDC, 2004) reported that:

- Almost sixty three percent (62.6%) of students had exercised or participated in physical activities that made them sweat and breathe hard (e.g., basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activity) for  $\geq 20$  minutes on  $\geq 3$  of the 7 days immediately preceding the survey (i.e., sufficient vigorous physical activity). Overall, the prevalence of having participated in sufficient vigorous physical activity was higher among male (70.0%) than female (55.0%) students; higher among 9th grade male (73.1%), 10th grade male (71.5%), 11th grade male (70.4%), and 12th grade male (63.7%) students than among 9th grade female (63.6%), 10th grade female (58.2%), 11th grade female (49.4%), and 12th grade female (46.4%) students.

- Approximately one-fourth (24.7%) of students had participated in physical activities that did not make them sweat or breathe hard (e.g., fast walking, slow bicycling, skating, pushing a lawn mower, or mopping floors) for  $\geq 30$  minutes on  $\geq 5$  of the 7 days immediately preceding the survey (i.e., sufficient moderate physical activity). Overall, the prevalence of having participated in sufficient moderate physical activity was higher among male (27.2%) than female (22.1%) students; and higher among 9th grade male (28.3%), 11th grade male (28.1%), and 12th grade male (26.3%) than 9th grade female (22.3%), 11th grade female (20.0%), and 12th grade female (20.0%) students, respectively.

In Thailand, the participation of the total population in physical activities increased from 21.3% in 1987 to 30.7 % in 1997 but decreased to 24.2 %t in 2001. Males were found to be more physically active than females. Urban people are also more physically

active than those living in the rural areas. Sports that people popularly favor include soccer, volleyball, aerobic exercises, and jogging. Most males prefer to play soccer and sepak takraw (a skill ball game which requires the use of the feet and head to keep the ball in the air in a targeted direction), while females usually play volleyball and perform aerobic exercises. More than 60 % of the population performed physical activity more than three days a week, with about 80% performing for more than 30 minutes each time (Ministry of Public Health, 2005).

The survey among Thai young adults aged 15-20 years showed that one third of adolescents were physically active on a regular basis, although females were two times less physically active than males. The Suan Dusit Poll conducted by the Rajabhat Suan Dusit Institute in 1998 also revealed that only 34.7% of Thais achieved the recommended amount of regular physical activity (Ministry of Public Health, 2005). The 2002 report of the National Statistical Office indicated that 13.9% of youth aged 15-24 years exercised only once a week, while 14.5% exercised every day (National Statistical Office, 2002).

### *Resilience*

A concept of resilience which has emerged from the field of psychopathology and child development focuses on those factors which explain how some individuals are able to maintain healthy lifestyles while others are not able to do so. This is true even though both groups of individuals face the same risks and adversities in their daily lives (Neiger, 1991).

A plethora of definitions of resilience has been developed over the last several years. Several of these are presented as follows.



Garnezy, Masten, and Tellegen (1984) provided a simplified definition when, in one of their earlier projects, they described resilience as manifestations of competence in children despite exposure to stressful events.

Rutter (1985) defined resilience as facing stress at a time and in a way that allows self-confidence and social competence to increase through mastery and appropriate responsibility.

Garnezy (1991) defined resilience as “functional adequacy... (the maintenance of competent functioning despite interfering emotionality) ...as the benchmark of resilient behavior under stress” (p. 463).

Luthar (1993) suggested that the term “resilience” be used for a circumscribed construct that implies behaviorally manifested success at negotiating salient developmental tasks, in spite of major stressors and possible underlying emotional distress.

Zimmerman and Arunkumar (1994) described resiliency as “the ability to spring back from adversity or those factors and processes that interrupt the trajectory from risk to problem behavior or psychopathology and thereby result in adaptive outcomes even in the presence of challenging and threatening circumstances” (p. 4).

Masten (1994) defined resilience in broader terms: "resilience in an individual refers to successful adaptation despite risk and adversity" (p. 3). She goes on to say, "resilience refers to a pattern over time, characterized by good eventual adaptation despite developmental risk, acute stressors, or chronic adversities." Later, she points out that resilience refers to a class of phenomena characterized by good outcomes in spite of serious threats to adaptation or development (Masten, 2001, p. 228).

Gordon (1995) defined resilience as “the ability to thrive, mature, and increase competence in the face of adverse circumstances. These circumstances may include biological abnormalities or environmental obstacles. Further, the adverse circumstances may be chronic and consistent or severe and infrequent. To thrive, mature, and increase competence, a person must draw upon all of his or her resources: biological, psychological, and environmental” (p. 239).

Foster (1997) goes even further by distinguishing between *coping*, *adaptation* and *resilience*. He sees *coping* as "a complex response to a stressful or challenging situation that is often defensive in character." *Adaptation*, he says, is "a somewhat broader term which moves beyond defensive or protective responses to ones that deal with improving or maximizing environmental fit." He reserves *resilience* for "positive changes in maintaining active or latent coping and adaptation capacities through various mechanisms (such as healing, restitution, refinement, and enhancement) that *may not be immediately apparent but become evident over time*." (p. 190). Accordingly, Foster believes the latter point is very important because it stresses the necessity of carefully considering the *time at which we measure resilience*, and of the necessity of remembering that one's resilience may change over time and in different domains.

Masten and Coatsworth (1998) define resilience globally as manifested competence in the context of significant challenges to adaptation or development. They note that researchers must make two judgments in order to identify resilience: (1) There has been a *significant threat* to the individual. This threat is usually either high-risk status or exposure to severe adversity or trauma. These are more pathogenic when severe adversity

or trauma is superimposed on a person of high-risk status (2) The quality of *adaptation or development is good*. That is, the child is behaving in a competent manner.

The International Resilience Research Project (IRRP) selected the following definition which represents a consensus reached after discussion among participants attending several international meetings:

Resilience is a universal human capacity to face, overcome and even be strengthened by experiences of adversity. Resilience may be found in a person, group or a community and may make stronger the lives of those who are resilient. The resilient behavior may be in response to adversity in the form of maintenance of normal development, despite the adversity, or as a promoter of growth beyond the present level of functioning. Further, resilience may be promoted not necessarily because of adversity, but, indeed, may be developed in anticipation of inevitable adversities. Resilience is promoted as part of the developmental process of a child over time (Grotberg, 1995a, International contributions, para. 2).

The IRRP used this definition in order to determine what parents, care givers or children do that seems to promote resilience. An advisory committee made up of international organizations was formed to launch this study, including the Civitan International Research Organization, UNESCO, PAHO, WHO, International Children's Center, International Catholic Child Bureau, and the Bernard Van Leer Foundation.

Dr. Edith H. Grotberg served as the principal investigator. Participants from 30 countries, including Thailand, were involved in the study.

The IRRP drew on the resilience factors identified by researchers who were interested in the nature of resilience, the factors of resilience, and the expression of resilience. These factors became the basis for the IRRP study. The purposes of this study were to provide answers to two questions: (1) How are resilience factors and resilience promoted? (2) How can the promotion of resilience be incorporated into programs? The IRRP assumed: first, that resilience responses to situations of adversity implied resilience had been promoted; second, the promotion of resilience is related to the growth trajectory; and third, adults play a critical role in the promotion of resilience (Grotberg, 1998a, 2001). To be clear in meaning and more adaptable to use, the long and complex definition of resilience was simplified as follows:

Resilience is the human capacity to face, overcome, and even  
be strengthened by or even transformed by the adversities of life  
(Grotberg, 1997, Clarifying the vocabulary of resilience, para. 1)

The study results provide some important insights. The younger the children are, the more parents and other adults promote resilience. On other hand, the older the children are, the more they participate in promoting their own resilience and that of their friends (Grotberg, 1998b). Study findings were organized by the three categories (I HAVE, I AM, I CAN), each having five parts, which identified 36 qualitative factors that contribute to

“resilience.” The three resilience factors which were evident in this project are the same as those identified earlier by Werner (Werner & Smith, 1982). These include external supports; inner strengths; and interpersonal and problem-solving skills used in dynamic interaction to deal with adversity. The I HAVE factors are the external supports and resources that promote resilience. Before the child is aware of who he/she is (I AM) or what he/she can do (I CAN), he/she needs external supports and resources to develop the feelings of safety and security that serve as the core for developing resilience. These supports continue to be important throughout childhood. The I AM factors are the child's internal, personal strengths. These are feelings, attitudes, and beliefs within the child. The I CAN factors are the child's social and interpersonal skills. Children learn these skills by interacting with others and from those who teach them.

Grotberg (1995c, p.11) details what children draw from each of the three resilience factors in order to overcome adversities in their lives:

#### **I HAVE**

1. People around me I trust and who love me, no matter what.
2. People who set limits for me so I know when to stop before there is danger or trouble.
3. People who show me how to do things right by the way they do things.
4. People who want me to learn to do things on my own.
5. People who help me when I am sick, in danger or need to learn.

#### **I AM**

6. A person people can like and love.
7. Glad to do nice things for others and show my concern.
8. Respectful of myself and others.
9. Willing to be responsible for what I do.
10. Sure things will be all right.

**I CAN**

11. Talk to others about things that frighten me or bother me.
12. Find ways to solve problems that I face.
13. Control myself when I feel like doing something not right or dangerous.
14. Figure out when it is a good time to talk to someone or to take action.
15. Find someone to help me when I need.

Although a child does not need all of these features to be resilient, one factor is not enough. Facing adversity requires a dynamic and balanced interaction of these factors; i.e., no one factor, one source or one way, is sufficient. A child may be loved (I HAVE), but if he or she has no inner strength (I AM) or social, interpersonal skills (I CAN), there can be no resilience. A child may have a great deal of self-esteem (I AM), but if he or she does not know how to communicate with others or solve problems (I CAN), and has no one to help him or her (I HAVE), the child is not resilient. A child may be very verbal and speak well (I CAN), but if he or she has no empathy (I AM) or does not learn from role models (I HAVE), there is no resilience. Resilience results only from a combination of these features. Grotberg (1995b, 1995c) also noted that resilience is the ability to successfully undertake the task of each successive development stage, for example a child three years old who achieves the task of development feels trust in the love of his/her parent or caregivers, and feels free to explore and try new things, and knows that there are rules and limits and what will happen if they are broken. Parents and other caregivers of children and adolescents can promote resilience through their words, actions, and the environment they provide.

Adolescence is a period when individuals must form a personal identity and avoid role diffusion and identity confusion. To promote resilience, Grotberg (1999, p.84-85) provides the following information about the three resilience factors that an adolescent can use for assessing his/her resilience quotient and can apply to different adverse settings:

### **I HAVE**

1. One or more persons within my family I can trust and who love me without reservation.
2. One or more persons outside my family I can trust without reservation.
3. Limits to my behavior.
4. People who encourage me to be independent.
5. Good role models.
6. Access to health, education, and the social and security services I need.
7. A stable family and community.

### **I AM**

1. A person most people like.
2. Generally calm and good-natured.
3. An achiever who plans for the future.
4. A person who respects myself and others.
5. Empathic and caring of others.
6. Responsible for my own behavior and accepting of consequences.
7. A confident, optimistic, hopeful person.

### **I CAN**

1. Generate new ideas or new way to do things.
2. Stay with a task until it is finished.
3. See the humor in life and use it to reduce tensions.
4. Express thoughts and feelings in communication with others.
5. Solve problems in various settings - academic, job-related, personal, and social.
6. Manage my behavior - feelings, impulses, acting-out.
7. Reach out for help when I need it.

Moreover, Grotberg (1999) suggests that risk-taking is especially attractive to adolescents. There is new and increasingly growing freedom, the awareness of greater autonomy, and seductiveness of feeling invincible. These things, along with increasingly elevated hormones and higher mental processes emerging, such as the ability to reason

critically, all add to the joy of being young. Creativity, new ventures, and new solutions to old problems can emerge with few inhibitions. Temperament is also a critical part of risk-taking. Some adolescents simply need more excitement and stimulation than others. They get bored easily, are indifferent to the consequences of their actions, believe themselves to be in less danger than others, and are more likely to try something most people would see as foolish. They are often not prepared to deal with experiences of adversity. There are four common adversities that confront them:

1. Feeling disconnected to family, school, and community;
2. Engaging in self-destructive activities;
3. Having only a few social-and problem-solving skills; and
4. Having no dreams or goals for the future.

Based on her concept of resilience, Grotberg (1999) points out what can be done to overcome each of these adversities: “(a) The first adversity can be dealt with by maintaining family ties that have a stable loving, trusting relationship; (b) The second adversity can be dealt with by coming to terms with the tendency to get involved in self-destructive activities; (c) The third adversity can be dealt with by learning to develop good social and problem-solving skills; and (d) The fourth adversity can be dealt with by learning how to plan for life” (p. 79-82).

Some adolescents confronted with similar adversities make positive decisions and adjust successfully, facing life's challenges with strength and determination. Others who feel helpless and crushed by the weight of their lives choose destructive patterns of



behavior. Therefore, non-resilient adolescents are more likely to engage in risky behavior than resilient.

A longitudinal study of 1514 students (734 female and 780 male) in two junior high schools was conducted to compare resilient and nonresilient adolescents with respect to their relative likelihood of engaging in health-risk behavior (Gordon-Rouse, Ingersoll, & Orr, 1998). The mean age for the students was 13.78 years. Resilient adolescents and their peer groups were identified by way of a multiple linear regression equation in which age, family structure (single or step-parent family), gender, self-injurious behavior, and emotional risks were used to predict the propensity to initiate risky health behavior. The *resilient* sample consisted of those adolescents who were predicted to be above the standardized mean (on the self-administrated Health Behaviors Questionnaire), but who scored below the mean. The *non-resilient* population included those who were predicted to and actually scored above the standardized mean. The *normal*, low-risk population consisted of adolescents who were predicted to and scored below the standardized mean. All students completed a Health Behavior Questionnaire and the Rosenberg Self-Esteem Inventory. Odds ratios with 95% confidence intervals revealed that in the year following identification as resilient, non-resilient, or normal, the resilient adolescents were less likely than the non-resilient adolescents to initiate a variety of risky behaviors. However, the resilient adolescents were more likely than the normal, not at-risk peers to have initiated those same risky behaviors.

A study was conducted of 232 adolescents ages 11-20 who were using a public playground in a slum area of Bangkok, Thailand from 3:00 -6:00 p.m. in April 2000

(Lhimsoonthon, 2000). The study's purpose was to examine the relationship between resilience factors (using Grotberg's three factors of resilience) and the behavior of adolescents with regard to substance use. The study found the resilience factor, I HAVE, to be the most protective factor against adolescents' substance use behavior. There was a statistically significant difference in I HAVE factor scores between adolescents who refused substances and those who used substances. Those who refused substances had higher scores of the I HAVE factor than the users. Similarly, Somchit (1998) found that resilience factors of children in the eastern part of Thailand had a negative relationship with negative behavior and those who had higher resilience scores had less prevalence of substance use. Also, Kittivongvisut (2001) conducted a study of 594 junior vocational students (ages 15-21) to identify the relationship between resilience factors and selected risk behavior practices -- cigarette smoking, alcohol drinking, and sexual intercourse. Study results showed that resilience factors had a negative relationship with alcohol use.

Werner and Smith (1992) studied the development of all children born on the Hawaiian island of Kauai in 1955 and followed them for 32 years. One-third (N=201) were considered high risk, with two-thirds of these developing serious learning or behavior problems by age 18. The other one-third of high-risk children, who were resilient despite the odds tended to have an easy temperament, which elicited positive responses from others. This, in turn, enabled them to recruit positive adults to assist them. These children also tended to be autonomous, to possess good communication and problem-solving skills, to have an internal locus of control, a positive self-concept, good school achievement, and to be at least moderately intelligent. Their families usually had at least one positive

caregiver, even if it were not a parent. Resilient boys had structure, rules, and a male role model, while resilient girls tended to have more independence, opportunity for risk taking, and a supportive female role model. In the community, the resilient children had mentors and/or a positive peer support group. Overall, the researchers concluded that the positive personal characteristics (self-esteem and easy temperament, for example) of the resilient child were the major predictors of positive outcomes.

A cross-sectional research study (Leffert et al., 1998) measured 40 "developmental assets" in about 100,000 children and adolescents from all over the U.S. (using convenience samples). The assets were qualitatively developed by examining extensive quantitative developmental research, and were grouped into eight major categories: support, empowerment, boundaries and expectations, constructive use of time, commitment to learning, positive values, social competencies, and positive identity. It is especially noteworthy that all 40 developmental assets were assessed with separate subscales for each asset for every participant. Since all assets were included in the regression analyses, variance was not counted repetitively for related assets such as school engagement and reading for pleasure. In other words, correlated assets contributed only their unique variance to prediction of outcomes such as drug use. Thus, because all assets were included in analyses, a more accurate assessment of the variance contributed by each asset/construct could be obtained. The single best predictor of avoiding a host of negative behaviors (for example, drugs, violence, depression, suicide, school problems, and antisocial behaviors) was peer influence (associating oneself with pro-social groups), by itself accounting for 41% of the variance after demographics were removed from the

regression equation. Other important factors for avoiding negative behaviors included restraint, peaceful conflict resolution, achievement motivation, self-esteem, and sense of purpose.

### *Summary*

This study investigated the relationship between resilience and risk-taking behavior among Thai adolescents living in the urban area of Bangkok, the capital city and the largest urban area in the country. Risk-taking behavior in this study included behavior that contributed to unintentional injuries and violence; tobacco use; alcohol and other drug use; sexual behavior resulting in unintended pregnancy and sexually transmitted diseases; unhealthy dietary behavior; and physical inactivity. To realize this, risk-taking behavior was measured by an instrument modified by the researcher from the Youth Risk Behavior Survey developed by the U.S. Centers for Disease Control and Prevention (CDC, 2003). Resilience was measured by using the State-Trait Resilience Inventory developed by Hiew, Mori, Shimizu and Tominaga (2000), which represents a modification of the Grotberg Resilience Checklist (1995c).

## CHAPTER 3

### Methodology

#### *Research Design*

The research questions and hypotheses spelled out in Chapter 1 were tested using a non-experimental, cross-sectional correlational design to examine the relationships between the study variables. A correlational design is used when the investigators have reason to suspect a relationship between variables and can support their suspicions through literature or previous research. These variables are known to exist in the population, and a conceptual framework can be devised to provide justification for studying them. The purpose of a correlational study is to describe the relationship between the variables rather than test a theory, but the findings may provide support for a particular theoretical perspective, and there is a wide range of situations for which correlational studies are appropriate. In the basic design, the data are collected cross-sectionally. At one data collection period for participants, the investigator measures all variables and then tests them statistically, looking for significant relationships (Wood & Brink, 1998).

This study investigated the relationship between resilience and risk-taking behavior among Thai adolescents living in urban areas. There was no manipulation of risk-taking behavior and resilience. The research studied variables as they exist.

### *Instruments for Data Collection*

Three sets of self-administered questionnaires were used in this study - a demographic questionnaire, the State-Trait Resilience Inventory (STRI), and a modified version of the Youth Risk Behavior Survey (YRBS) developed by the U.S. Centers for Disease Control and Prevention (CDC, 2003). Following is a description of each questionnaire:

The demographic questionnaire was developed by the researcher to record the personal characteristics of participants including age, gender, grade level, ethnicity, financial status, family atmosphere, living alone or with others, grades in school, and spending time with friends after school without an adult present.

The State-Trait Resilience Inventory (STRI) developed by Hiew, Mori, Shimizu and Tominaga (2000) was used to measure resilience. The STRI includes two forms, a State Resilience Scale (SRC) and a Childhood Trait Resilience Scale (TRC). The SRC has 15 items with a 5 point Likert rating (from 1 “strongly disagree” to 5 “strongly agree”). Scores range from 15 to 75 and represent a modification of Grotberg’s Resilience Checklist (1995c). In a sample of Canadian college students, the internal reliability of the SRC was demonstrated by Cronbach’s alpha of 0.76. Factor analyses show that the scale measures two factors, with Factor 1 labeled as I AM/ I CAN and Factor 2 labeled as I HAVE resilience characteristics (Hiew, 1999; Hiew & Malchett, 2002). In a sample of Japanese college students ( $n = 81$ ), the correlation between SRC and TRC scales is relatively high ( $r = .46, p < .001$ ) with very good test-retest reliability ( $r = .80$  and  $.84$ , respectively) (Hiew, Mori, Shimizu & Tominaga, 2000).

The Childhood Trait Resilience Scale (TRC) consists of 18 items of childhood resilience traits in which respondents also rated themselves on each item using a 5-point Likert scale. Respondents reported these ratings 'as a child' rather than at their present age. The instrument was first tested with a Thai college sample ( $n=95$ ) with Cronbach's alpha being 0.81 for the entire scale, indicating good internal consistency. Additionally, a sample of Japanese college students ( $n = 81$ ) also demonstrated good internal consistency ( $r = 0.83$ ). Factor analysis indicated that the TRC demonstrated childhood resilience traits with 3 factors as Factor 1 labeled as I CAN; Factor 2 labeled as I HAVE and Factor 3 labeled as I AM (Hiew, Mori, Shimizu & Tominaga, 2000).

The STRI was translated into the Thai language by Chowsilpa in 2003 who investigated the reliability and factor analysis of the instrument using a sample of university students in the northern part of Thailand. The results indicated that the Cronbach's alpha of SRC and TRC were found to be 0.73 and 0.75, respectively ( $n=144$ ). The SRC and TRC had a high correlation ( $r = 0.62$ ,  $p < .001$ ). Factor analyses showed that both subsets have three components of resilience characteristics: I AM = Internal Strength, I CAN = Social and Interpersonal Skills, and I HAVE = External Supports and Resources as shown in Table 2 (Chowsilpa, 2003). These three (see Table 2) components are the same as the three dimensions used by Grotberg in her definition of resilience.

Table 2. Three Components of Resilience Characteristics (Chowsilpa, 2003)

<b>Resilience Characteristics</b>	<b>Items Numbers of SRC</b>	<b>Items Numbers of TRC</b>
I AM	2, 3, 6, 12, 13, 14, 15	20, 22, 23, 24, 29, 30, 31
I CAN	7, 8, 9, 10, 11	17, 25, 26, 27, 33
I HAVE	1, 4, 5	16, 18, 19, 21, 28, 32

The Risk-taking Behavior Questionnaire for Thai Adolescents represents a modified version of the Youth Risk Behavior Survey (YRBS) in order to make it more applicable to the Thai setting and hence, to Thai participants. The Youth Risk Behavior Survey (YRBS) (CDC, 2003), originally developed in 1990 by the U.S. Centers for Disease Control and Prevention, has been used and updated as required to monitor health-risk behavior that contributes to the leading causes of mortality, morbidity, and social problems among youth and adults in the United States. The YRBS monitors six categories of behavior: (1) behaviors that contribute to unintentional injuries and violence; (2) tobacco use; (3) alcohol and other drug use; (4) sexual behavior contributing to unintended pregnancy and sexually transmitted diseases, including HIV infection; (5) unhealthy dietary behaviors; and (6) inadequate physical activity. In the United States high school sample, the survey questions demonstrated good test-retest reliability; Kappa values ranged from 23.6% to 90.5%, with a mean of 60.7% and a median of 60.0%. Kappa values did not differ by gender, grade, or race/ethnicity of the respondents.



Approximately one in five items (22.2%) had significantly different prevalence estimates at Time 1 vs. Time 2. Ten items, or 13.9%, had both Kappa values below 61% and significantly different Time 1 and Time 2 prevalence estimates (Brener et al., 2002). For questionnaire validity, Brener, Billy, and Grady (2003) reviewed existing empirical literature to assess cognitive and situational factors that may affect the validity of adolescents' self-reports of risk behavior. The results demonstrate that self-reports for each of the six types of risk behavior are affected by both cognitive and situational factors but these factors do not threaten the validity of self-reports.

#### *Modification of the Instrument and Translation*

The procedures used in modifying the Youth Risk Behavior Questionnaire for Thai Adolescents and in correctly translating it into the Thai language involved the following five steps:

1. Modification of the instrument,
2. Translation of the modified instrument,
3. Equivalence testing,
4. Pilot study, and
5. Test-retest reliability study.

*Step 1: Modification of the Instrument*

As noted earlier, in order to make the instrument more applicable to Thai participants, the 2003 YRBS, which included seven demographic questions and 80 items of risk behavior (see Table 3), was modified to accurately reflect its relevance among Thai adolescents. These modifications included the changes (see Table 4) that were made to 12 items so that the cultural differences were recognized, for example, grade to mathayom and potatoes to rice. In addition, 10 items were removed because they are not applicable in the Thai setting (e.g., items asking about drinking 100% fruit juice and eating carrots). On the other hand, 19 items were added to more appropriately assess behavior that may be risk-taking for Thai adolescents (e.g., using a walking bridge to cross the street, and using his/her own eating utensil to eat from a common bowl of food also used by several other persons). Of the 96 items included in the modified version of the YRBS, 65 items were not changed from the 2003 YRBS. Table 3 provides more details with respect to the demographic questions, the categories of risk behavior, and the changes made to reflect cultural differences.

Table 3. Number by Number Comparison of Items in the Original Version of 2003 YRBS with the Modified Version by Categories

<b>Demographic questions and 6 Categories of the Survey</b>	<b>Item Numbers of the original version (2003 YRBS)</b>	<b>Item Numbers of the modified version</b>
Demographic questions	<b>1-7</b> Removed: 6,7	<b>1-9</b> Original from 2003YRBS : 2, 9 Changed from 2003YRBS: 1,3,4 Added: 5,6,7,8
<i>1<sup>st</sup> Category:</i> behaviors that contribute to unintentional injuries and violence	<b>8-27</b> Removed: 13	<b>10-30</b> Original from 2003YRBS : 13-30 Changed from 2003YRBS: 10 Added: 11, 12
<i>2<sup>nd</sup> Category:</i> tobacco use	<b>28-38</b> Removed: 36, 37, 38	<b>31-38</b> Original from 2003YRBS : 31-38
<i>3<sup>rd</sup> Category:</i> alcohol and other drug use	<b>39-57</b> Removed: 55	<b>39-63</b> Original from 2003YRBS : 39-47, 55, 56, 61, 62 Changed from 2003YRBS: 48, 53, 54, 57, 59 Added: 49-52, 58, 60, 63
<i>4<sup>th</sup> Category:</i> sexual behavior contributing to unintended pregnancy and sexually transmitted diseases, including HIV infection	<b>58-65</b>	<b>64-74</b> Original from 2003YRBS : 65, 66, 69-74 Added: 64, 67, 68
<i>5<sup>th</sup> Category:</i> unhealthy dietary behaviors	<b>66-79</b> Removed: 73, 77, 78	<b>75-88</b> Original from 2003YRBS : 75-79,81, 82, 88 Changed from 2003YRBS: 80, 83, 84 Added: 85, 86, 87
<i>6<sup>th</sup> Category:</i> inadequate physical activity	<b>80-87</b>	<b>89-96</b> Original from 2003YRBS : 89-96

Table 4. Items Before and After Modification of 2003 Youth Risk Behavior Survey (YRBS)

Items before modification	Items after modification
<p>1. How old are you?</p> <p>A. 12 years old or younger</p> <p>B. 13 years old</p> <p>C. 14 years old</p> <p>D. 15 years old</p> <p>E. 16 years old</p> <p>F. 17 years old</p> <p>G. 18 years old or older</p>	<p>1. How old are you?</p> <p>A. <u>11 years old or younger</u></p> <p>B. 12 years old</p> <p>C. 13 years old</p> <p>D. 14 years old</p> <p>E. 15 years old</p> <p>F. 16 years old</p> <p>G. 17 years old</p> <p>H. 18 years old or older</p>
<p>3. In what grade are you?</p> <p>A. 9th grade</p> <p>B. 10th grade</p> <p>C. 11th grade</p> <p>D. 12th grade</p> <p>E. Ungraded or other grade</p>	<p>3. What level are you in a school?</p> <p>A. <u>Mathayom 1</u></p> <p>B. <u>Mathayom 2</u></p> <p>C. <u>Mathayom 3</u></p> <p>D. <u>Mathayom 4</u></p> <p>E. <u>Mathayom 5</u></p> <p>F. <u>Mathayom 6</u></p>
<p>4. How do you describe yourself? (Select one or more responses.)</p> <p>A. American Indian or Alaska Native</p> <p>B. Asian</p> <p>C. Black or African American</p> <p>D. Hispanic or Latino</p> <p>E. Native Hawaiian or Other Pacific Islander</p> <p>F. White</p>	<p>4. <u>What is your ethnicity?</u></p> <p>A. <u>Thai</u></p> <p>B. <u>Chinese</u></p> <p>C. <u>Other</u></p>
<p>8. When you rode <u>a bicycle</u> during the past 12 months, how often did you wear a helmet?</p>	<p>10. During the past 12 months, when you <u>drove a motorcycle or rode on a motorcycle driven by someone else</u>, how often did you wear a helmet?</p>
<p>48. During your life, how many times have you used <u>any form of cocaine, including powder, crack, or freebase</u>?</p>	<p>53. During your life, how many times have you used <u>cocaine</u>?</p>

Table 4 (Continue). Items Before and After Modification of 2003 Youth Risk Behavior Survey (YRBS)

Items before modification	Items after modification
49. During the past 30 days, how many times did you use <u>any form of cocaine, including powder, crack, or freebase?</u>	54. During the past 30 days, how many times did you use <u>cocaine?</u>
52. During your life, how many times have you used heroin ( <u>also called smack, junk, or China White</u> )?	57. During your life, how many times have you used <u>heroin?</u>
53. During your life, how many times have you used methamphetamines ( <u>also called speed, crystal, crank, or ice</u> )?	48. During your life, how many times have you used methamphetamines ( <u>also called Yaba</u> )?
54. During your life, how many times have you used ecstasy ( <u>also called MDMA</u> )?	59. During your life, how many times have you used ecstasy ( <u>also called Yae</u> )?
71. During the past 30 days, did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight? <u>(Do not include meal replacement products such as Slim Fast.)</u>	80. During the past 30 days, did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight?
75. During the past 7 days, how many times did you eat <u>green salad?</u>	83. During the past 7 days, how many times did you eat <u>green vegetables?</u>
76. During the past <u>7 days, how many times did you eat potatoes?</u> <u>(Do not count french fries, fried potatoes, or potato chips.)</u>	84. During the past 7 days, how many times did you eat <u>a lot of rice?</u>

### *Step 2: Translation Process of the Modified Instrument*

The following steps were involved in this process:

- 2.1. The modified version of the YRBS was first translated into the Thai language by this researcher.
- 2.2. The translated version was then confirmed by two doctorally-prepared bilingual (Thai/English) experts. Both are faculty members of the Ramathibodi School of Nursing, Mahidol University, Thailand. One conducts research with high-risk adolescents in the slums of Bangkok, and the other works in the Child and Adolescent Division of a hospital in Thailand.
- 2.3. *Cognitive interviewing* (Dillman, 2000) was performed to determine whether respondents comprehended questions as intended by the researcher and whether the questions could be answered accurately. To do this, three Thai adolescents who lived in Thailand were individually asked to read aloud (as they normally read to themselves) and complete the draft Thai version. They were then asked to tell the researcher everything they were thinking and feeling from the moment they first read the survey until they finished completing it. The researcher probed each respondent to get a clear understanding of how each question was being interpreted and whether the intent of each question was being realized. In so doing, the researcher was able to obtain a clear understanding of how the participants dealt with the questions posed, any uncertainties or confusion they had about appropriate

answers to the questions, and how confident they were in giving correct answers to the items.

*2.4 Backward Translation of Thai Version:* The Thai modified instrument was back-translated by yet another bilingual expert in English and Thai who had never seen the English version of this instrument. This expert is currently completing her doctorate in nursing at the University of Virginia at Charlottesville in the United States. To confirm this process, semantic equivalence was tested as presented in step 3.

### *Step 3: Equivalence Testing*

Self-report instruments developed and validated in English have often been translated into a second language for measuring the variables of interest of a second culture. However, the process of translating concepts developed in one culture for use in another culture is fraught with problems of equivalence. In this study, there were, among others, three cross-culture equivalences to be tested: semantic, content, and conceptual equivalence.

Semantic equivalence means that “the meaning of each item is the same in each culture after translation” (Flaherty et al., 1988, p. 258). The key to establishing semantic equivalence is to use the back-translation technique. To establish semantic equivalence, the backward translation of the Thai version and testing of comparability/interpretability were completed. Based on the testing of comparability/interpretability procedures as described by Sperber, Devellis, and Boehlecke (1994), the original and the back-translated

versions were assessed for comparability of language and similarity of interpretation. Comparability of language refers to the formal similarity of words, phrases, and sentences. The similarity of interpretation refers to the degree to which the two versions engender the same attitude response even if the words used are not the same. Five native English speakers (two editors, one auditor, and two doctoral students [one is a nursing teacher and the other is a nurse practitioner]) were asked to rate their agreement independently based on a 7-point Likert-type scale from 1 (not at all) to 7 (strongly agree), as illustrated by items numbered 2 and 7 in Figure 2. For those items with average scores of less than 4, revisions were necessary. After that, both the researcher and the back-translator mutually agreed that the revisions then conveyed the same meaning. Because of the different interpretation in Thai of selected English language phrases, for example, “on school property,” it was necessary to make revisions to the original Thai translation. This was done so that such questions could meet the standard rating of 4 or more in the Likert rating system.



Original version (a)	Back-translated version (b)	COMPARABILITY/ INTERPRETABILITY							
2a). What is your sex?  A. Female B. Male	2b).What is your gender?  A. Female B. Male	<b><u>A). COMPARABILITY OF LANGUAGE</u></b>							
		EXTREMELY COMPARABLE	MODERATELY COMPARABLE	NOT AT ALL COMPARABLE	7	6	5	4	3
		<b><u>B). SIMILARITY OF INTERPRETATION</u></b>							
		EXTREMELY SIMILAR	MODERATELY SIMILAR	NOT AT ALL SIMILAR	7	6	5	4	3
7a). How sufficient is the money you receive? A. Always sufficient B. Sometimes sufficient C. Rarely sufficient D. Never sufficient	7b). Do you get enough money?  A. Always enough B. Sometimes enough C. Rarely enough D. Not enough	<b><u>A). COMPARABILITY OF LANGUAGE</u></b>							
		EXTREMELY COMPARABLE	MODERATELY COMPARABLE	NOT AT ALL COMPARABLE	7	6	5	4	3
		<b><u>B). SIMILARITY OF INTERPRETATION</u></b>							
		EXTREMELY SIMILAR	MODERATELY SIMILAR	NOT AT ALL SIMILAR	7	6	5	4	3

Figure 2: Examples of Comparability/Interpretability Questionnaire (Items Number 2 and 7).

*Content equivalence/ cultural validity* means that “each item’s content on the instrument is relevant to the phenomena of each culture being studied” (Flaherty et al., 1988, p. 258). If content validity has been established in the original culture, the task is to reexamine each item’s relevance in the second culture under investigation by using a team of content experts to evaluate the content equivalence of each item. The modified Thai version was judged by two Thai experts to ensure content equivalence/ cultural validity. Both are adolescent risk behavior experts. One has a doctorate in nursing while the other has been working with high-risk adolescents for more than 10 years. These experts were asked to rate independently the degree of cultural relevance of each item of the translated version of the questionnaire on a 4-point Likert scale: (1) not relevant, (2)

somewhat relevant, (3) quite relevant, and (4) very relevant. They were asked also to suggest improvements to items and answers. These ratings were used to compute the cultural validity index by using the same method as computing the content validity index (CVI) demonstrated by Waltz, Strickland and Lenz (1991; 2005). The CVI is defined as the proportion of items given a rating of 3 and 4 (quite/very relevant) by both individuals involved. For example, suppose the relevance of each of 20 items on the questionnaire is independently rated by two experts using the 4-point scale. Results are displayed in Figure 3. Using the information from that table, the CVI equals the proportion of items given a rating of 3 or 4 by both judges ( $CVI = 18/20 = 0.9$ ). If all items are given rating of 3 or 4 by both raters, the value of the CVI will be 1.00. A CVI that is equal or higher than 0.8 is considered adequate for cultural validity.

		Judge1		Total
		1 or 2 not/somewhat relevant	3 or 4 quite/very relevant	
Judge 2	1 or 2 not/somewhat relevant	2	0	2
	3 or 4 quite/very relevant	0	18	18
	Total	2	18	20

Figure 3. Two Judges' Ratings of 20 Items.

This modified instrument received CVI of ranging from 0.89 to 0.98. No item was rated by both experts as either 1 (not relevant) or 2 (somewhat relevant). However,

there was one item (number 16) which required adding one more answer option (I never sat in a car driven by someone else).

*Conceptual equivalence* means that “the instrument is measuring the same theoretical construct in each culture” (Flaherty et al., 1988, p. 258). The method for assessing conceptual equivalence is to examine the correlation among items on the survey in the study population and to analyze the relationship of responses to other variables in the study population and then compare this with their known relationships (Cronbach & Meehl, 1955; Vernon & Roberts, 1981). To accomplish this, a pilot study was carried out to test the relationship among risk-taking behavior and resilience. For more details, see step 4.

#### *Step 4: Pilot Study*

After approval of the study by the Institutional Review Board (IRB), Virginia Commonwealth University and the Ethical Clearance Committee on Human Rights Related to Research Involving Human Subjects, Faculty of Medicine, Ramathibodi Hospital, Mahidol University located in Bangkok, Thailand, the survey including the modified Youth Risk Behavior Survey (YRBS) and the State-Trait Resilience Inventory (STRI) was pilot tested for feasibility and acceptability, reliability, and conceptual equivalence for conducting a study among Thai adolescent students.

*Methodology.* A sample of participants was recruited from adolescents ranging in age from 11- to 19 years old who were attending one secondary school (grades 7-12) located in an urban area of Thailand. Using a multistage sampling technique, one

classroom was drawn from each educational level (grades 7, 8, 9, 10, 11, and 12).

Parental permission forms were sent with an explanatory letter by the investigator to the students' parents for approval. The documents sent to the parents included an introductory letter from the principal of the school and a parental permission form, which provided information about the purpose, the procedure, the nature, the risk, confidentiality, usefulness of the study, and the rights of participants. Parents also were informed that they could, if they would like to do so, review the survey. Only those students whose parents gave their written approval were permitted to participate in the pilot study, which was conducted during a free period or after school. Students who had not obtained parental permission to participate were not present. In addition, the participants were required to sign an assent form. Teachers led students to the classroom and then left prior to the administration of the assents and surveys. The investigator read aloud the assent form to the students before requesting them to sign it. Any questions they had about the study were answered by the investigator prior to the students signing the assent forms. All students were informed that they could stop participating at any time without consequences. In all, 254 students out of a total of 270 agreed to participate in the study. No student who had parental permission refused to sign an assent form. The 16 who did not participate were either absent on the day the survey was administered or their parents did not give their permission.

*Feasibility and Acceptability.* The feasibility and acceptability of utilizing the instrument were determined by the refusal rate, the type of administration, and the percentage and distribution of missing data. The results of the pilot study indicated that,

overall, the administration and related procedures were feasible and acceptable. All participants were able to read the questionnaire by themselves; none of them refused to complete the questionnaire. The usual completion time per participant was 40-60 minutes. Almost two percent (1.97%) of participants did not respond to the last page of the State-Trait Resilience Inventory (Part II of the questionnaire). Why the students did not complete the survey is not clear, although they may have run out of time. Since this is such an important part of the survey, it was moved to part I of the questionnaire for actual study. In spite of the Thai translation at the appropriate level for secondary school students, a few students in each class had difficulty understanding and interpreting certain survey questions. The researcher assisted these students individually in clarifying any questions. Based on the widespread confusion regarding three specific items, the researcher eliminated one and modified the other two for clarity. Additionally, the rating format of State-Trait Resilience Inventory was difficult to understand (see figure 4), leading to modifications for inclusion in the actual study (see figure 5).

**Instructions:** A number of statements below are used by people to describe themselves. Read each statement and then circle the number to the right that indicates how strongly you agree or disagree with each statement that describes yourself **at the present time.**

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

**Circle only one number with each statement**

- 1 2 3 4 5 (1). I have someone who loves me.
- 1 2 3 4 5 (2). I have a person outside my home who I can tell about my problems or feelings.
- 1 2 3 4 5 (3). I am praised for doing things on my own.  
 .....  
 .....  
 .....  
 .....
- 1 2 3 4 5 (33).-----  
 .....

Figure 4. The State-Trait Resilience Scale Format Before Modification.

**Instructions:** A number of statements below are used by people to describe themselves. Read each statement and then circle the number to the right that indicates how strongly you agree or disagree with each statement that describes yourself **at the present time.**

(1). I have someone who loves me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(2). I have a person outside my home who I can tell about my problems or feelings.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(3). I am praised for doing things on my own.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

(4).....  
.....  
.....  
.....  
.....

(33).....

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

.....

Figure 5. The State-Trait Resilience Scale Format After Modification.

Demographic characteristics of the pilot study sample are described in Table 5. Most of the participants were male students. Only one student did not identify his/her gender. Ages ranged from 12 to 18 years old who were in grades 7 to 12. Most of them were Thai. Most of the participants lived with their families. During the 12 months immediately preceding the study, almost two-thirds reported harmonious relationships within their families while only a few of the families spent a substantial portion of their time quarrelling with one another, and slightly more than one-third admitted that their families quarreled sometimes. A majority of participants spent at least one hour or more after school without an adult present during one or more days per week. A majority of participants indicated that they always received sufficient funds from their family. On the other hand, only a few students received insufficient funds from their families. During the 12 months immediately preceding the survey, almost two-third of the participants' grades in school were mostly B's and C's.



Table 5. Demographic Characteristics of the Pilot Study Sample (N = 254)

Variables		Number (N)	Percentage (%)
Gender (N = 253)	Male	243	96
	Female	10	4
AGE (in years) (N = 254)	12	14	5.5
	13	28	11.0
	14	52	20.5
	15	36	14.2
	16	47	18.5
	17	44	17.3
Mean = 15.3 S.D. = 1.8	18 and older	33	13.0
Education level (N = 254)	Mattayom 1(grade 7)	41	16.1
	Mattayom 2(grade 8)	49	19.3
	Mattayom 3(grade 9)	40	15.7
	Mattayom 4 (grade 10)	47	18.5
	Mattayom 5 (grade 11)	38	15.0
	Mattayom 6 (grade 12)	39	15.4
Ethnicity (N = 254)	Thai	249	98.0
	Chinese	5	2.0
Living situation (N = 253)	On your own	2	.8
	With family	243	96.0
	With a friend	4	1.6
	Other	4	1.6
The family atmosphere (N = 254)	Harmonious	157	61.8
	Sometime quarrelling	92	36.2
	Quarrelling most of the time	5	2.0
On how many days no adult supervises them after school (N = 254)	None	84	33.1
	1 day	64	25.2
	2 days	45	17.7
	3 days	25	9.8
	4 days	5	2.0
	5 or more days	31	12.2
How sufficient is their money (N = 253)	Always sufficient	176	69.6
	Sometimes sufficient	67	26.5
	Rarely sufficient	8	3.2
	Never sufficient	2	.8
Average grades in school (N = 254)	Mostly A's	38	15.0
	Mostly B's	97	38.2
	Mostly C's	78	30.7
	Mostly D's	26	10.2
	None of these grade	1	.4
	Not sure	14	5.5

*Reliability.* Reliability was determined with Cronbach's alpha coefficient. The result shows that internal consistency was acceptable. Cronbach's alpha coefficient was 0.92 for the State-Trait Resilience Inventory, 0.84 for the State-Resilience Inventory and 0.91 for the Trait-Resilience Inventory.

*Conceptual Equivalence.* Conceptual equivalence was determined by the relationships among variables comparing with their known relationships. Testing the relationship among risk-taking behavior and resilience was performed to confirm the conceptual equivalence of the instrument. Pearson's product moment correlation (1-tailed) was performed for this purpose.

The results show that resilience (see Table 6) was *negatively* correlated with the family atmosphere, average grades in a school, attempting suicide, lifetime cigarette smoking, episodic heavy drinking, lifetime cocaine use, current heroin use, and lifetime ecstasy use. On the other hand, resilience was *positively* correlated with using a walking bridge for crossing the street, seatbelt use, consumption of vegetables, consumption of milk, sufficient vigorous physical activity, sufficient moderate physical activity, participating in strengthening exercises, television watching, playing sports, and having had education about AIDS or HIV infection.

Table 6. Correlation Coefficients (r) Between Resilience and Risk-taking Behavior

Variables	Resilience		
	r	p-value (1-tailed)	N
Atmosphere in the family	-0.124	0.025	249
Average grades in a school	-0.221	0.000	234
Attempted suicide	-0.135	0.017	248
Lifetime cigarette smoking	-0.115	0.034	249
Episodic heavy drinking	-0.118	0.031	249
Lifetime cocaine use	-0.143	0.012	249
Current heroin use	-0.122	0.027	249
Lifetime ecstasy use	-0.188	0.001	249
Used a walking bridge for crossing the street	0.110	0.042	248
Seat belt use	0.216	0.000	246
Consumption of vegetables	0.163	0.005	249
Consumption of milk	0.125	0.025	248
Sufficient vigorous physical activity	0.121	0.028	249
Sufficient moderate physical activity	0.124	0.025	248
Participated in strengthening exercises	0.127	0.023	248
Watched television	0.125	0.025	248
Played sports	0.197	0.001	248
AIDS or HIV Infection education	0.128	0.026	246

Past research has repeatedly shown that resilience has negative correlations with risky behavior (Aronowitz & Morrison-Beedy, 2004; Kittivongvisut, 2001; Lhimsoonthon, 2000; Somchit, 1998) and positive correlations with health promotion behavior (Flay & Weeks, 1993; Leffert et al., 1998; Werner & Smith, 1992). Therefore, resilience and risk-taking behavior appear to measure the same predicted relationships in the culture under study as they did in the culture in which they were

initially developed. This provides a measure of conceptual equivalence for both instruments.

In summary, the pilot study provided information on the feasibility, acceptability, reliability, and conceptual equivalence of the instrument for conducting a study among Thai adolescent students living in an urban area. The researcher modified certain questions and the format of the instrument to make it more applicable to the Thai setting. The experience of the researcher in administrating the pilot study was useful in conducting the actual study.

#### *Step 5: Test-retest Reliability Study*

Test-retest reliability, which measures stability over time, is assessed by administering the same test to the same subjects at two points in time. Test-retest reliability signifies the ability of the instrument to produce the same result on two or more occasions, with the assumption that the measured attribute has remained unchanged (Hopkins, 2003; Van Agt, Essink-Bot, Krabbe, & Bonsel, 1994). Reliability for nominal variables represents the consistency with which something is classified over time. For example, how consistent are subjects in their behavior, or in agreeing or disagreeing with a statement? Several statistical indices exist for expressing a reliability coefficient for test-retest data. Two methods, among others, which can be used to assess this consistency, are the *percent observed agreement* and *Cohen's Kappa coefficient* (Aktan, Calkins, Ribisl, Krolczak, & Kasim, 1997; Cohen, 1960; Jakobsson & Westergren, 2005; Kraemer, Periyakoil, & Noda, 2002; Thompson & Walter, 1988). However, both of

these methods have their limitations. Often, a combination of these methods is used because of the limitations of only using one approach (Aktan, Calkins, Ribisl, Kroliczak, & Kasim, 1997; Brownson, Jackson-Thompson, Wilkerson, & Kiani, 1994; Dunn et al., 2004; Hunt, 1986). The percent observed agreement does not account for the magnitude of agreement expected by chance (e.g., if one or both observers were just guessing and/or the agreement happened by chance) (Fleiss, 1981). The Kappa coefficient (K) does try to account for this but the statistic may not be able to be calculated or may have a questionable value because of low variability in responses (Aktan, Calkins, Ribisl, Kroliczak, & Kasim, 1997). The K does not take into account of the degree of disagreement (Jakobsson & Westergren, 2005). The K also has a problem of paradoxes (discussed later) (Feinstein & Cicchetti, 1990; Kundel & Polansky, 2003; Lantz & Nebenzahl, 1996). Therefore, percent observed agreement and K were both used to assess the reliability of the questionnaire in an effort to compensate for the limitations of only one approach.

The percent observed agreement for a variable is defined as the ratio, expressed as a percentage, of the total number of respondents giving the same answer on both the first and second completion of the questionnaire to the total number of respondents. For example, for the question “During the past 12 months, did you make a plan about how you would attempt suicide?” 193 of 200 respondents (96.5%) indicated the same answer at both time points.

Cohen’s K coefficient is a measure of agreement beyond the agreement that is expected due to chance (Cohen, 1960). K is based, in part, on the percent observed

agreement. In addition, K provides an adjustment for a certain portion of observed agreement for responses which could be due to randomly chosen answers. The advantage of the K is that it does take into account both the percentage agreement and the percentage of agreement expected by chance. The interpretation of K is theoretically 1.0 for perfect agreement while chance agreement would equate to zero. If responses are determined by chance, the expected percent agreement would not be zero but would equal one divided by the number of possible responses to the question. For a question with a “yes vs. no” response, one would expect the percent agreement of 50% using random selection of answers. The K value is based on a ratio of a measure of observed agreement to a measure of perfect agreement when both measures have been corrected by what could be expected by chance alone. The maximum value for K is 1.0, but because of the way the correction for chance is done it is possible to have a negative value for K. The calculation of K is based on the difference between how much agreement is actually present (“observed” agreement based on data values in the main diagonal of the table in Figure 1) compared to how much agreement would be expected to be present by chance alone (“expected” agreement based on data values in the margins of the table in Figure 6). K can be calculated by the following equation (Cohen, 1960; Feinstein & Cicchetti, 1990; Thompson & Walter, 1988; Viera & Garrett, 2005).

$$K = \frac{P_o - P_e}{1 - P_e} \quad , \text{ where } P_o = \text{Observed agreement proportion and} \\ P_e = \text{Expected agreement proportion.}$$

For a question having two categories (i.e., yes and no) the same participants were asked to answer the question at two points in time (1<sup>st</sup> time and 2<sup>nd</sup> time). The observed agreement proportion and expected agreement proportion are calculated as indicated in Figure 6.

		2 <sup>nd</sup> time		Total
		Yes	No	
1 <sup>st</sup> time	Yes	a	b	m <sub>0</sub>
	No	c	d	m <sub>1</sub>
Total		n <sub>0</sub>	n <sub>1</sub>	N

Observed agreement proportion ( $P_o$ ) =  $(a+d)/N$

Expected agreement proportion ( $P_e$ ) =  $[(n_0/N) * (m_0/N)] + [(n_1/N) * (m_1/N)] =$   
 $\text{Pr}(\text{Yes } 1^{\text{st}} \text{ time and Yes } 2^{\text{nd}} \text{ time}) + \text{Pr}(\text{No } 1^{\text{st}} \text{ time and No } 2^{\text{nd}} \text{ time}).$

Figure 6: Calculation of Observed and Expected Agreement Proportions.

The probabilities denoted by  $Pr$  are calculated based on the observed proportions of responses for each time and assume statistical independence between the two times. The letters  $a$  and  $d$  represent the number of the participants who selected the same response the second time as for the first time (observed agreement) while  $b$  and  $c$  represent the number of participants who did not select the same response the second time as for the first time. If there are no disagreements,  $b$  and  $c$  would be zero, and the observed agreement ( $P_o$ ) is 1, or 100%. If there are no agreements,  $a$  and  $d$  would be zero, and the observed agreement ( $P_o$ ) is 0. The interpretation criteria for the K suggested by Landis and Koch (1977) (Landis & Koch, 1977) were used in this study as demonstrated in Table 7.

Table 7. Kappa Interpretation Criteria

<b>Interpretation</b>	<b>Kappa</b>
Poor agreement	Below 0.0
Slight agreement	0.00-0.20
Fair agreement	0.21-0.40
Moderate agreement	0.41-0.60
Substantial agreement	0.61-0.80
Almost perfect agreement	0.81-1.00

Note: Modified from Landis and Koch (1977)

*Sample recruitment and data collection procedures.*

Participants ranged in age from 11-19 years old and were attending secondary schools located in Bangkok, Thailand. Using a multi-stage sampling technique, one classroom was selected from each educational level (grades 7, 8, 9, 10, 11, and 12). After approval of the study by the Institutional Review Board (IRB), Virginia Commonwealth University and the Ethical Clearance Committee on Human Rights Related to Research Involving Human Subjects, Faculty of Medicine, Ramathibodi Hospital, Mahidol University located in Bangkok, Thailand, the questionnaire was tested for reliability by conducting a study among Thai adolescent students. To do this, the researcher approached the school principal to explain all the information associated with the study. After obtaining permission to contact potential student participants, the researcher met them in an assigned room in the school. After explaining the study's purpose, the researcher asked the students to take an explanatory letter and a permission form to their parents or guardian to seek approval for their participation in the study. The explanatory letter provided information about the purpose, the procedures, the nature, the risk, and



usefulness of the study. Signed permission forms were returned to the researcher. Only those students who had parental permission were allowed to participate in the study.

All students were required to give their written assent in order to participate in the study. The researcher read the assent form aloud to them and had them sign it after they had had their questions answered. Any student having an individual or private question was given the opportunity to have the question answered in private by the researcher prior to signing the assent form. All participants were assured that the questionnaires would not be graded, that their responses would not affect their grades in any way, and that they might discontinue participating in the study at any time and for any reason without negative consequences.

After being recruited, each participant was asked to anonymously complete the questionnaire by recording their responses on a computer scan answer sheet. Names or other identifying information were not collected. The questionnaire took approximately 40-60 minutes to complete and was administered after school or during a free period.

To assess the test-retest reliability of the Risk-taking Behavior Questionnaire for Thai Adolescents, the data were collected twice, 14 days apart. The administrative procedures used in this study were the same as those used for the standard YRBS. Before administering the first survey, a unique number was assigned to two questionnaire booklets. Each set of two identically numbered booklets was placed in an envelope. During the first phase, each participant removed and used one booklet only. The second booklet was placed in an envelope that the participant sealed and wrote his or her name across the seal. During the second phase, each student received the envelope with his or

her name across the seal. After removing and completing the second booklet, the student destroyed the envelope. This technique had been used successfully in previous studies, and students believed that it adequately safeguarded their privacy (Brener et al., 2002). The group of students was informed during the first phase that they would be asked to complete a “very similar” questionnaire a few weeks later.

Of the 215 students enrolled in the selected classes, 209 (97.2%) completed questionnaires during the first phase of survey administration. Slightly more than three percent (3.3%) were either absent on the day of data collecting, failed to return a parent permission form, had parents who refused to allow their child to participate, or refused to participate. Of those who completed questionnaires in the first phase, 200 (95.6%) completed questionnaires in the second phase. These included 39, 22, 50, 21, 34, and 34 students from grades 7, 8, 9, 10, 11, and 12 respectively. Almost half (47%) were male and 52.5% were female while one student (0.5%) did not identify his/her gender.

#### *Data analysis.*

After the data were collected, the researcher reviewed the answer sheets to determine if the responses were usable. The answer sheets which were mostly incomplete or contained inapplicable information were discarded. The completed answer sheets were scanned into computer files to permit easy statistical analysis of the participants’ responses. Then the questions containing multiple response categories were recoded into two response categories, “no risk” vs. “at risk.” For example, students who responded that they never rode in a car or other vehicle driven by someone who had been

drinking alcohol during the past 30 days were classified as “no risk,” while as those who reported that they rode in a car or other vehicle driven by someone who had been drinking alcohol on one or more of the past 30 days were classified as “at risk.” Additionally, twelve items using “the last time” and “in the past 7 days” as the reference period could not be expected to be consistent across a 2-week timeframe and were eliminated from the analysis.

These data sets were analyzed using the SPSS for Windows, version 14.0 statistical software program. The percent observed agreement and K were both used to assess reliability of the questionnaire. To test for possible effects due to student characteristics separate values for percent observed agreement and for K were calculated for each question for both genders and for grade levels 7 through 12 as shown in Table 8. When considering the potential effect due to gender, for each item and measurement there are a pair of values with one value for males and one value for females. A paired sample t-test was used to test for a significant gender effect. When considering the potential effect due to grade level, for each item and measurement there are a block of six values with one value each for grades 7 through 12. When testing for possible grade level effect the items serve as a blocking factor and the statistical testing was accomplished using a two-factor analysis of variance (ANOVA) test with grade level and items as the two factors. When considering the potential effect due to risk behavior category, each of the six risk categories has a unique set of items so the items serve as a blocking effect. A one-way analysis of variance (ANOVA) was used to test for any potentially significant risk behavior category effect. For each testing procedure two

independent analyses were performed with percent observed agreement and K as the respective reliability measures.

Table 8. Layout of Calculated Measures by Respondent Characteristics

	Gender		Grade Level					
	Male	Female	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Item 1	$X_{1,M}$	$X_{1,F}$	$X_{1,G7}$	$X_{1,G8}$	$X_{1,G9}$	$X_{1,G10}$	$X_{1,G11}$	$X_{1,G12}$
Item 2	$X_{2,M}$	$X_{2,F}$	$X_{2,G7}$	$X_{2,G8}$	$X_{2,G9}$	$X_{2,G10}$	$X_{2,G11}$	$X_{2,G12}$
Item 3	$X_{3,M}$	$X_{3,F}$	$X_{3,G7}$	$X_{3,G8}$	$X_{3,G9}$	$X_{3,G10}$	$X_{3,G11}$	$X_{3,G12}$
...	...	...	...	...	...	...	...	...
Item 75	$X_{75,M}$	$X_{75,F}$	$X_{75,G7}$	$X_{75,G8}$	$X_{75,G9}$	$X_{75,G10}$	$X_{75,G11}$	$X_{75,G12}$

X = the calculated reliability measure (either % agreement or K) for all students with the corresponding characteristic who responded to the item.

Hence  $X_{3,F}$  is the calculated value for all females providing a response to item 3.

### *Results.*

#### *Comparison of percent observed agreement and K as measures of reliability.*

Table 9 has summary results for two selected reliability measures. In addition to the values for percent observed agreement and K, a p-value was calculated to test if the value of K is significantly different from zero for each item. The results as shown in Table 9 indicated that K values ranged from .24 to 1 for 55 non-problematic items, with a mean of .61 and a median of .58 while the percent observed agreement values ranged from 59.5% to 100%, with a mean of 89.6% and a median of 95%. For twenty items calculating Kappa was problematic due to one or more response categories having one or zero in the summary table used to calculate Kappa even though the percent observed agreement for the item was 89% or higher.

Table 9. Percent Observed Agreement, Kappa Statistic and Kappa P-value, by Item

Items	% Agreement	Kappa	p-value
<b>Behavior related to unintentional injuries and violence</b>			
Rarely or never wear helmet when riding a motorcycle	83.1	0.65	0.000
Rarely or never using walking bridge when crossing the street	65.3	0.47	0.000
Rarely or never using crosswalk when crossing the street	59.5	0.41	0.000
Rarely or never wear seatbelt when riding in a car	88.0	0.65	0.000
Rode with drinking driver during the past 30 days	86.0	0.48	0.000
Drove after drinking during the past 30 days	75.0	0.40	0.000
Carried weapon $\geq 1$ day during the past 30 days	96.0	0.58	0.000
Carried weapon on school property $\geq 1$ day during the past 30 days	96.5	0.61	0.000
Felt too unsafe to go to school $\geq 1$ day during the past 30 days	94.5	0.24	0.001
Threatened or injured with weapon on school property $\geq 1$ time in the past 12 months	98.5	0.56	0.000
Property was stolen or damaged on school property $\geq 1$ time in the past 12 months	88.0	0.41	0.000
In a physical fight $\geq 1$ time during the past 12 months	82.5	0.58	0.000
Injured in a physical fight $\geq 1$ time during the past 12 months	96.5	-0.02*	0.803
In a physical fight on school property $\geq 1$ time in past 12 months	83.5	0.52	0.000
Physically hurt by boyfriend or girlfriend during the past 12 months	95.5	0.38	0.000
Ever forced to have sexual intercourse	99.5	0.66	0.000
Felt sad and hopeless during the past 12 months	88.0	0.47	0.000
Considered suicide during the past 12 months	96.5	0.68	0.000
Planned suicide during the past 12 months	96.5	0.74	0.000
Had $\geq 1$ suicide attempt during the past 12 months	97.0	0.68	0.000
Had injurious suicide attempt during the past 12 months	73.5	0.31	0.000
<b>Tobacco use behavior</b>			
Ever used cigarettes	96.5	0.68	0.000
Age first smoked whole cigarette <13 years	96.5	0.45	0.000
Smoked cigarettes $\geq 1$ day during the past 30 days	100.0	1.00	0.000
Smoked $\geq 20$ cigarettes per day on the days smoked during the past 30 days	100.0	1.00	0.000
Bought cigarettes in a store or gas station during the past 30 days	100.0	1.00	0.000
Smoked cigarettes $\geq 1$ day on school property during the past 30 days	100.0	1.00	0.000
Ever smoked cigarettes regularly	96.0	-0.02*	0.803
Tried to quit smoking cigarettes during the past 12 months	92.3	0.08*	0.263
<b>Alcohol and other drug use behavior</b>			
Ever used alcohol	77.8	0.54	0.000
Age first drank alcohol < 13 years	79.0	0.61	0.000
Drank alcohol $\geq 1$ day during the past 30 days	84.5	0.48	0.000
Had 5 or more drinks in a row $\geq 1$ day during the past 30 days	95.0	0.62	0.000
Drank alcohol on school property $\geq 1$ day during the past 30 days	98.5	0.40	0.000
Ever used marijuana	100.0	1.00	0.000
Age first used marijuana < 13 years	99.5	0*	
Used marijuana during the past 30 days	100.0	NA*	
Used marijuana on school property during the past 30 days	100.0	NA*	

\* Problematic question for Kappa calculation

Table 9 (Continue). Percent Observed Agreement, Kappa Statistic and Kappa P-value, by Item.

Items	% Agreement	Kappa	p-value
Ever used Yaba (methamphetamines)	100.0	NA*	
Used Yaba during the past 30 days	100.0	NA*	
Used Yaba on school property during the past 30 days	100.0	NA*	
Ever used Yaba regularly	93.0	0.09*	0.204
Tried to quit using Yaba during the past 12 months	89.5	0.11*	0.108
Ever used cocaine	100.0	NA*	
Used cocaine during the past 30 days	100.0	NA*	
Ever used inhalants	100.0	1.00	0.000
Used inhalants during the past 30 days	100.0	NA*	
Ever used heroin	100.0	NA*	
Used heroin during the past 30 days	100.0	NA*	
Ever used Yaee (ecstasy)	100.0	NA*	
Used Yaee (ecstasy) during the past 30 days	100.0	NA*	
Ever injected illegal drugs	100.0	NA*	
Offered, sold, or given illegal drugs on school property during the past 12 months	91.5	0.08*	0.103
Used non-prescriptive medicine in the past 12 months	82.5	0.54	0.000
<b>Sexual behavior</b>			
Sexual orientation	93.0	0.72	0.000
Ever had sexual intercourse	98.5	0.83	0.000
Age first had sexual intercourse < 13 years	97.5	0.75	0.000
Had sexual intercourse with the opposite/same sex or both	98.5	0.84	0.000
Offensive comments were made or you were attacked because someone thought you were gay or lesbian	89.9	0.62	0.000
Had $\geq 4$ lifetime sex partners	96.0	0.94	0.000
Had $\geq 1$ sex partner during the past 3 months	98.0	0.77	0.000
Ever been pregnant or gotten someone pregnant	98.5	0.83	0.000
<b>Dietary behavior</b>			
Perceive self as overweight	93.4	0.85	0.000
Trying to lose weight	67.8	0.55	0.000
Exercised to lose or keep from gaining weight during the past 30 days	75.5	0.51	0.000
Ate less food, calories, or fat to lose or keep from gaining weight during the past 30 days	80.0	0.59	0.000
Fasted to lose or keep from gaining weight during the past 30 days	95.5	0.28	0.000
Took diet pills, powders, or liquids to lose or keep from gaining weight during the past 30 days	98.0	0.33	0.000
Vomited or took laxatives to lose or keep from gaining weight during the past 30 days	96.0	0.31	0.000
<b>Physical activity behavior</b>			
Watch $\geq 2$ hours of television on an average school day	81.2	0.55	0.000
Used computer for entertainment purposes $\geq 2$ hours on an average school day	82.9	0.59	0.000
Attend physical education class $\geq 1$ day a week	95.7	0.31	0.000
Exercise $\geq 20$ minutes during physical education class	82.7	0.56	0.000
Played on $\geq 1$ sports team during the past 12 months	81.5	0.48	0.000
<b>Other health-related topics</b>			
Ever been taught about AIDS or HIV in school	76.5	0.35	0.000

NA = Kappa could not be calculated because of no variability in responses (only one response given)

\* Problematic question for Kappa calculation

Of those twenty problematic items, for thirteen items all of the students selected the same response during both times meaning that there was perfect agreement between the two times. However, the value of K is impossible to calculate because the denominator is zero (1 minus 1 = zero). For example, the question “During the past 30 days, on how many days did you use Yaba [methamphetamines] on school property?” All participants selected the answer of “0 days” both the first and the second times they completed the questionnaire. This means that percent observed agreement is 100% but a value for K is impossible to calculate as is demonstrated below in Figure 7:

		2 <sup>nd</sup> time		Total
		0 day	One day or more	
1 <sup>st</sup> time	0 days	200	0	200
	One day or more	0	0	0
Total		200	0	200

$$\text{Observed agreement } (P_o) = (200+0) \div (200) = 1$$

$$\text{Expected agreement } (P_e) = [(200/200) * (200/200)] + [(0/200) * (0/200)] = 1$$

$$\text{Kappa} = (1-1) \div (1-1) = 0 \div 0 \text{ (Division by 0 is impossible.)}$$

Figure 7: Calculation of K When Percent Observed Agreement Is 100%.

This is a clear illustration of one limitation of the Kappa coefficient. The percent observed agreement of 100% does give a measure that makes sense for this case since it represents complete consistency in behavior reporting for the two time periods.

For one item all students selected the same response the first time, but one student did not select it the second time. In this case the percent observed agreement was

99.5%, but the value of K is calculated to be zero, which certainly does not seem reasonable since there was consistency in behavior reporting over time for 199 out of 200 students, the exception being the one student out of 200.

In addition, there were two items with negative values of K for which the percent observed agreement was high (between 96% and 96.5%). For example, the question “Have you ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days?” Of the 200, 192 selected the response of “No” for both the first and the second time of completing the questionnaire while none selected “Yes” both times. The percent observed agreement for this question is 96.0%. Six participants selected “Yes” the first time and “No” the second time. Two participants selected “No” at the first time and “Yes” the second time. The K was negative as demonstrated below in Figure 8:

		2 <sup>nd</sup> time		Total
		Yes	No	
1 <sup>st</sup> time	Yes	0	6	6
	No	2	192	194
Total		2	198	200

$$\text{Observed agreement } (P_o) = (0+192) \div (200) = 0.96$$

$$\text{Expected agreement } (P_e) = [(2/200) * (6/200)] + [(198/200) * (194/200)] = .9606$$

$$\text{Kappa} = (0.96-0.9606) \div (1-0.9606) = -0.01523$$

Figure 8. Demonstration of K As Negative Number When Percent Observed Agreement Is High.

Furthermore, for four items the researcher was able to calculate a Kappa but the value was very small and the p-value was insignificant. Of these four, three had no students selecting one or more response categories in the summary table used to calculate



Kappa, which means that one or more of the values for a, b, c, or d in Figure 1 is zero. This is similar to the three values of zero in the table in Figure 2 and the one zero in Figure 3. One item had a value of one for a response category in the Kappa calculation table. The percent agreement values for the four ranged from 89.5% to 93%. Having only a zero or a one in the Kappa calculation table for an item makes the calculation of Kappa problematic even though one can technically calculate an actual value for Kappa. In summary, all twenty problematic items have at least one value of zero or one in the Kappa calculation table. The actual effect on computing a Kappa ranges from making it impossible to yielding an extremely small or even negative value.

The above examples confirm the limitation of the K coefficient in a situation with low variability in responses as mentioned earlier. The paradoxical results produced by K are not surprising since the existence of such results has been well described in the literature (Feinstein & Cicchetti, 1990; Lantz & Nebenzahl, 1996). Relying solely on a calculated K coefficient can lead to misinterpretation when the results of an investigation reveal particularly high values of observed agreement. Therefore, in the present study, the determination of reliability for items is also based on percent observed agreement and twenty items have been labeled as problematic based the observed data.

#### *Reliability of the questionnaire.*

For 20 of the 75 items the data for 200 students were not sufficient for adequate evaluation using Kappa and these have been labeled as problematic. For these 20 items the percent observed agreement ranged from 89.5% to 100%. For 55 of the 75 items the

data have been judged to be reasonably sufficient for evaluation of reliability of these items using both Kappa and percent observed agreement.

Based on Landis and Koch's interpretation criteria for K (Landis & Koch, 1977), of the 55 items 45.5% of items had at least "substantial" reliability ( $K \geq 0.61$ ), and 81.8% had at least "moderate" reliability ( $K \geq 0.41$ ), as shown in Table 10. Approximately two-thirds (66.7 %) of all 75 items and 54.5% of the 55 items had a percent observed agreement value of at least 90%. Eighty-eight percent (88%) of the total 75 items and 83.6% of the 55 items had a percent observed agreement value of at least 80%.

Table 10. Frequencies of Kappa Values Using Landis and Koch's Kappa Interpretation Criteria (Landis & Koch, 1977)

<b>Kappa</b>	<b>Interpretation</b>	<b>Frequency</b>	<b>%</b>
Below 0.0	Poor agreement	0	0.00%
0.00-0.20	Slight agreement	0	0.00%
0.21-0.40	Fair agreement	10	18.18%
0.41-0.60	Moderate agreement	20	36.36%
0.61-0.80	Substantial agreement	14	25.45%
0.81-1.00	Almost perfect agreement	11	20.00%
Total		55	100.00%

Reliability testing of participant characteristics was conducted for significant differences in mean values of percent observed agreement and K by gender or grade level. For gender, this was tested using two independent paired t-tests, with a p-value of 0.0103 for percent observed agreement and a p-value of 0.0589 for K. For both measures the female average was higher than that for males. Due to the difficulty in calculating Kappa for some items the results were based on 50 observations rather than the 75 for

percent observed agreement. For grade level, the two-factor ANOVA p-values were 0.002 for percent observed agreement and 0.000 for K (see Table 11).

Table 11. Mean Percent Observed Agreement and Kappa Coefficient by Gender and Grade Level

<b>Characteristic</b>	<b>Mean of Percentage Observed Agreement (N)</b>	<b>Mean of Kappa (N)</b>
<b>Gender</b>	paired-t p-value = .0103	paired-t p-value = .0589
Male	90.76 (75)	.612 (50)
Female	92.27 (75)	.668 (50)
<b>Grade Level</b>	2-factor p-value = .002293	2-factor p-value = .00003
7	92.4 (75)	.722 (50)
8	92.9 (75)	.719 (47)
9	91.2 (75)	.660 <sup>^</sup> (51)
10	92.6 (75)	.774 (48)
11	91.8 (75)	.690 (44)
12	89.8* (75)	.601 <sup>#</sup> (47)
<b>Items/Questions</b>	2-factor p-value = $7 \cdot 10^{-99}$	2-factor p-value = $2.1 \cdot 10^{-32}$

\*Significant differences ( $\alpha=.05$ ) from the means for Grades 8 and 10

#Significant differences ( $\alpha=.05$ ) from the means for Grades 7, 8 and 10

<sup>^</sup>Significant differences ( $\alpha=.05$ ) from the mean for Grade 10

To determine the nature of the significant differences in the means of grade level, the Scheffe procedure was selected as the post hoc test. For percent observed agreement, the Grade 12 mean (mean percent observed agreement = 89.8%) was significantly below the means for Grades 8 (mean percent observed agreement = 92.9%) and 10 (mean percent observed agreement = 92.6%) (see Figure 9). For Kappa, the Grade 12 mean (mean K = .601) was significantly below the means for Grades 7 (mean K = 0.722), 8 (mean K = 0.719) and 10 (mean K = 0.774). Also for Kappa, the mean for Grade 9

(mean  $K = 0.660$ ) was significantly below the mean for Grade 10 (mean  $K = 0.774$ ) (see Figure 10).

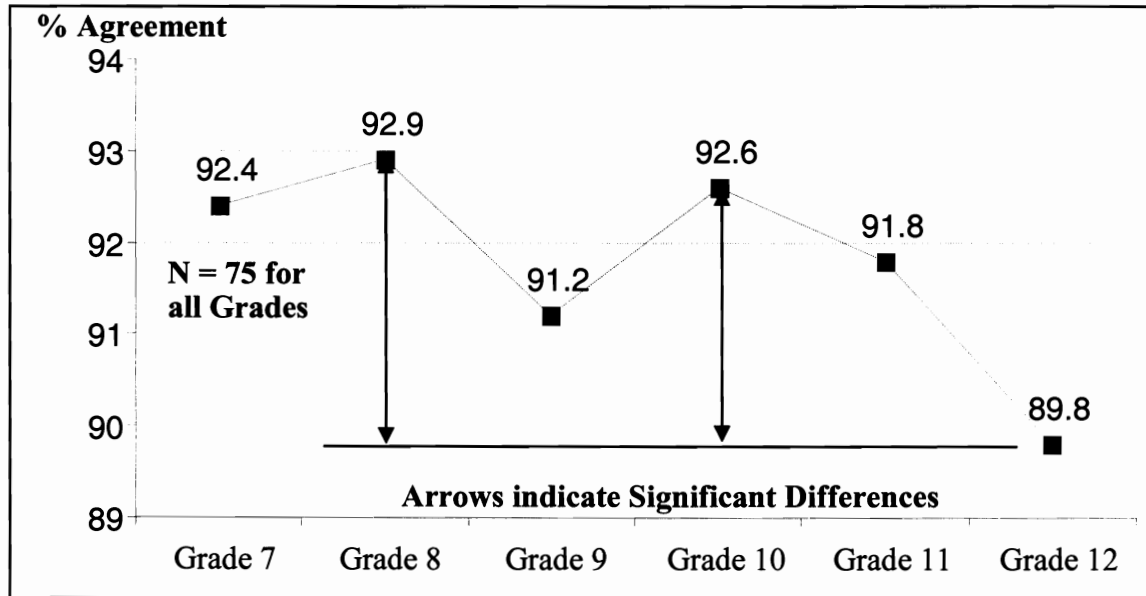


Figure 9: Two Factor ANOVA Post Hoc Significant Differences in Percent Observed Agreement Means.

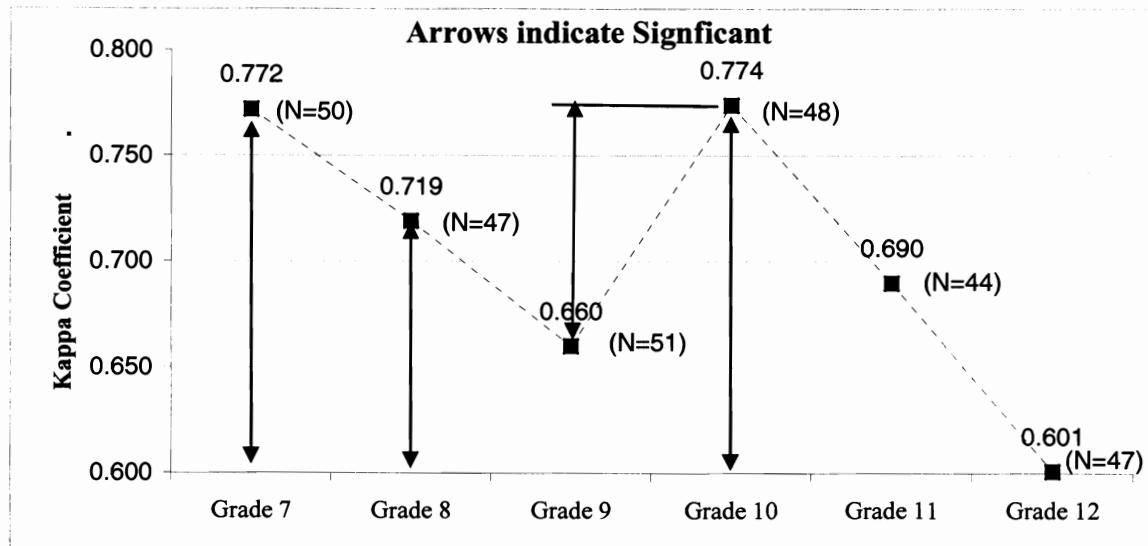


Figure 10: Two Factor ANOVA Post Hoc Significant Differences in Kappa Coefficient Means.

Considering the mean values of percent observed agreement and K among grade levels (see table 11), the results showed that the responses of 9<sup>th</sup> grade students were less consistent than those of students in the two previous grades of the “lower secondary school” and responses of 12<sup>th</sup> grade students were less consistent than those of students in the two previous grades of the “upper secondary school.” Note: The structure of school education in Thailand is based on a 6+3+3 system: six years of primary school, three years of lower secondary school and another three years of upper secondary school (Ministry of Education, 2007; Sedgwick, 2005).

The analysis of variance tests for risk behavior categories revealed significant differences with a p-value of 0.0016 for percent observed agreement and p-value of 0.0001 for K (see Table 12). To determine the nature of the significant differences in these means the Scheffe was selected as the post hoc test.

Table 12. Risk Behavior Category Mean Values Presented in Descending Order for Percent Observed Agreement and Kappa Coefficient

Risk-Taking Categories	(N)	Mean
Risk Category Ordered by Percent Observed Agreement Mean (ANOVA p-value = .001566)		Percent Agreement
Tobacco use	8	97.7
Sexual behavior	8	96.2
Alcohol and other drug use	25	95.6 <sup>#</sup>
Unintentional injuries and violence	21	87.6
Dietary behavior	7	86.6
Physical activity	5	84.8
Risk Category Ordered by Kappa Mean (ANOVA p-value = $2.67 \cdot 10^{-8}$ )		Kappa
Tobacco use	6	.854*
Sexual behavior	8	.788
Alcohol and other drug use	8	.648
Unintentional injuries and violence	20	.524
Physical activity	5	.499
Dietary behavior	7	.489

Note that (N) represents the number of measurements that were able to be calculated for the category and does not represent the number of students in the respective category.

<sup>#</sup> Significant difference ( $\alpha=.05$ ) from items related to unintentional injuries and violence

\*Significant differences ( $\alpha=.05$ ) from items related to unintentional injuries and violence, physical activity, and dietary behavior

For percent observed agreement, only alcohol and other drug use items (mean percent observed agreement = 95.6%) demonstrated a significantly higher reliability than unintentional injuries and violence items (mean percent observed agreement = 87.6%). It may seem counter intuitive that items ranked in the third and fourth position are significant when the items above and below them are not significant even though the actual differences in these means are larger than the one difference that is statistically significant. The reason for the lack of significance in these larger mean differences is due to the smaller sizes for these groups (see Figure 11).

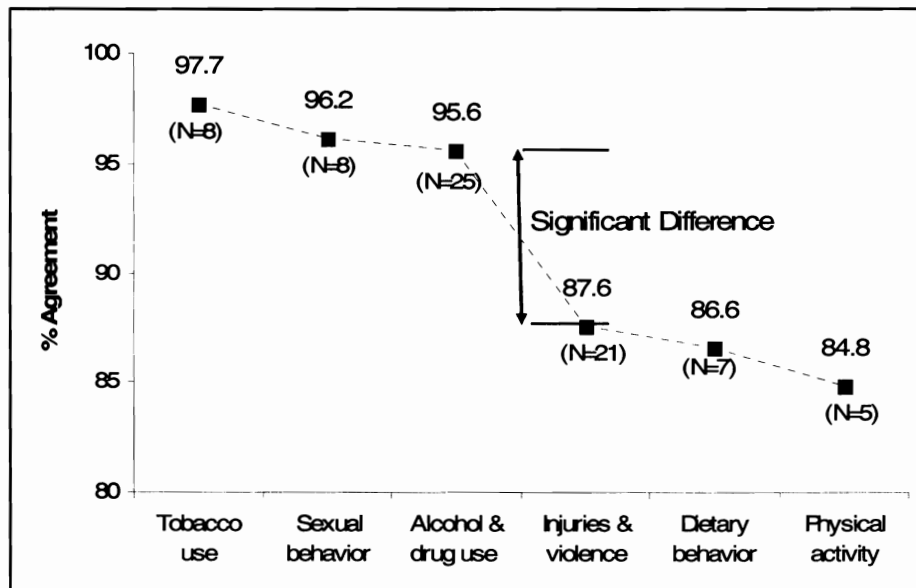


Figure 11: Single Factor ANOVA Post Hoc Significant Differences in Percent Agreement Means.

For Kappa, the tobacco use items (mean  $K = 0.854$ ) demonstrated significantly higher reliability than unintentional injuries and violence items (mean  $K = 0.524$ ), physical activity items (mean  $K = 0.499$ ), and dietary behavior items (mean  $K = 0.489$ ) (see Figure 12).

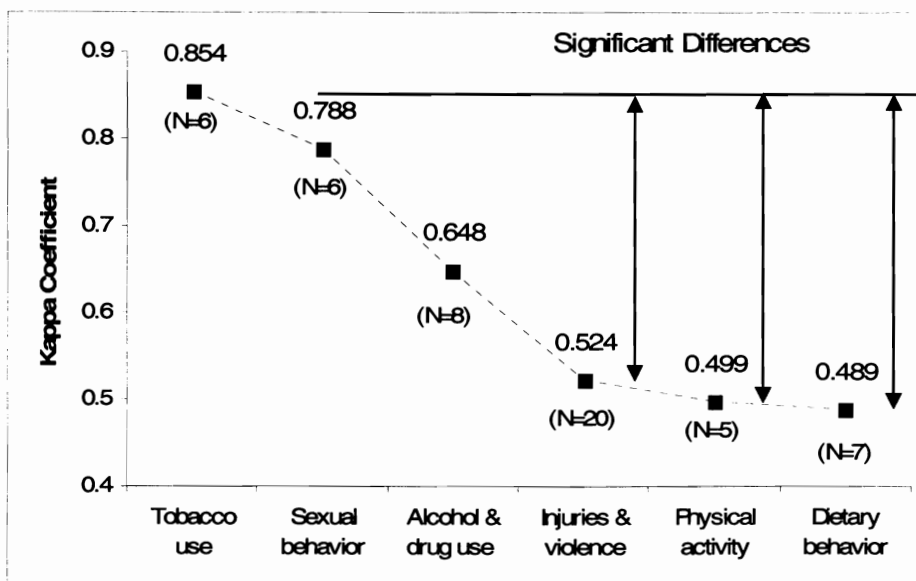


Figure 12: Single Factor ANOVA Post Hoc Significant Differences in Kappa Coefficient Means.

Questions included in the analyses for reliability used three different time reference periods including the past 30 days, the past 12 months, and lifetime. The time reference period used for a particular item depended on the type of question and the same question was not asked using all three different time reference periods. The previous results demonstrated significant differences between the various types of questions. With the time reference period being related to the type of question, one could not perform a meaningful significance test that would truly measure the unique effect of the time references. Hence only mean values are presented with no attempt to test for significance between the three time reference periods (see Table 13).

Table 13. Mean Percent Observed Agreement and Mean Kappa by Time Reference Period

<b>Period</b>	<b>Mean percent observed agreement/(N)</b>	<b>Mean Kappa/(N)</b>
Past 30 days	94.8 (25)	71.3 (25)
Past 12 months	85.8(18)	52.5 (15)
Life time	97.1 (9)	94.2 (9)

Note that (N) represents the number of measurements that were able to be calculated for the category and does not represent the number of students in the respective category.

### *Discussion.*

Of the 55 non-problematic items on the questionnaire, approximately eighty-two percent of the items had at least “moderate” reliability and slightly more than forty-five



percent had “substantial” reliability. The overall findings compare favorably with those found in the reliability study of the YRBS questionnaire in the United States (Brenner et al., 2002). The results of these two studies were similar. That is, values of K did not differ significantly by gender. Additionally, the mean K values in the current study are similar to those in the reliability studies of YRBS questionnaire although many of the items have been removed and new items added to the YRBS questionnaire in order to make them applicable to the Thai culture. However a significant difference by gender was found for percent observed agreement. Some items, using Kappa to measure reliability, had low reliability, a negative K, or K could not be calculated even though they had a particularly high percent observed agreement. The items with these difficulties were mainly in the alcohol and other drug use behavior category. These items seem to have high reliability based on percent observed agreement without having a high value of K. In these cases the vast majority of the students selected one response while only a few selected another response. A few respondents changing their responses between Time 1 and Time 2 had a substantial effect on K as mentioned earlier. For the grade levels, the results from this study indicated that the 9<sup>th</sup> grade students’ responses were less consistent than those of students in the two previous grades of the “lower secondary school” (grades 7-9) and responses of 12<sup>th</sup> grade students were less consistent than those of students in the two previous grades of the “upper secondary school” (grade 10-12).

In an attempt to understand this lack of consistency, the investigator explored some possible explanations. Based on the structure of public education in Thailand, the

9<sup>th</sup> grade is the last year of the lower secondary school before going into the upper secondary school and the 12<sup>th</sup> grade is the last year of the upper secondary school before going to a university. Admission to secondary schools as well as to a university is based on performance on entrance examination (Ministry of Education, 2007; Sedgwick, 2005). Both entrance examinations are highly competitive. The 9<sup>th</sup> grade and 12<sup>th</sup> grade students must prepare for these competitive examinations. Thus, some of the students may not have been interested in participating fully in the surveys. Some of them may also have had “senioritus,” and thus have had a hard time concentrating fully on the task at hand. Senioritus tends to affect students by causing them to not being able to focus and keep up their work at school; to show a lack of enthusiasm about anything school-related and a lack of interest in any class; to show a lack of participation in class; or to procrastinate on assignments. Moreover, the surveys were administered in January- February which is close to the time of entrance examination for these two grades (March- April). Given these reasons, students in the 9<sup>th</sup> and 12<sup>th</sup> grades are more likely to be inconsistent answering the survey than those in their two previous grades.

This study found that tobacco use items had significantly higher reliability than unintentional injuries and violence items, dietary behavior items, and physical activity items. These results also are similar to the reliability study of the YRBS (Brener et al., 2002). These results support a conclusion that adolescents are more likely to recall tobacco use than behavior that related to unintentional injuries and violence, dietary behavior, and physical activity. Shiffman pointed out that highly salient events are much more likely to be recalled because they are more prominent in memory or more available

to retrieval (Shiffman, 2000). Taking risks with tobacco use is much more memorable and important to most adolescents than being able to recall whether they were in a fight, what they ate, and how much they exercised. As noted here, these findings corroborate Shiffman's assertion.

### *Conclusion.*

The overall findings of this test-retest reliability study were similar to those found in the CDC's study of reliability of the 1999 YRBS (Brener et al., 2002). No significant differences were found in mean values of K by gender. The tobacco use items demonstrated significantly higher reliability than unintentional injuries and violence items, physical activity items, and dietary behavior items. Questions regarding everyday behavior, such as dietary practices and physical behavior have a lower reliability which may be due to young persons' recall of these activities. Students in the 9<sup>th</sup> and 12<sup>th</sup> grades are less consistent answering the survey than those in their two previous grades indicating that administration of the survey should be avoided too closely to the time of their entrance examinations. The findings suggest that both Cohen's K and percent observed agreement should be used to assess test-retest reliability for this type of questionnaire. Cases exist for which Kappa can not be calculated even though the percent observed agreement is 100%. The value of Kappa can be low or negative for relatively high percent observed agreement. These items will most likely be of little value for analysis purposes because the vast majority of participants all chose the same response. This may not be true when applied to another population, but these

problematic items should be subjected to further study in other settings to determine if these items need to be revised or deleted from the instrument.

Overall, the modified version of YRBS for Thai adolescents has been shown to be a reliable questionnaire for use among Thai adolescents to measure risk behavior. The researcher will continue to modify and improve the instrument to keep it relevant to the Thai culture.

### *Present Study*

#### *Sample*

The target population for this study consisted of adolescents studying at secondary schools in Bangkok. Sample size plays a major role in precision of a study (Pedhazur & Schmekin, 1991). Although the determination of sample size depends on the number and type of variables and the method of planned statistical analysis, power analysis is the most appropriate method to indicate sample size (Cohen, 1988). Using power analysis serves two interrelated purposes: to estimate sample size and to determine the power of a statistical test (Polit & Hungler, 1999). Four elements are involved in performing power analysis: sample size ( $N$ ), significance criterion ( $\alpha$ ), population effect size ( $ES$ ), and statistical power (Cohen, 1988; Polit & Hunger, 1999). These are so related that any one of them is a function of the other three, which means that when any three are fixed, the fourth is completely determined (Cohen, 1988).

Sample size for this study was calculated based on a power analysis using Pearson's product-moment correlation and chi-square test of independence, which were

used to answer the research questions relative to relationships between variables. The effect size was selected based on the results from the pilot study of the correlation between the variables of the study and the differences among the variables. The pilot study results showed an average of a 0.1 correlation between variables for risk and resilience, which is considered a small effect size. Even though the results showed a medium degree of association using chi-square in risk-taking behavior among gender and grade levels, this study used a small effect size to calculate the sample size in order to assure adequate power.

Using Cohen's table of sample size (Cohen, 1992), for *Pearson's product moment correlation*, with a desired alpha of 0.05, a power 0.80, and a *medium* population effect size ( $ES = .30$ ) a minimum sample of 85 participants was necessary to detect statistically significant results, while the total 783 participants was necessary for a *small* population effect size ( $ES = .10$ ). For *chi-square*, to detect a *medium* degree of association in the population ( $ES = .30$ ), an alpha of 0.05, a power 0.80, and 5 degrees of freedom, a minimum sample of 143 participants was necessary to detect statistically significant results, while a total of 1293 participants was necessary to detect a *small* degree of association in the population ( $ES = .10$ ). Given these requirements, the study required between 783 and 1293 participants, which were obtained using the sampling strategy outlined below.

### *Sampling Techniques*

The following multi-stage sampling techniques (Burns & Grove, 1999; Gillis & Jackson; 2002; Polit & Hungler, 1999) were used to identify the sample:

1. Selection of study area: There were three major geographical areas of Bangkok. Participants were drawn from all three major geographical areas of Bangkok.
2. Selection of secondary school: Two secondary schools having both male and female students were selected from each geographical area, i.e., a total of six school were represented in the study.
3. Selection of class: One class was drawn from each education level (grades 7, 8, 9, 10, 11, 12) for the two schools located in each geographical area. Thus, six classes were selected from each secondary school, which means that study participants from 36 classes were recruited to participate in the study if their parents allowed them to do so, and if they were willing to participate.

### *Sample Criteria /Sample Recruitment and Data Collection*

Participants ranged in age from 11-19 years old and were attending secondary schools located in Bangkok, Thailand. Due to methodology used by the Royal Thai Government in selecting students for secondary schools in Thailand, no participant was included who was either cognitively impaired or had language/hearing difficulties. All participants had to be able to read and speak Thai. Inclusion criteria included written parental permission and written participant assent. Prior to project start-up, the study proposal was approved by the VCU Institutional Review Board (IRB) and the Ethical

Clearance Committee on Human Rights Related to Research Involving Human Subjects, Faculty of Medicine, Ramathibodi Hospital, Mahidol University located in Bangkok, Thailand.

After the six schools were identified, the researcher approached each school principal to explain all information associated with the study. Of these, one of the six schools was selected for assessing the test-retest reliability of the Thai Adolescent Resilience and Risk Survey as pointed out in the test-retest reliability study (see step 5 previously).

After obtaining permission to contact potential participants, the researcher met them in an assigned room in each school. After explaining the study's purposes, the researcher asked the students to take an explanatory letter and a permission form to their parents or guardian to seek approval for their participation in the study. The explanatory letter provided information about the purpose, the procedures, the nature, the risks, and usefulness of the study. Signed permission forms were returned to the researcher. Only those students who had parental permission were allowed to participate in the study.

All students were required to give their written assent in order to participate in the study. The researcher read the assent form aloud to them and had them sign it after they had had their questions answered. Any student having an individual or private question was given the opportunity to have the question answered in private by the researcher prior to signing the assent form. This means that each student was fully informed by verbal explanation and had a copy of the assent form which provided information about what was required of participants; his or her rights and the necessary safeguards to

protect confidentiality, and how to contact the researcher and a representative of the IRB. Each participant was assured that the questionnaires would not be graded, that his or her responses would not affect his or her grades in any way, and that he or she might discontinue participating in the study at any time and for any reason without negative consequences.

After being recruited, each participant was asked to anonymously complete a set of questionnaires, recording their responses on a computer scan answer sheet. Names or other identifying information were not collected. The questionnaires took approximately 40-60 minutes to complete and were administered after school or during a free period.

#### *Data Analysis*

After the data were collected, the researcher reviewed the answer sheets to determine if the responses were usable. The answer sheets which were mostly incomplete or contained inapplicable information were discarded. The completed answer sheets were scanned into computer files to permit easy statistical analysis of the participants' responses. Then, the questions containing multiple response categories were recoded to be the two response categories as standard YRBSS, "no risk" vs. "at risk." For example, students who responded that they rode in a car or other vehicle driven by someone who had not been drinking alcohol during the past 30 days were classified as "no risk," while as those who reported that they rode in a car or other vehicle driven by someone who had been drinking alcohol on one or more of the past 30 days were



classified as “at risk.” These sets of data were analyzed using the SPSS for Windows, version 14.0 statistical software program as follows:

1. Descriptive statistics were used to compute frequencies and percentages related to the demographic variables of age, gender, education level, ethnicity, financial status, family atmosphere, living situation, average grades in school, and spending time with friends after school without an adult present, and risk-taking behavior.

2. Descriptive statistics were used to summarize information for the age of initiation of smoking, alcohol use, marijuana use, and sexual intercourse.

3. Descriptive statistics were used to compute mean and standard deviation of resilience and resilience factors.

4. A one-way analysis of variance (ANOVA) was used to test the differences in resilience among school grade levels and age groups.

5. Chi-square tests of independence were performed to detect the differences in various risk-taking behaviors among gender and grade subgroups.

6. Pearson’s product-moment correlations were calculated to examine the relationships among resilience, risk-taking behavior and personal characteristics.

## CHAPTER 4

### Findings

The study's objectives were to determine the relationships among resilience, risk-taking behavior and personal characteristics of the participants involved in the study. Study results are presented in this chapter in the following order. First, a description of the demographic characteristics of the sample and a description of resilience factors are provided. Secondly, risk-taking behavior is then described and the differences in such behavior by school grade and gender are identified. Thirdly, ages of participants in their initial use of tobacco, alcohol, and marijuana, and when they first engaged in sexual intercourse are explored. Finally, the relationships between resilience, risk-taking behavior and personal characteristics are examined.

#### *The Sample's Demographic Characteristics*

Of the 1514 students enrolled in the six schools and thirty-six classes, 1417 (93.6%) agreed initially to participate in the study. However, 97 (6.4%) of these students did not participate in the study for various reasons including, among others, being absent on the day of data collection; failure to return a parent permission form; refusal by parents to permit their son or daughter to participate; and/or refusal by the potential participant. Of those who participated, only 8 (0.6%) did not completely answer the

questionnaires. The remaining 1409 (99.4%) of participants came from 6 schools --213 (15.1%) from the 1<sup>st</sup> school, 255 (18.1%) from the 2<sup>nd</sup> school, 259 (18.4%) from the 3<sup>rd</sup> school, 174 (12.3%) from the 4<sup>th</sup> school, 249 (17.7%) from the 5<sup>th</sup> school, and 259 (18.4%) from the 6<sup>th</sup> school. By gender, 54% of the participants were female (N = 759) and 46% were male (N= 647). Note: Only 3 students did not identify their genders. The largest number of participants (19.4%) was 14 years of age. Only one participant (0.1 %) was 11 years or younger while 8.0% were 18 years or older. Almost nineteen percent (18.8%) of participants were in the 7<sup>th</sup> grade (Matayom 1); 18.6% in the 8<sup>th</sup> grade (Matayom 2); 20% in the 9<sup>th</sup> grade (Matayom 3); 12.9% in the 10<sup>th</sup> grade (Matayom 4); 15.2% in the 11<sup>th</sup> grade (Matayom 5); and 14.2% in the 12<sup>th</sup> grade (Matayom 6). By ethnicity, the majority of participants (96.3%) were Thai while only a few (3.1%) were Chinese.

A majority of the participants (95.5%) lived with their families. During the 12 months immediately preceding the study, almost one half (48.5%) reported that their families quarreled occasionally while a few (4.0%) of the families spent a substantial portion of their time quarrelling with one another. Alternatively, 47.5% reported harmonious relationships within their families. More than one half (57.4%) of the participants spent at least one hour or more after school without an adult present during one or more days per week. Also 56.1% of the participants indicated that they always received sufficient funds from their family while slightly more than eight percent (8.3%) reported rarely or never receiving sufficient funds from their family. More than one third (35.6%) reported they sometimes received sufficient fund from their family. During the

12 months immediately preceding the survey, 24.4 % of the participants' grades were mostly A's; 59% were mostly B's and C's; and only 5% were mostly D's and F's (see Table 14).

Table 14. Demographic Characteristics of the Study Sample (N = 1409)

Variables		Number (N)	Percentage (%)	
Participants from 6 Schools (N=1409)	1 <sup>st</sup> School	213	15.1	
	2 <sup>nd</sup> School	255	18.1	
	3 <sup>rd</sup> School	259	18.4	
	4 <sup>th</sup> School	174	12.3	
	5 <sup>th</sup> School	249	17.7	
	6 <sup>th</sup> School	259	18.4	
Gender (N = 1406)	Male	647	46	
	Female	759	54	
Age (in years) (N = 1407)	11 and younger	1	0.1	
	12	104	7.4	
	13	250	17.8	
	14	273	19.4	
	15	242	17.2	
	16	199	14.1	
	Mean = 14.9 S.D. = 1.8	17	225	16.0
	18 and older	113	8.0	
Educational level (N = 1406)	Matayom 1 (grade 7)	264	18.8	
	Matayom 2 (grade 8)	262	18.6	
	Matayom 3 (grade 9)	281	20.0	
	Matayom 4 (grade 10)	182	12.9	
	Matayom 5 (grade 11)	218	15.1	
	Matayom 6 (grade 12)	199	14.2	
Ethnicity (N = 1406)	Thai	1354	96.3	
	Chinese	44	3.1	
	Other	8	0.6	

Table 14 (continued). Demographic Characteristics of the Study Sample (N = 1409)

<b>Variables</b>		<b>Number (N)</b>	<b>Percentage (%)</b>
Living situation (N = 1407)	On your own	14	1.0
	With family	1343	95.5
	With a friend	7	0.5
	Other	43	3.1
The family atmosphere (N = 1405)	Harmonious	667	47.5
	Sometime quarrelling	682	48.5
	Quarrelling most of the time	56	4.0
On how many days no adult supervises them after school (N = 1405)	None	598	42.6
	1 day	329	23.4
	2 days	161	11.5
	3 days	78	5.6
	4 days	47	3.3
	5 or more days	192	13.7
How sufficient is their money (N = 1407)	Never sufficient	20	1.4
	Rarely sufficient	97	6.9
	Sometimes sufficient	501	35.6
	Always sufficient	789	56.1
Average grades in school (N = 1404)	Mostly A's	342	24.4
	Mostly B's	513	36.5
	Mostly C's	316	22.5
	Mostly D's	60	4.3
	Mostly E's	10	0.7
	None of these grade	12	0.9
	Not sure	151	10.8

### *Resilience*

The participants' resilience scores (see Table 15) ranged from 72 to 161 with a mean of 125.55 and standard deviation of 11.44. For each of the three resilience factors, "I AM" scores ranged from 29 to 70 (mean = 53.01, SD = 5.64); "I CAN" scores ranged from 14 to 50 (mean = 38.27, SD = 5.64); and "I HAVE" scores ranged from 22 to 44 (mean = 34.27, SD = 3.50). Additionally, the mean resilience scores of students in the 10<sup>th</sup> (126.87), 11<sup>th</sup> (126.27), and 12<sup>th</sup> (127.44) grades were significantly higher than those of students in the 7<sup>th</sup> grade (123.11) (see Table 16). When considered by age group, the results demonstrated that older students have higher mean resilience scores (see Table 17). More specifically, the mean resilience score of students in the 17 year-old-age group (127.34) was significantly higher than those in the 12 and 13 year-old age groups (122.88 and 123.93, respectively).

Table 15. Minimum, Maximum, Mean and Standard Deviation of Resilience and Resilience Factors of Thai Students Living in Bangkok (N=1408)

	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Standard Deviation</b>
Resilience	72	161	125.55	11.440
- I AM	29	70	53.01	5.644
- I CAN	14	50	38.27	4.093
- I HAVE	22	44	34.27	3.504

Table 16. Minimum, Maximum, Mean and Standard Deviation of Resilience by Grade of Thai Students Living in Bangkok

	Resilience				N
	Minimum	Maximum	Mean	Standard Deviation	
Matayom 1(grade 7)	72	153	123.11	11.91	264
Matayom 2(grade 8)	88	157	125.08	12.10	262
Matayom 3(grade 9)	97	161	125.56	10.98	281
Matayom 4 (grade 10)	92	149	126.87*	11.70	182
Matayom 5 (grade 11)	98	152	126.27*	9.65	218
Matayom 6 (grade12)	86	157	127.44*	11.59	199

\* Significant differences from mean scores of grade 7,  $p < .05$

Table 17. Minimum, Maximum, Mean and Standard Deviation of Resilience by Age of Thai Students Living in Bangkok

	Resilience				N
	Minimum	Maximum	Mean	Standard Deviation	
11 years or younger	103	103	103.00 <sup>^</sup>	.	1
12 years old	99	153	122.88*	12.26	104
13 years old	88	157	123.93*	11.82	250
14 years old	97	158	125.70	10.96	273
15 years old	98	161	126.64	10.95	242
16 years old	92	149	125.17	11.79	199
17 years old	90	157	127.34	9.93	225
18 years or older	72	156	126.50	12.97	113

<sup>^</sup> Did not included in one way AONOVA analysis because of having only one participant

\* Significant differences from mean scores in the age group of 17 years,  $p < .05$

### *Risk-Taking Behavior*

#### *Behavior That Contributes to Unintentional Injuries*

*Motorcycle helmet use.* Among the 81.8% of the students who had ridden a motorcycle during the 12 months immediately preceding the survey, 58.9 % reported having rarely or never worn a helmet when driving a motorcycle or riding on a motorcycle driven by someone else. There were significant differences among grades for this behavior. Of these students, the students in grades 8 (18.1%) and 9 (20.5%) were more likely to have done so than the students in grades 7, 10, 11, 12 (14.3%, 13.4%, 16.2%, and 17.4%, respectively). Overall, female students (32.2%) were found to be significantly more likely than male students (26.7%) to have done so (Table 18).

*Walking bridge use.* Overall, only 2.5% of the participants had **never** used a walking bridge when crossing the street during the 12 months immediately preceding the survey. Of these students, students in grade 9 (32.4%) were more likely to have never done so than students in grades 7, 8, 10, 11, and 12 (17.6%, 20.6%, 11.8%, 8.8%, and 8.8%, respectively). Overall, male students (1.4%) were more likely than female students (1.1%) to have never done so. However, there were not significant differences by grade or gender for this behavior (Table 18).

*Crosswalk use.* Overall, 7.2% of students had never used a crosswalk when crossing the street during the 12 months immediately preceding the survey. Of these students, students in grade 8 (24.8%) were more likely to have never done so than the students in grades 7, 9, 10, 11, and 12 (18.8%, 20.8%, 8.9%, 14.9%, and 11.9%,



respectively). Overall, male students (3.7%) were more likely than female students (3.5%) to have never done so. However, there were not significant differences by grade or gender for this behavior (Table 18).

*Seat belt use.* Among the 95.4 % of the students who rode in a car driven by someone else, 29.8 % had rarely or never worn a seat belt when riding in a car driven by someone else during the 30 days immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grades 8 (21.5 %) and 9 (21.5 %) were more likely to have rarely or never done so than students in grades 7, 10, 11, and 12 (17.8 %, 14.8 %, 12.5 %, and 12.0 %, respectively). Overall, female students (16.3%) were more likely than male students (13.5%) to have rarely or never worn a seat belt. However, there were not significant differences by gender for this behavior (Table 18).

*Rode with a driver who had been drinking alcohol.* During the 30 days immediately preceding the survey, 20.2% of all students had ridden one or more times in a car or other vehicle driven by someone who had been drinking alcohol. Of these students, students in grades 7 (19.7 %) and 9 (20.1 %) were more likely to have done so than students in grades 8, 10, 11 and 12 (16.5%, 14.1%, 17.3%, and 12.3 %, respectively). Overall, female students (10.8%) were more likely than male students (9.4%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 19).

*Drove when drinking alcohol.* Among the 42.2 % of the students who had driven a car or other vehicle during the 30 days immediately preceding the survey, 11.1 %

reported driving a car or other vehicle one or more times when they had been drinking alcohol (Table 19). There were significant differences among grades for this behavior. Of these students, students in grades 10 (24.2 %) and 11 (22.7 %) were more likely to have done so than students in grades 7, 8, 9, and 12 (19.7 %, 12.1 %, 10.6 %, and 10.6 %, respectively). Overall, male students (7.9%) were significantly more likely than female students (3.2%) to have done so (Table 19).

*Carried a weapon.* Overall, 10.2% of students had carried a weapon (e.g., a gun, knife, or club) on  $\geq 1$  of the 30 days immediately preceding the survey. Of these students, students in grades 8 (22.2 %) and 9 (20.1 %) were more likely to have done so than students in grades 7, 10, 11, and 12 (18.1 %, 17.4 %, 14.6 %, and 7.6 %, respectively). However, there were not significant differences by grades for this behavior. Overall, male students (6.0%) were significantly more likely than female students (4.2%) to have done so (Table 19).

*Carried a weapon on the school property.* Overall, 6.6% of students had carried a weapon (e.g., a gun, knife, or club) on the school property on  $\geq 1$  of the 30 days immediately preceding the survey. Of these students, students in grade 7 (21.5%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (18.3%, 19.4%, 17.2 %, 10.8% and 12.9%, respectively). Overall, male students (3.6%) were more likely than female students (3.0%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 19).

*Did not go to school because of safety concerns.* Overall, 9.0 % of students had not gone to school on  $>1$  of the 30 days immediately preceding the survey because they

felt they would be unsafe at school or on their way to or from school. Of these students, students in grade 7 (25.4%) were more likely to have not done so than students in grades 8, 9, 10, 11, and 12 (15.1%, 15.9%, 15.9%, 19.0%, and 8.7%, respectively). Overall, male students (4.7%) were more likely than female students (4.3%) to have not done so. However, there were not significant differences by grade or gender for this behavior (Table 20).

*Threatened or injured with a weapon on school property.* During the 12 months immediately preceding the survey, 5.4% of all students had been threatened or injured with a weapon (e.g., a gun, knife, or club) on school property one or more times. There were significant differences among grades for this behavior. Of these students, students in grade 7 (30.3 %) were more likely to have been threatened than students in grades 8, 9, 10, 11, and 12 (15.8%, 14.5%, 19.7%, 13.2% and 6.6 %, respectively). Overall, male students (3.2%) were significantly more likely than female students (2.2%) to have been threatened (Table 20).

*Had property stolen or damaged on school property.* Overall, 21.5% of students had had their property (e.g., car, clothing, or books) stolen or deliberately damaged on school property one or more times during the 12 months immediately preceding the survey. There were significant differences among grades for this risk-taking behavior. Of these students, students in grade 7 (24.8 %) were more likely to have had property stolen or damaged than students in grades 8, 9, 10, 11, and 12 (19.9 %, 19.9 %, 14.6 %, 8.6 %, and 12.3 %, respectively) (Table 14). Overall, female students (11.8%) were more

likely than male students (9.7%) to have had this happen to them. However, there were not significant differences by gender (Table 20).

*In a physical fight.* Overall, 47.7% of students had been in a physical fight one or more times during the 12 months immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grades 7 (20.8 %) and 9 (20.8 %) were more likely to have done so than students in grades 8, 10, 11 and 12 (19.1 %, 15.6 %, 12.9 %, and 10.8 %, respectively). Overall, male students (25.2%) were significantly more likely than female students (22.5%) to have done so (Table 20).

*Injured in a physical fight.* Overall, 7.7% of students had been in a physical fight one or more times during the 12 months immediately preceding the survey in which they were injured and had to be treated by a doctor or nurse. There were significant differences among grades for this behavior. Of these students, students in grades 7 (25 %) and 10 (22.2 %) were more likely to have been treated by a doctor or nurse than students in grades 8, 9, 11, and 12 (16.7 %, 14.8%, 14.8%, and 6.5%, respectively). Overall, male students (5.0%) were significantly more likely than female students (2.7%) to have done so (Table 21).

*In a physical fight on school property.* Overall, 42.6% of students had been in a physical fight on school property one or more times during the 12 months immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grades 7 (20.9%) and 8 (20.2%) were more likely to have

done so than students in grades 9, 10, 11 and 12 (19.9%, 14.9%, 12.9%, and 11.2%, respectively). Overall, male students (23.2%) were significantly more likely than female students (19.4%) to have done so (Table 21).

*Dating violence.* During the 12 months immediately preceding the survey, 6.5% of all students had been hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend. Of these students, students in grade 11 (20.9%) were more likely to have been abused than students in grades 7, 8, 9, 10, and 12 (19.8%, 12.1%, 19.8%, 12.1% and 15.4%, respectively). Overall, male students (3.4%) were more likely than female students (3.1%) to have been abused. However, there were not significant differences by grade or gender for this behavior (Table 21).

*Forced to have sexual intercourse.* Overall, 2.1% of students had been physically forced to have sexual intercourse when they did not want to so. Of these students, students in grades 7 (23.3%) and 9 (26.7%) were more likely to have been raped than students in grades 8, 10, 11, and 12 (16.7%, 16.7%, 6.7%, and 10%, respectively). Overall, female students (1.3%) were more likely than male students (0.8%) to have been raped. However, there were not significant differences by grade or gender for this behavior (Table 21).

*Felt Sad or Hopeless.* During the 12 months immediately preceding the survey, 20.3% of all students had felt so sad or hopeless almost every day for >2 weeks in a row that they stopped carrying out some of the normal day-to-day activities. Of these students, students in grade 9 (19.6%) were more likely to have felt this way than students in grades 7, 8, 10, 11, and 12 (17.9%, 14.4%, 16.8%, 15.1%, and 16.1%, respectively).

Overall, female students (11.3%) were more likely than male students (9.0%) to have felt this way. However, there were not significant differences by grade or gender for this behavior (Table 22).

*Seriously considered attempting suicide.* Overall, 11.4% of all students had seriously considered attempting suicide during the 12 months immediately preceding the survey. Of these students, students in grades 7 (21.9%) and 9 (21.9%) were more likely to have done so than students in grades 8, 10, 11, and 12 (16.3%, 11.9%, 18.1%, and 10%, respectively). Overall, female students (6.3%) were more likely than male students (5.1%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 22).

*Made a suicide plan.* During the 12 months immediately preceding the survey, 11.5% of all students had made a plan about how they would attempt suicide. Of these students, students in grade 7 (22.4%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (18.0%, 18.0%, 11.8%, 18.6%, and 11.2%, respectively). Overall, female students (6.9%) were more likely than male students (4.6%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 22).

*Attempted suicide.* Overall, 9.3% of all students had actually attempted suicide one or more times during the 12 months immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 7 (33.1%) were more likely to have attempted suicide than students in grades 8, 9, 10, 11, and 12 (16.9%, 19.2%, 11.5%, 11.5% and 7.7%, respectively). Overall, female

students (5.3%) were more likely than male students (4.0%) to have done so. However, there were not significant differences by gender for this behavior (Table 22).

*Suicide attempt treated by a doctor or nurse.* Overall 12.4% of the students had made a suicide attempt that resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse during the 12 months immediately preceding the survey. Of these students, students in grade 7 (27.3%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (16.7%, 16.7%, 21.2%, 9.1%, and 9.1%, respectively). However, there were not significant differences by grades for this behavior. Overall, the percentage by gender were the same (6.2% and 6.2%) (Table 22).

#### *Tobacco Use*

*Lifetime cigarette use.* Overall, 16.3% of students had ever tried cigarette smoking (i.e., lifetime cigarette use). There were significant differences among grades for this behavior. Of these students, students in grades 8 (21.4%) and 10 (21.8%) were more likely to have done so than students in grades 7, 9, 11, and 12 (9.6%, 14.4%, 17.9%, and 14.8%, respectively). Overall, male students (10.4%) were significantly more likely than female students (5.9%) to have done so (Table 23).

*Current cigarette use.* Overall, 6.5% of students had smoked cigarettes on  $\geq 1$  of the 30 days immediately preceding the survey (i.e., current cigarette use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (23.1%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (17.6%, 7.7%, 20.9%, 20.9%, and 9.9%, respectively). Overall, male students

(4.6%) were significantly more likely than female students (1.9%) to have done so (Table 23).

*Current frequent cigarette use.* Overall, 1.6% of students had smoked cigarettes on  $\geq 20$  of the 30 days immediately preceding the survey (i.e., current frequent cigarette use). There were significant differences among grades for this behavior. Of these students, students in grade 11 (45.5%) were more likely to have done so than students in grades 7, 8, 10, and 12 (18.2%, 13.6%, 18.2%, and 4.5%, respectively). No students in grade 9 reported this behavior. Overall, male students (1.4%) were more likely than female students (0.2%) to have done so. However, there were not significant differences by gender for this behavior (Table 23).

*Smoked > 10 cigarettes/day.* Among the 6.5% of students who reported current cigarette use, 7.2% of students had smoked >10 cigarettes/day on the days they smoked during the 30 days immediately preceding the survey. Of these students, students in grade 7 (42.90%) were more likely to have done so than students in grades 8, 9, 10, and 11 (14.30% each). No students in grade 12 reported this behavior. Overall, male students (4.1%) were more likely than female students (3.1%) to have done so (Table 23).

*Smoked > 20 cigarettes/day.* Among the 6.5% of students who reported current cigarette use, 3.1% of students had smoked >20 cigarettes/day on the days they smoked during the 30 days immediately preceding the survey. Students engaging in this risk behavior were students in grades 7, 8, and 9 (33.3 % of each). All of them were male (3.1%) (Table 23).



*Bought cigarettes in a store or gas station.* Among the 6.5% of all students who reported current cigarette use, 36.1% usually bought their cigarettes in a store (i.e., convenience store, supermarket, or discount store) or gas station during the 30 days immediately preceding the survey. Of these students, students in grade 11 (34.3%) were more likely to have done so than students in grades 7, 8, 9, 10, and 12 (11.4%, 11.4%, 8.6%, 28.6%, and 5.7%, respectively). Overall, male students (26.8%) were more likely than female students (9.3%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 24).

*Lifetime daily cigarette use.* Overall, 5.2% of students had ever smoked at least one cigarette every day for 30 days (i.e., lifetime daily cigarette use). Of these students, students in grades 9 (23.3%) and 11 (23.3%) were more likely to have done so than students in grades 7, 8, 10 and 12 (15.1%, 12.3%, 13.7%, and 12.3%, respectively). However, there were not significant differences by grades for this behavior. Overall, male students (3.1%) were significantly more likely than female students (2.1%) to have done so (Table 24).

*Tried to quit smoking cigarettes.* Among the 13.1% of all students who reported smoking cigarettes during the 12 months immediately preceding the survey, 52.2% had tried to quit smoking cigarettes. There were significant differences among grades for this behavior. Of these students, students in grades 8 (22.9%) and 11 (24.0%) were more likely to have done so than students in grades 7, 9, 10, and 12 (15.6%, 11.5%, 17.7%, and 8.3%, respectively). Overall, male students (36.4%) were more likely than female

students (15.8%) to have done so. However, there were not significant differences by gender for this behavior (Table 24).

### *Alcohol and Other Drug Use*

*Lifetime alcohol use.* Overall, 45.4% of students had had at least one drink of alcohol on >1 day during their life (i.e., lifetime alcohol use). There were significant differences among grades for this behavior. Of these students, students in grade 9 (22.8%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (10.2%, 15.5%, 14.3%, 17.9%, and 19.3%, respectively). Overall, female students (23.2%) were more likely than male students (22.2%) to have done so. However, there were not significant differences by gender for this behavior (Table 25).

*Current Alcohol Use.* Overall, 25.6% of students had had at least one drink of alcohol on >1 of the 30 days immediately preceding the survey (i.e., current alcohol use). There were significant differences among grades for this behavior. Of these students, students in grades 9 (20.1%) and 11 (21.4%) were more likely to have done so than students in grades 7, 8, 10, and 12 (12.5%, 15.3%, 14.8%, and 15.9%, respectively). Overall, male students (13.3%) were significantly more likely than female students (12.3%) to have done so (Table 25).

*Episodic heavy drinking.* Overall, 11.4% of students had had >5 drinks of alcohol in a row (i.e., within a couple of hours) on >1 of the 30 days immediately preceding the survey (i.e., episodic heavy drinking). There were significant differences among grades for this behavior. Of these students, students in grade 11 (25.0%) were more likely to

have done so than students in grades 7, 8, 9, 10 and 12 (15.0%, 11.9%, 13.8%, 21.9%, and 12.5%, respectively). Overall, male students (7.1%) were significantly more likely than female students (4.3%) to have done so (Table 25).

*Lifetime marijuana use.* Overall, 4.3% of students had used marijuana one or more times during their life (i.e., lifetime marijuana use). There were significant differences among grades for this behavior. Of these students, students in grades 7 (28.3%) and 10 (26.7%) were more likely to have done so than students in grades 8, 9, 11, and 12 (8.3%, 6.7%, 23.3%, and 6.7%, respectively). Overall, male students (3.4%) were significantly more likely than female students (0.9%) to have done so (Table 25).

*Current marijuana use.* Overall, 2.7% of students had used marijuana one or more times during the 30 days immediately preceding the survey (i.e., current marijuana use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (39.5%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (10.5%, 5.3%, 23.7%, 15.8%, and 5.3%, respectively). Overall, male students (1.9%) were significantly more likely than female students (0.8%) to have done so (Table 25).

*Lifetime Yaba (Methamphetamine) use and tried to quit Yaba use.* Overall, 2.4% of students had used methamphetamines one or more times during their life (i.e., lifetime Yaba use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (38.2%) were more likely to have done so than in grades 8, 9, 10, 11, and 12 (5.9%, 5.9%, 17.6%, 26.5%, and 5.9%, respectively). Overall, male

students (1.8%) were significantly more likely than female students (0.6%) to have done so (Table 26). However, all of these students reported that they had tried to quit Yaba.

*Current Yaba use.* Overall, 2.1% of students had used Yaba one or more times during the 30 days immediately preceding the survey (i.e., current Yaba use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (46.7%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (13.3%, 3.3%, 16.7%, 16.7% and 3.3%, respectively). Overall, male students (1.4%) were significantly more likely than female students (0.7%) to have done so (Table 26).

*Lifetime daily Yaba use.* Overall, 5.7% of students had ever used Yaba every day for 30 days (i.e., lifetime daily Yaba Use). Of these students, students in grade 9 (21.0%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (19.8%, 18.5%, 18.5%, 13.6% and 8.6%, respectively). Overall, female students (2.9%) were slightly more likely than male students (2.8%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 26).

*Lifetime cocaine use.* Overall, 2.2% of students had used cocaine one or more times during their life (i.e., lifetime cocaine use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (41.9%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (9.7%, 6.5%, 25.8%, 9.7%, and 6.5%, respectively). Overall, male students (1.6%) were significantly more likely than female students (0.6%) to have done so (Table 27).

*Current cocaine use.* Overall, 1.9% of students had used cocaine one or more times during the 30 days immediately preceding the survey (i.e., current cocaine use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (46.2%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (15.4%, 3.8%, 23.1%, 7.7%, and 3.8%, respectively). Overall, male students (1.3%) were significantly more likely than female students (0.6%) to have done so (Table 27).

*Lifetime inhalant use.* Overall, 2.9% of students had sniffed glue, breathed the contents of aerosol spray cans, or inhaled paints or sprays to get high one or more times during their life (i.e., lifetime inhalant use). Of these students, students in grade 7 (36.6%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (12.2%, 14.6%, 14.6%, 14.6%, and 7.3%, respectively). Overall, male students (1.8%) were more likely than female students (1.1%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 27).

*Current inhalant use.* Overall, 2.2% of students had sniffed glue, breathed the contents of aerosol spray cans, or inhaled paints or sprays to get high one or more times during the 30 days immediately preceding the survey (i.e., current inhalant use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (41.9% %) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (16.1%, 3.2%, 19.4%, 12.9%, and 6.5%, respectively). Overall, male students (1.7%) were significantly more likely than female students (0.5%) to have done so (Table 27).

*Lifetime heroin use.* Overall, 2.0% of students had used heroin one or more times during their life (i.e., lifetime heroin use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (50.0%) were more likely to have done so than students in grades 8, 10, 11, and 12 (10.7%, 25.0%, 10.7%, and 3.6%, respectively). No 9<sup>th</sup> grade student reported lifetime heroin use. Overall, male students (1.6%) were significantly more likely than female students (0.4%) to have done so (Table 28).

*Current heroin use.* Overall, 1.8% of students had used heroin one or more times during the 30 days immediately preceding the survey (i.e., current heroin use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (42.3%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (7.7%, 3.8%, 30.8%, 11.5%, and 3.8%, respectively). Overall, male students (1.3%) were significantly more likely than female students (0.5%) to have done so (Table 28).

*Lifetime Yaae (ecstasy) use.* Overall, 2.0% of students had used Yaae one or more times during their life (i.e., lifetime Yaae use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (42.9%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (14.3%, 3.6%, 21.4%, 14.3%, and 3.6%, respectively). Overall, male students (1.6%) were significantly more likely than female students (0.4%) to have done so (Table 28).

*Current Yaae (ecstasy) use.* Overall, 1.9% of students had used Yaae one or more times during the 30 days immediately preceding the survey (i.e., current Yaae use).

There were significant differences among grades for this behavior. Of these students, students in grade 7 (46.2%) were more likely to have done so than students in grades 8, 10, 11, and 12 (11.5%, 26.9%, 11.5%, and 3.8%, respectively). No 9<sup>th</sup> grade student reported having current Yace use. Overall, male students (1.3%) were significantly more likely than female students (0.6%) to have done so (Table 28).

*Lifetime illegal injection drug use.* Overall, 1.9% of students had used a needle to inject any illegal drug into their body one or more times during their life (i.e., lifetime illegal injection drug use). There were significant differences among grades for this behavior. Of these students, students in grade 7 (48.1%) were more likely to have done so than students in grades 8, 10, 11, and 12 (18.5%, 18.5%, 11.1%, and 3.7%, respectively). No 9<sup>th</sup> grade student reported having lifetime illegal injection drug use. Overall, male students (1.5%) were significantly more likely than female students (0.4%) to have done so (Table 29).

*Medicine use.* Overall, 32.9% of students had used medicine which had not been authorized and/or approved by a health professional during the 12 months immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 9 (22.6%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (13.9%, 19.6%, 12.6%, 17.0%, and 14.3%, respectively). Overall, female students (19.4%) were significantly more likely than male students (13.5%) to have done so (Table 29).

*Age of Initiation of Risk Behaviors*

*Smoked a Whole Cigarette Before Age 13.* Overall, 4.2% of students had smoked a whole cigarette for the first time before age 13 years. There were significant differences among grades for this behavior. Of these students, students in grade 8 (32.2%) were more likely to have done so than students in grades 7, 9, 10, and 11 (22.0%, 10.2%, 22.0%, and 13.6%, respectively). No 12<sup>th</sup> grade student reported smoking a whole cigarette for the first time before age 13. Overall, male students (2.8%) were more likely than female students (1.4%) to have done so. However, there were not significant differences by gender for this behavior (Table 30).

*Drank alcohol before age 13.* Overall, 20.2% of students had drunk alcohol (other than a few sips) for the first time before age 13 years. There were significant differences among grades for this behavior. Of these students, students in grade 8 (28.4%) were more likely to have done so than students in grades 7, 9, 10, 11, and 12 (18.1%, 21.6%, 12.8%, 12.8%, and 6.4%, respectively). Overall, male students (10.4%) were more likely than female students (9.8%) to have done so. However, there were not significant differences by gender for this behavior (Table 30).

*Tried marijuana before age 13.* Overall, 1.9% of students had tried marijuana for the first time before age 13. There were significant differences among grades for this behavior. Of these students, students in grade 7 (48.1%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (11.1%, 7.4%, 18.5%, 11.1% and 3.7%, respectively). Overall, male students (1.5%) were more likely than female students



(0.4%) to have done so. However, there were not significant differences by gender for this behavior (Table 30).

*Tobacco, Alcohol, and Other Drug Use on School Property*

*Current cigarette use on the school property.* Overall, 4.7% of students had smoked cigarettes on the school property on >1 of the 30 days immediately preceding the survey (i.e., current cigarette use on the school property). There were significant differences among grades for this behavior. Of these students, students in grade 10 (33.3%) were more likely to have done so than students in grades 7, 8, 9, 11, and 12 (19.7%, 12.1%, 6.1%, 21.2%, and 7.6%, respectively). Overall, male students (3.6%) were significantly more likely than female students (1.1%) to have done so (Table 31).

*Drank Alcohol on School Property.* Overall, 4.1% of students had drunk at least one drink of alcohol on school property on >1 of the 30 days immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grades 7 (24.6%) and 10 (24.6%) were more likely to have done so than students in grades 8, 9, 11, and 12 (8.8%, 12.3%, 17.5%, and 12.3%, respectively). Overall, male students (2.9%) were significantly more likely than female students (1.2%) to have done so (Table 31).

*Used Marijuana on School Property.* Overall, 2.4% of students had used marijuana on school property one or more times during the 30 days immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 7 (50.0%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (11.8%, 2.9%, 23.5%, 8.8%, and 2.9%,

respectively). Overall, male students (1.8%) were significantly more likely than female students (0.6%) to have done so (Table 31).

*Used Yaba (Methamphetamine) on School Property.* Overall, 1.9% of students had used Yaba on school property one or more times during the 30 days immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 7 (48.1%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (14.8%, 3.7%, 18.5%, 11.1%, and 3.7%, respectively). Overall, male students (1.4%) were significantly more likely than female students (0.5%) to have done so (Table 31).

*Offered, Sold, or Given an Illegal Drug on School Property.* Overall, 8.5% of students had been offered, sold, or given an illegal drug by someone on school property during the 12 months immediately preceding the survey. Of these students, students in grade 11 (20.2%) were more likely to have done so than students in grades 7, 8, 9, 10, and 12 (17.6%, 16.0%, 18.5%, 15.1%, and 12.6%, respectively). Overall, male students (4.4%) were slightly more than female students (4.1 %) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 31).

### *Sexual Behavior*

*Sexual Orientation.* Overall, 14.5% of all students described their sexual orientation as homosexual or bisexual. Of these students, students in grades 8 (18.5%), 9 (18.0%), and 10 (18.0%) were more likely to have done so than students in grades 7, 11, and 12 (16.9%, 15.3%, and 13.2%, respectively). However, there were not significant

differences by grades for this behavior. Overall, female students (10.1%) were significantly more likely than male students (4.4%) to have done so (Table 32).

*Had Sexual Intercourse With.* Overall, 4.7% of all students reported having had sexual intercourse with partners of the same sex or with both the opposite and same sex partners. Of these students, students in grade 12 (31.8%) were more likely to have done so than students in grades 7, 8, 9, 10, and 11 (7.6%, 6.1%, 12.1%, 16.7%, and 25.8%, respectively). However, there were not significant differences by grade. Overall, female students (3.3%) were significantly more likely than male students (1.4%) to have done so (Table 32).

*Had someone make negative comments because they thought these students were gay or lesbian.* Overall, 19.6% of all students reported having had offensive comments made to them or being attacked because other students thought they were gay or lesbian (at school or on the way to or from school). There were significant differences among grades for this behavior. Of these students, students in grade 11 (19.8%) were more likely to have had this happen to them than students in grades 7, 8, 9, 10, and 12 (15.4%, 17.6%, 15.8%, 14.3%, and 17.2%, respectively). Overall, male students (11.5%) were significantly more likely than female students (8.1%) to have had this happen to them (Table 32).

*Ever had sexual intercourse.* Overall, 8.8% of all students had had sexual intercourse during their lifetime. There were significant differences among grades for this behavior. Of these students, students in grades 11 and 12 (25.8% each) were more likely to have done so than students in grades 7, 8, 9, and 10 (7.3%, 9.7%, 12.1%, and

20.2%, respectively). Overall, male students (5.0%) were significantly more likely than female students (3.8%) to have done so (Table 33).

*Had first sexual intercourse before age 13.* Overall, 1.7% of students had had sexual intercourse for the first time before age 13. There were significant differences among grades for this behavior. Of these students, students in grade 7 (45.8%) were more likely to have done so than students in grades 8, 9, 10, 11 and 12 (25.0%, 4.2%, 8.3%, 12.5%, and 4.2%, respectively). Overall, male students (1.2%) were significantly more likely than female students (0.5%) to have done so. However, there were not significant differences by gender for this behavior (Table 33).

*Had sexual intercourse with four or more persons during their life.* Overall, 1.6% of students had had sexual intercourse with >4 persons during their life. Of these students, students in grade 11 (36.4%) were more likely to have done so than students in grades 7, 8, 9, 10, and 12 (4.5%, 9.1%, 9.1%, 13.6%, and 27.3%, respectively). Overall, male students (1.1%) were more likely than female students (0.5%) to have done so. However, there were not significant by grade or gender for this behavior (Table 33).

*Currently sexually active.* Overall, 5.6% of students had had sexual intercourse with  $\geq 1$  person during the 3 months immediately preceding the survey (i.e., currently sexually active). Of these students, students in grades 11 (25.3%) and 12 (24.1%) were more likely to have done so than students in grades 7, 8, 9, and 10 (13.9%, 7.6%, 10.1% and 19.0%, respectively). However, there were not significant differences by grades for this behavior. Overall, female students (2.9%) were significantly more likely than male students (2.7%) to have done so (Table 33).

*Alcohol or drug use before last sexual intercourse.* Among the 5.6% of currently sexually active students, 53.2% had drunk alcohol or used drugs before their last sexual intercourse. Of these students, students in grade 11 (28.6%) were more likely to have done so than students in grades 7, 8, 9, 10, and 12 (19.0%, 7.1%, 9.5%, 21.4%, and 14.3%, respectively). Overall, male students (38.0 %) were more likely than female students (15.2%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 34).

*Condom use.* Among the 5.6% of currently sexually active students, 79.8% reported that either they or their partner had used a condom during their last sexual intercourse. Of these students, students in grade 11 (33.3%) were more likely to have done so than students in grades 7, 8, 9, 10, and 12 (6.3%, 9.5%, 11.1%, 15.9%, and 23.8%, respectively). Overall, male students (45.6%) were more likely than female students (34.2%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 34).

*No method of family planning.* Among the 8.8% of student who ever had sexual intercourse, 18.5% reported that neither they nor their partner had used any method to prevent pregnancy before last sexual intercourse. Of these students, students in grade 7 (34.8%) were more likely to have reported this than students in grades 8, 9, 10, 11 and 12 (4.3%, 4.3%, 13.0%, 26.1%, and 17.4%, respectively). Overall, male students (13.7%) were more likely than female students (4.8%) to report this. However, there were not significant differences by grade or gender for this behavior (Table 34).

*Pregnancy.* Among the 8.8% of student who ever had sexual intercourse, 17.7% of students reported that they had been pregnant or had gotten someone else pregnant. There were significant differences among grades for this behavior. Of these students, students in grade 7 (50.0%) were more likely to have reported this than students in grades 8, 9, 10, 11, and 12 (9.1%, 4.5%, 9.1%, 9.1%, and 18.2%, respectively). Overall, male students (9.6%) were more likely than female students (8.1%) to have reported this. However, there were not significant differences by gender for this behavior (Table 34).

*Taught in school about AIDS or HIV infection.* Overall, 78.8% of students had ever been taught in school about acquired immunodeficiency syndrome (AIDS) or HIV infection. There were significant differences among grades for this behavior. Of these students, students in grade 9 (20.7%) were more likely to have been taught than students in grades 7, 8, 10, 11, and 12 (14.1%, 18.6%, 12.8%, 17.5%, and 16.4%, respectively). Overall, female students (44.4%) were significantly more likely than male students (34.4%) to have been taught (Table 34).

#### *Dietary Behaviors*

*Ate Fruits  $\geq 3$  Times/Day.* Overall, 13.9% of students had eaten fruits  $\geq 3$  times/day during the 7 days immediately preceding the survey. Of these students, students in grade 9 (23.2%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (19.6%, 19.1%, 14.4%, 10.3%, and 13.4%, respectively). However, there were not significant differences by grades for this behavior. Overall, male students

(7.4%) were significantly more likely than female students (6.5%) to have done so (Table 35).

*Ate vegetables  $\geq 3$  times/day.* Overall, 28.0% of students had eaten vegetables  $\geq 3$  times/day during the 7 days immediately preceding the survey. Of these students, students in grade 9 (21.5%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (17.9%, 19.4%, 12.2%, 13.5%, and 15.5%, respectively). Overall, female students (15.3%) were more likely than male students (12.7%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 35).

*Drank  $>3$  glasses of milk/day.* Overall, 11.7% of students had drunk  $\geq 3$  glasses/day of milk during the 7 days immediately preceding the survey. Of these students, students in grade 8 (26.4%) were more likely to have done so than students in grades 7, 9, 10, 11, and 12 (20.9%, 17.8%, 12.9%, 10.4%, and 11.7%, respectively). However, there were not significant differences by grades for this behavior. Overall, male students (7.6%) were significantly more likely than female students (4.1%) to have done so (Table 35).

*Ate food from a street vendor.* Overall, 18.6% of students ate food from a street vendor  $\geq 1$  time/day during the 7 days immediately preceding the survey. Of these students, students in grade 9 (20.4%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (16.5%, 15.8%, 14.2%, 18.5%, and 14.6%, respectively). Overall, female students (10.4%) were more likely than male students (8.2%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 36).

*Ate food or drank with someone else sharing the same bowl or glass.* Overall, 64.3% of students ate food or drank with someone else sharing the same bowl or glass  $\geq$  1 time/day during the 7 days immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 9 (19.6%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (14.9%, 17.8%, 13.3%, 17.9%, and 16.5%, respectively). Overall, female students (35.6%) were more likely than male students (28.7%) to have done so. However, there were not significant differences by gender for this behavior (Table 36).

*Ate food with someone else without using a “serving spoon.”* Overall, 67.0% of students ate food with someone else without using a “serving spoon”  $\geq$  1 time/day during the 7 days immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 9 (20.5%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (15.0%, 16.4%, 13.6%, 17.5%, and 17.0%, respectively). Overall, female students (38.3%) were significantly more likely than male students (28.7%) to have done so (Table 36).

### *Overweight and Weight Control*

*Described themselves as overweight.* Overall, 26.7% of students described themselves as slightly or very overweight. Of these students, students in grade 8 (19.9%) were more likely to have reported than students in grades 7, 9, 10, 11 and 12 (15.3%, 16.7%, 14.8%, 17.2% and 16.1%, respectively). However, there were not significant differences by grades for this behavior. Overall, female students (15.9%) were



significantly more likely than male students (10.8%) to describe themselves as overweight (Table 37).

*Were trying to lose weight.* Overall, 35.6% of students were trying to lose weight. Of these students, students in grades 8 (20.8%) and 9 (20.4%) were more likely to have done so than students in grades 7, 10, 11, and 12 (17.2%, 13.0%, 15.4%, and 13.0%, respectively). However, there were not significant differences by grades for this behavior. Overall, female students (22.5%) were significantly more likely than male students (13.1%) to report trying to lose weight (Table 37).

*Exercised to lose weight or to keep from gaining weight.* Overall, 52.8% of students had exercised in order to lose weight or to keep from gaining weight during the 30 days immediately preceding the survey. Of these students, students in grades 8 (20.4%) and 9 (20.0%) were more likely to have done so than students in grades 7, 10, 11, and 12 (16.6%, 13.5%, 16.2%, and 13.4%, respectively). Overall, female students (29.3%) were more likely than male students (23.5%) to report exercising for these purposes. However, there were not significant differences by grade or gender for this behavior (Table 37).

*Ate less food, fewer calories, or foods low in fat to lose weight or to keep from gaining weight.* During the 30 days immediately preceding the survey, 36.0% of students had eaten either less food, fewer calories, or foods low in fat to lose weight or to keep from gaining weight. Of these students, students in grade 9 (23.1%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (16.6%, 18.0%, 13.0%, 15.4%, and 13.8%, respectively). However, there were not significant differences by

grades for this behavior. Overall, female students (23.4%) were significantly more likely than male students (12.6%) to have done so (Table 37).

*Went without eating for >24 hours to lose weight or to keep from gaining weight.*

Overall, 6.8% of students had gone without eating for >24 hours to lose weight or to keep from gaining weight during the 30 days preceding the survey. Of these students, students in grades 9 (17.7%) and 10 (18.8%) were more likely to have done so than students in grades 7, 8, 11, and 12 (21.9%, 14.6%, 12.5%, and 14.6%, respectively). Overall, percent of female students (3.5%) and male students (3.3%) were approximately the same to have fasted. However, there were not significant differences by grade or gender for this behavior (Table 38).

*Took diet pills, powders, or liquids to lose weight or to keep from gaining weight.*

During the 30 days preceding the survey, 3.8% of students had taken diet pills, powders, or liquids without a doctor's advice to either lose weight or to keep from gaining weight. There were significant differences among grades for this behavior. Of these students, students in grade 7 (27.8%) were more likely to have done so than students in grades 8, 9, 10, 11, and 12 (3.7%, 24.1%, 22.2%, 14.8%, and 7.4%, respectively). Overall, male students (2.2%) were more likely than female students (1.6%) to have done so. However, there were not significant differences by gender for this behavior (Table 38).

*Vomited or Took Laxatives to Lose Weight or To Keep From Gaining Weight.*

Overall, 4.6% of students had vomited or taken laxatives to lose weight or to keep from gaining weight during the 30 days preceding the survey. Of these students, students in grade 7 (28.1%) were more likely to have done so than students in grades 8, 9, 10, 11,

and 12 (17.2%, 18.8%, 14.1%, 12.5%, and 9.4%, respectively). Overall, female students (2.7%) were more likely than male students (1.9%) to have done so. However, there were not significant differences by grade or gender for this behavior (Table 38).

### *Physical Activity*

*Vigorous Physical Activity.* Overall, 45.6% of students had participated in activities that made them sweat and breathe hard for >20 minutes on  $\geq 3$  of the 7 days preceding the survey (i.e., sufficient vigorous physical activity). There were significant differences among grades for this behavior. Of these students, students in grades 8 (21.3%) and 9 (20.2%) were more likely to have done so than students in grades 7, 10, 11, and 12 (16.8%, 14.4%, 16.1%, and 11.1%, respectively). Overall, male students (27.0%) were significantly more likely than female students (18.6%) to have done so (Table 39).

*No vigorous physical activity.* Overall, 16.7% of students had not participated in any vigorous physical activity. There were significant differences among grades for this behavior. Of these students, students in grade 9 (20.2%) and 12 (20.6%) were more likely to have not done so than students in grades 7, 8, 10, and 11 (18.5%, 12.0%, 11.2%, and 17.6%, respectively). Overall, female students (11.1%) were significantly more likely than male students (5.6%) to have not done so (Table 39).

*Moderate physical activity.* One fifth (20.2%) of students had participated in activities that did not make them sweat or breathe hard for >30 minutes on  $\geq 5$  of the 7 days preceding the survey (i.e., sufficient moderate physical activity). There were

significant differences among grades for this behavior. Of these students, students in grades 8 (21.3%) and 9 (24.8%) were more likely to have done so than students in grades 7, 10, 11, and 12 (14.9%, 15.6%, 12.4%, and 11.0%, respectively). Overall, male students (14.0%) were significantly more likely than female students (6.2%) to have done so (Table 39).

*No moderate physical activity.* Overall, 22.8% of the students had not participated in any moderate physical activity. There were significant differences among grades for this behavior. Of these students, students in grades 7 (22.6%) and 9 (20.8%) were more likely to have not done so than students in grades 8, 10, 11, and 12 (11.9%, 13.2%, 15.7%, and 15.7%, respectively). Overall, female students (14.2%) were significantly more likely than male students (8.6%) to have not done so (Table 39).

*Strengthening Exercises.* Overall, 30.4% of students had done strengthening exercises (e.g., push-ups, sit-ups, and weightlifting) on  $\geq 3$  of the 7 days preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 9 (21.9%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (16.0%, 16.3%, 15.8%, 15.8%, and 14.2%, respectively). Overall, male students (20.7%) were significantly more likely than female students (9.7%) to have done so (Table 40).

*Attended physical education classes.* Overall, 95.5% of students went to physical education (PE) classes on one or more days in an average week when they were in school (i.e., attended PE classes). There were significant differences among grades for this behavior. Of these students, students in grade 9 (20.5%) were more likely to have done

so than students in grades 7, 8, 10, 11, and 12 (17.4%, 18.5%, 13.2%, 15.9%, and 14.5%, respectively). Overall, female students (51.8%) were more likely than male students (43.7%) to have done so. However, there were not significant differences by gender for this behavior (Table 40).

*Exercised or played sports >20 minutes during an average PE class.* Among the 95.5% of students who attended PE classes, 67.4% actually exercised or played sports >20 minutes during an average PE class. There were significant differences among grades for this behavior. Of these students, students in grade 9 (22.0%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (16.0%, 16.5%, 14.1%, 16.5%, and 14.9%, respectively). Overall, female students (34.1%) were significantly more likely than male students (33.3%) to have done so (Table 40).

*Played on  $\geq 1$  Sports Teams.* Overall, 79.2% of students had played on  $\geq 1$  sports teams (run by their school or community groups) during the 12 months immediately preceding the survey. There were significant differences among grades for this behavior. Of these students, students in grade 9 (21.2%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (16.9%, 19.9%, 13.5%, 14.7%, and 13.8%, respectively). Overall, female students (40.2%) were significantly more likely than male students (39.0%) to have done so (Table 40).

*Watched television  $\geq 3$  hours/day.* Overall, 40.8% of students watched television  $\geq 3$  hours/day on an average school day. There were significant differences among grades for this behavior. Of these students, students in grade 9 (22.9%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (16.6%, 16.6%, 12.0%,

15.7%, and 16.2%, respectively). Overall, female students (23.1%) were more likely than male students (17.7%) to have done so. However, there were not significant differences by gender for this behavior (Table 41).

*Used Computers  $\geq$  3 Hours/Day.* Overall, 23.0% of students used a computer for something other than school work (i.e., computer use)  $\geq$  3 hours/day on an average school day. There were significant differences among grades for this behavior. Of these students, students in grade 9 (23.8%) were more likely to have done so than students in grades 7, 8, 10, 11, and 12 (12.2%, 16.3%, 13.8%, 19.4%, and 14.4%, respectively). Overall, male students (11.9%) were significantly more likely than female students (11.1%) to have done so (Table 41).

Table 18. Percentage of Secondary School Students Who Rarely or Never Wore a Motorcycle Helmet,<sup>a</sup> Used Walking Bridges, Used Crosswalks, or Wore a Seat Belt,<sup>ε</sup> by Grade and Gender

Grade	Rarely or never wore helmet when riding a motorcycle <sup>^</sup>			Never used walking bridge when crossing the street <sup>^</sup>			Never used crosswalk when crossing the street <sup>^</sup>			Rarely or never wore seatbelt when riding in a car <sup>*</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
<b>Grade</b>	* Significant grade differences for this variable, p < .05											
Grade 7 (Matayom 1)	49	48	97	1	5	6	8	11	19	29	42	71
	16.0%	12.9%	14.3%	5.3%	33.3%	17.6%	15.4%	22.4%	18.8%	16.0%	19.2%	17.8%
Grade 8 (Matayom 2)	56	67	123	5	2	7	14	11	25	39	47	86
	18.2%	18.1%	18.1%	26.3%	13.3%	20.6%	26.9%	22.4%	24.8%	21.5%	21.5%	21.5%
Grade 9 (Matayom 3)	54	85	139	8	3	11	9	12	21	36	50	86
	17.6%	22.9%	20.5%	42.1%	20.0%	32.4%	17.3%	24.5%	20.8%	19.9%	22.8%	21.5%
Grade 10 (Matayom 4)	45	46	91	2	2	4	3	6	9	27	32	59
	14.7%	12.4%	13.4%	10.5%	13.3%	11.8%	5.8%	12.2%	8.9%	14.9%	14.6%	14.8%
Grade 11 (Matayom 5)	62	48	110	2	1	3	8	7	15	24	26	50
	20.2%	12.9%	16.2%	10.5%	6.7%	8.8%	15.4%	14.3%	14.9%	13.3%	11.9%	12.5%
Grade 12 (Matayom 6)	41	77	118	1	2	3	10	2	12	26	22	48
	13.4%	20.8%	17.4%	5.3%	13.3%	8.8%	19.2%	4.1%	11.9%	14.4%	10.0%	12.0%
Total number for this behavior	307	371	678 ♥	19	15	34	52	49	101	181	219	400
Percentage of all students who engaged in this behavior	26.7%	32.2%	58.9%	1.4%	1.1%	2.5%	3.7%	3.5%	7.2%	13.5%	16.3%	29.8%

<sup>a</sup> Among the 81.8% of students who had ridden a motorcycle during the 12 months immediately preceding the survey

<sup>ε</sup> Among the 95.4 % of the students who rode in a car driven by someone else during the 30 days immediately preceding the survey

<sup>^</sup> During the 12 months immediately preceding the survey

<sup>\*</sup> During the 30 days immediately preceding the survey

♥ Significant within row gender differences for this variable, p < .05

\* Significant grade differences for this variable, p < .05

Table 19. Percentage of Secondary School Students Who Rode with a Driver Who Had Been Drinking Alcohol, Who Drove When Drinking Alcohol, <sup>€</sup> Carried a Weapon, Carried a Weapon on the School Property, by Grade and Gender

Grade	Rode with drinking driver <sup>&amp;</sup>			Drove after drinking <sup>&amp;</sup>			Carried a weapon <sup>§</sup>			Carried a weapon on the school property <sup>§</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	20	36	56	9	4	13	16	10	26	12	8	20
	15.0%	23.8%	19.7%	19.1%	21.1%	19.7%	18.8%	16.9%	18.1%	23.5%	19.0%	21.5%
Grade 8 (Matayom 2)	25	22	47	8	0	8	20	12	32	9	8	17
	18.8%	14.6%	16.5%	17.0%	0.0%	12.1%	23.5%	20.3%	22.2%	17.6%	19.0%	18.3%
Grade 9 (Matayom 3)	23	34	57	5	2	7	13	16	29	7	11	18
	17.3%	22.5%	20.1%	10.6%	10.5%	10.6%	15.3%	27.1%	20.1%	13.7%	26.2%	19.4%
Grade 10 (Matayom 4)	19	21	40	9	7	16	17	8	25	13	3	16
	14.3%	13.9%	14.1%	19.1%	36.8%	24.2%	20.0%	13.6%	17.4%	25.5%	7.1%	17.2%
Grade 11 (Matayom 5)	28	21	49	11	4	15	15	6	21	6	4	10
	21.1%	13.9%	17.3%	23.4%	21.1%	22.7%	17.6%	10.2%	14.6%	11.8%	9.5%	10.8%
Grade 12 (Matayom 6)	18	17	35	5	2	7	4	7	11	4	8	12
	13.5%	11.3%	12.3%	10.6%	10.5%	10.6%	4.7%	11.9%	7.6%	7.8%	19.0%	12.9%
Total number for this behavior	133	151	284	47	19	66♥	85	59	144♥	51	42	93
Percentage of all students who engaged in this behavior	9.4%	10.8%	20.2%	7.9%	3.2%	€11.1%	6.0%	4.2%	10.2%	3.6%	3.0%	6.6%

€ Among the 42.2 % of the students who had driven a car or other vehicle during the 30 days immediately preceding the survey

& ≥1 times during the 30 days immediately preceding the survey

§ on ≥1 of the 30 days immediately preceding the survey

♥ Significant within row gender differences for this variable,  $p < .05$

◆ Significant grade differences for this variable,  $p < .05$



Table 20. Percentage of Secondary School Students Who Felt Too Unsafe to Go to School, Threatened or Injured with a Weapon on School Property, Had Property Stolen or Damaged on School Property, and In a Physical Fight, by Grade and Gender

Grade	Felt too unsafe to go to school <sup>§</sup>			Threatened or injured with weapon on school property <sup>(a)</sup>			Had property stolen or damaged on school property <sup>(a)</sup>			In a physical fight <sup>(a)</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	17	15	32	14	9	23	37	38	75	70	68	138
	25.8%	25.0%	25.4%	31.1%	29.0%	30.3%	27.0%	23.0%	24.8%	19.9%	21.7%	20.8%
Grade 8 (Matayom 2)	12	7	19	10	2	12	29	31	60	73	54	127
	18.2%	11.7%	15.1%	22.2%	6.5%	15.8%	21.2%	18.8%	19.9%	20.8%	17.2%	19.1%
Grade 9 (Matayom 3)	11	9	20	7	4	11	24	36	60	67	71	138
	16.7%	15.0%	15.9%	15.6%	12.9%	14.5%	17.5%	21.8%	19.9%	19.1%	22.6%	20.8%
Grade 10 (Matayom 4)	10	10	20	6	9	15	22	22	44	56	48	104
	15.2%	16.7%	15.9%	13.3%	29.0%	19.7%	16.1%	13.3%	14.6%	16.0%	15.3%	15.6%
Grade 11 (Matayom 5)	12	12	24	5	5	10	12	14	26	50	36	86
	18.2%	20.0%	19.0%	11.1%	16.1%	13.2%	8.8%	8.5%	8.6%	14.2%	11.5%	12.9%
Grade 12 (Matayom 6)	4	7	11	3	2	5	13	24	37	35	37	72
	6.1%	11.7%	8.7%	6.7%	6.5%	6.6%	9.5%	14.5%	12.3%	10.0%	11.8%	10.8%
Total number for this behavior	66	60	126	45	31	76♥	137	165	302	351	314	665♥
Percentage of all students who engaged in this behavior	4.7%	4.3%	9.0%	3.2%	2.2%	5.4%	9.7%	11.8%	21.5%	25.2%	22.5%	47.7%

<sup>§</sup> on ≥1 of the 30 days immediately preceding the survey

<sup>(a)</sup> ≥1 times during the 12 months immediately preceding the survey

♥ Significant within row gender differences for this variable,  $p < .05$

◆ Significant grade differences for this variable,  $p < .05$

Table 21. Percentage of Secondary School Students Who Were Injured in a Physical Fight, In a Physical Fight on School Property Experienced Dating Violence, and Ever Forced to Have Sexual Intercourse, by Grade and Gender

Grade	Injured in a physical fight <sup>@</sup>			In a physical fight on school property <sup>@</sup>			Experienced dating violence <sup>^</sup>			Ever forced to have sexual intercourse		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	13	14	27	65	60	125	9	9	18	2	5	7
	18.6%	36.8%	25.0%	19.9%	22.1%	20.9%	19.1%	20.5%	19.8%	18.2%	26.3%	23.3%
Grade 8 (Matayom 2)	17	1	18	71	50	121	8	3	11	3	2	5
	24.3%	2.6%	16.7%	21.8%	18.4%	20.2%	17.0%	6.8%	12.1%	27.3%	10.5%	16.7%
Grade 9 (Matayom 3)	12	4	16	60	59	119	9	9	18	4	4	8
	17.1%	10.5%	14.8%	18.4%	21.7%	19.9%	19.1%	20.5%	19.8%	36.4%	21.1%	26.7%
Grade 10 (Matayom 4)	12	12	24	52	37	89	5	6	11	1	4	5
	17.1%	31.6%	22.2%	16.0%	13.6%	14.9%	10.6%	13.6%	12.1%	9.1%	21.1%	16.7%
Grade 11 (Matayom 5)	13	3	16	42	35	77	12	7	19	0	2	2
	18.6%	7.9%	14.8%	12.9%	12.9%	12.9%	25.5%	15.9%	20.9%	0.0%	10.5%	6.7%
Grade 12 (Matayom 6)	3	4	7	36	31	67	4	10	14	1	2	3
	4.3%	10.5%	6.5%	11.0%	11.4%	11.2%	8.5%	22.7%	15.4%	9.1%	10.5%	10.0%
Total number for this behavior	70	38	108 ♥	326	272	598 ♥	47	44	91	11	19	30
Percentage of all students who engaged in this behavior	5.0%	2.7%	7.7%	23.2%	19.4%	42.6%	3.4%	3.1%	6.5%	.8%	1.3%	2.1%

<sup>@</sup> ≥1 times during the 12 months immediately preceding the survey

<sup>^</sup> During the 12 months immediately preceding the survey

♥ Significant within row gender differences for this variable,  $p < .05$

♣ Significant grade differences for this variable,  $p < .05$

Table 22. Percentage of Secondary School Students Who Felt Sad or Hopeless, Seriously Considered Attempting Suicide, Made a Suicide Plan, Attempted Suicide, and Suicide Attempt Treated by a Doctor or Nurse, by Grade and Gender

Grade	Felt sad or hopeless <sup>^</sup>			Seriously considered attempting suicide <sup>^</sup>			Made a suicide plan <sup>^</sup>			Attempted suicide <sup>@</sup>			Suicide attempt treated by a doctor or nurse <sup>^</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	18	33	51	18	17	35	17	19	36	21	22	43	7	11	18
	14.3%	20.8%	17.9%	25.0%	19.3%	21.9%	26.6%	19.6%	22.4%	37.5%	29.7%	33.1%	21.2%	33.3%	27.3%
Grade 8 (Matayom 2)	18	23	41	11	15	26	8	21	29	7	15	22	7	4	11
	14.3%	14.5%	14.4%	15.3%	17.0%	16.3%	12.5%	21.6%	18.0%	12.5%	20.3%	16.9%	21.2%	12.1%	16.7%
Grade 9 (Matayom 3)	24	32	56	14	21	35	9	20	29	10	15	25	7	4	11
	19.0%	20.1%	19.6%	19.4%	23.9%	21.9%	14.1%	20.6%	18.0%	17.9%	20.3%	19.2%	21.2%	12.1%	16.7%
Grade 10 (Matayom 4)	21	27	48	8	11	19	7	12	19	7	8	15	7	7	14
	16.7%	17.0%	16.8%	11.1%	12.5%	11.9%	10.9%	12.4%	11.8%	12.5%	10.8%	11.5%	21.2%	21.2%	21.2%
Grade 11 (Matayom 5)	24	19	43	14	15	29	15	15	30	9	6	15	4	2	6
	19.0%	11.9%	15.1%	19.4%	17.0%	18.1%	23.4%	15.5%	18.6%	16.1%	8.1%	11.5%	12.1%	6.1%	9.1%
Grade 12 (Matayom 6)	21	25	46	7	9	16	8	10	18	2	8	10	1	5	6
	16.7%	15.7%	16.1%	9.7%	10.2%	10.0%	12.5%	10.3%	11.2%	3.6%	10.8%	7.7%	3.0%	15.2%	9.1%
Total number for this behavior	126	159	285	72	88	160	64	97	161	56	74	130	33	33	66
Percentage of all students who engaged in this behavior	9.0%	11.3%	20.3%	5.1%	6.3%	11.4%	4.6%	6.9%	11.5%	4.0%	5.3%	9.3%	6.2%	6.2%	12.4%

<sup>^</sup> During the 12 months immediately preceding the survey

<sup>@</sup> ≥1 times during the 12 months immediately preceding the survey

◆ Significant grade differences for this variable,  $p < .05$

Table 23. Percentage of Secondary School Students Who Lifetime Cigarette Use, Current Cigarette Use (1 Day or More), Current Frequent Cigarette Use (20 Days or More), Smoked >10 Cigarettes/Day,<sup>§</sup> Smoked >20 Cigarettes/Day,<sup>§</sup> by Grade and Gender

Grade	Lifetime cigarette use			Current cigarette use (1 day or more) *			Current frequent cigarette use (20 days or more) *			Smoked >10 Cigarettes/Day*			Smoked >20 Cigarettes/Day*		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	11	11	22	18	3	21	3	1	4	2	1	3	1	0	1
	7.5%	13.3%	9.6%	28.1%	11.1%	23.1%	15.8%	33.3%	18.2%	50.0%	33.3%	42.9%	33.3%	0.0%	33.3%
Grade 8 (Matayom 2)	34	15	49	12	4	16	3	0	3	1	0	1	1	0	1
	23.3%	18.1%	21.4%	18.8%	14.8%	17.6%	15.8%	0.0%	13.6%	25.0%	.0%	14.3%	33.3%	0.0%	33.3%
Grade 9 (Matayom 3)	20	13	33	2	5	7	0	0	0	1	0	1	0	0	0
	13.7%	15.7%	14.4%	3.1%	18.5%	7.7%	0.00%	0.00%	0.00%	25.0%	.0%	14.3%	0.0%	0.0%	0.0%
Grade 10 (Matayom 4)	37	13	50	12	7	19	4	0	4	0	1	1	1	0	1
	25.3%	15.7%	21.8%	18.8%	25.9%	20.9%	21.10%	0.00%	18.20%	.0%	33.3%	14.3%	33.3%	0.0%	33.3%
Grade 11 (Matayom 5)	26	15	41	14	5	19	8	2	10	0	1	1	0	0	0
	17.8%	18.1%	17.9%	21.9%	18.5%	20.9%	42.1%	66.7%	45.5%	.0%	33.3%	14.3%	0.0%	0.0%	0.0%
Grade 12 (Matayom 6)	18	16	34	6	3	9	1	0	1	0	0	0	0	0	0
	12.3%	19.3%	14.8%	9.4%	11.1%	9.9%	5.30%	0.00%	4.50%	.0%	.0%	.0%	0.0%	0.0%	0.0%
Total number for this behavior	146	83	229	64	27	91	19	3	22	4	3	7	3	0	3
Percentage of all students who engaged in this behavior	10.4%	5.9%	16.3%	4.6%	1.9%	6.5%	1.4%	0.2%	1.6%	4.1%	3.1%	7.2%	3.1%	.0%	3.1%

\* During the 30 days immediately preceding the survey

§ Among the 6.5% of students who reported current cigarette use during the 30 days immediately preceding the survey

◆ Significant grade differences for this variable, p < .05

♥ Significant within row gender differences for this variable, p < .05

Table 24. Percentage of Secondary School Students Who Bought Cigarettes in a Store or Gas Station,<sup>∞</sup> Lifetime Daily Cigarette Use, and Tried to Quit Smoking Cigarettes,<sup>€</sup> by Grade and Gender

Grade	Bought cigarettes in a store or gas station <sup>*</sup>			Lifetime daily cigarette use			Tried to quit smoking cigarettes <sup>^</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	4	0	4	8	3	11	11	4	15
	15.4%	0.0%	11.4%	18.2%	10.3%	15.1%	16.4%	13.8%	15.6%
Grade 8 (Matayom 2)	2	2	4	6	3	9	15	7	22
	7.7%	22.2%	11.4%	13.6%	10.3%	12.3%	22.4%	24.1%	22.9%
Grade 9 (Matayom 3)	2	1	3	9	8	17	8	3	11
	7.7%	11.1%	8.6%	20.5%	27.6%	23.3%	11.9%	10.3%	11.5%
Grade 10 (Matayom 4)	7	3	10	7	3	10	10	7	17
	26.9%	33.3%	28.6%	15.9%	10.3%	13.7%	14.9%	24.1%	17.7%
Grade 11 (Matayom 5)	9	3	12	10	7	17	16	7	23
	34.6%	33.3%	34.3%	22.7%	24.1%	23.3%	23.9%	24.1%	24.0%
Grade 12 (Matayom 6)	2	0	2	4	5	9	7	1	8
	7.7%	0.0%	5.7%	9.1%	17.2%	12.3%	10.4%	3.4%	8.3%
Total number for this behavior	26	9	35	44	29	73	67	29	96
Percentage of all students who engaged in this behavior	26.8%	9.3%	<sup>∞</sup> 36.1%	3.1%	2.1%	5.2%	36.4%	15.8%	<sup>€</sup> 52.2%

<sup>∞</sup> Among the 6.5% of students who reported current cigarette use during the 30 days immediately preceding the survey

<sup>€</sup> Among the 13.1% of all students who reported smoking cigarettes during the 12 months immediately preceding the survey

<sup>\*</sup> During the 30 days immediately preceding the survey

<sup>^</sup> during the 12 months immediately preceding the survey

✱ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 25. Percentage of Secondary School Students Who Had Lifetime Alcohol Use, Current Alcohol Use, Episodic Heavy Drinking, Lifetime Marijuana Use, and Current Marijuana Use, by Grade and Gender

Grade	Lifetime alcohol use			Current alcohol use <sup>s</sup>			Episodic heavy drinking <sup>s</sup>			Lifetime marijuana use			Current marijuana use <sup>&amp;</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	33	32	65	27	18	45	15	9	24	14	3	17	12	3	15
	10.6%	9.8%	10.2%	14.5%	10.4%	12.5%	15.2%	14.8%	15.0%	29.8%	23.1%	28.3%	44.4%	27.3%	39.5%
Grade 8 (Matayom 2)	53	46	99	30	25	55	15	4	19	5	0	5	4	0	4
	17.0%	14.1%	15.5%	16.1%	14.5%	15.3%	15.2%	6.6%	11.9%	10.6%	0.0%	8.3%	14.8%	0.0%	10.5%
Grade 9 (Matayom 3)	52	93	145	21	51	72	8	14	22	4	0	4	2	0	2
	16.7%	28.5%	22.8%	11.3%	29.5%	20.1%	8.1%	23.0%	13.8%	8.5%	0.0%	6.7%	7.4%	0.0%	5.3%
Grade 10 (Matayom 4)	48	43	91	31	22	53	23	12	35	9	7	16	4	5	9
	15.4%	13.2%	14.3%	16.7%	12.7%	14.8%	23.2%	19.7%	21.9%	19.1%	53.8%	26.7%	14.8%	45.5%	23.7%
Grade 11 (Matayom 5)	70	44	114	47	30	77	29	11	40	12	2	14	4	2	6
	22.5%	13.5%	17.9%	25.3%	17.3%	21.4%	29.3%	18.0%	25.0%	25.5%	15.4%	23.3%	14.8%	18.2%	15.8%
Grade 12 (Matayom 6)	55	68	123	30	27	57	9	11	20	3	1	4	1	1	2
	17.7%	20.9%	19.3%	16.1%	15.6%	15.9%	9.1%	18.0%	12.5%	6.4%	7.7%	6.7%	3.7%	9.1%	5.3%
Total number for this behavior	311	326	637	186	173	359	99	61	160	47	13	60	27	11	38
Percentage of all students who engaged in this behavior	22.2%	23.2%	45.4%	13.3%	12.3%	25.6%	7.1%	4.3%	11.4%	3.4%	0.9%	4.3%	1.9%	0.8%	2.7%

<sup>s</sup> on  $\geq 1$  of the 30 days immediately preceding the survey

<sup>&</sup>  $\geq 1$  times during the 30 days immediately preceding the survey

✱ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 26. Percentage of Secondary School Students Who Had Lifetime Yaba (Methamphetamine) Use, Current Yaba Use, Lifetime Daily Yaba Use, and Tried to Quit Yaba Use, by Grade and Gender

Grade	Lifetime Yaba use			Current Yaba use <sup>&amp;</sup>			Lifetime daily Yaba use		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	10	3	13	10	4	14	4	12	16
	40.0%	33.3%	38.2%	50.0%	40.0%	46.7%	10.0%	29.3%	19.8%
Grade 8 (Matayom 2)	2	0	2	4	0	4	9	6	15
	8.0%	0.0%	5.9%	20.0%	0.0%	13.3%	22.5%	14.6%	18.5%
Grade 9 (Matayom 3)	2	0	2	1	0	1	11	6	17
	8.0%	0.0%	5.9%	5.0%	0.0%	3.3%	27.5%	14.6%	21.0%
Grade 10 (Matayom 4)	2	4	6	1	4	5	8	7	15
	8.0%	44.4%	17.6%	5.0%	40.0%	16.7%	20.0%	17.1%	18.5%
Grade 11 (Matayom 5)	8	1	9	4	1	5	4	7	11
	32.0%	11.1%	26.5%	20.0%	10.0%	16.7%	10.0%	17.1%	13.6%
Grade 12 (Matayom 6)	1	1	2	0	1	1	4	3	7
	4.0%	11.1%	5.9%	0.0%	10.0%	3.3%	10.0%	7.3%	8.6%
Total number for this behavior	25	9	34	20	10	30	40	41	81
Percentage of all students who engaged in this behavior	1.8%	0.6%	2.4%	1.4%	0.7%	2.1%	2.8%	2.9%	5.7%

<sup>&</sup> ≥1 times during the 30 days immediately preceding the survey  
during the 12 months immediately preceding the survey

✱ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 27. Percentage of Secondary School Students Who Had Lifetime Cocaine Use, Current Cocaine Use, Lifetime Inhalant Use and Current Inhalant Use, by Grade and Gender

Grade	Lifetime cocaine use			Current cocaine use <sup>&amp;</sup>			Lifetime inhalant use			Current inhalant use <sup>&amp;</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	10	3	13	9	3	12	11	4	15	12	1	13
	43.5%	37.5%	41.9%	50.0%	37.5%	46.2%	42.3%	26.7%	36.6%	50.0%	14.3%	41.9%
Grade 8 (Matayom 2)	3	0	3	4	0	4	3	2	5	4	1	5
	13.0%	0.0%	9.7%	22.2%	0.0%	15.4%	11.5%	13.3%	12.2%	16.7%	14.3%	16.1%
Grade 9 (Matayom 3)	2	0	2	1	0	1	2	4	6	1	0	1
	8.7%	0.0%	6.5%	5.6%	0.0%	3.8%	7.7%	26.7%	14.6%	4.2%	0.0%	3.2%
Grade 10 (Matayom 4)	4	4	8	2	4	6	3	3	6	2	4	6
	17.4%	50.0%	25.8%	11.1%	50.0%	23.1%	11.5%	20.0%	14.6%	8.3%	57.1%	19.4%
Grade 11 (Matayom 5)	3	0	3	2	0	2	5	1	6	4	0	4
	13.0%	0.0%	9.7%	11.1%	0.0%	7.7%	19.2%	6.7%	14.6%	16.7%	0.0%	12.9%
Grade 12 (Matayom 6)	1	1	2	0	1	1	2	1	3	1	1	2
	4.3%	12.5%	6.5%	0.0%	12.5%	3.8%	7.7%	6.7%	7.3%	4.2%	14.3%	6.5%
Total number for this behavior	23	8	31 ♥	18	8	26 ♥	26	15	41 ♥	24	7	31 ♥
Percentage of all students who engaged in this behavior	1.6%	0.6%	2.2%	1.3%	0.6%	1.9%	1.8%	1.1%	2.9%	1.7%	0.5%	2.2%

<sup>&</sup> ≥1 times during the 30 days immediately preceding the survey

♣ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$



Table 28. Percentage of Secondary School Students Who Had Lifetime Heroin Use, Current Heroin Use, Lifetime Yae (Ecstasy) Use, and Current Yae (Ecstasy) Use, by Grade and Gender

Grade	Lifetime heroin use			Current heroin use <sup>&amp;</sup>			Lifetime Yae (ecstasy) use			Current Yae (ecstasy) use <sup>&amp;</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	12	2	14	9	2	11	10	2	12	9	3	12
	54.5%	33.3%	50.0%	47.4%	28.6%	42.3%	45.5%	33.3%	42.9%	50.0%	37.5%	46.2%
Grade 8 (Matayom 2)	3	0	3	2	0	2	4	0	4	3	0	3
	13.6%	0.0%	10.7%	10.5%	0.0%	7.7%	18.2%	0.0%	14.3%	16.7%	0.0%	11.5%
Grade 9 (Matayom 3)	0	0	0	1	0	1	1	0	1	0	0	0
	0.0%	0.0%	0.0%	5.3%	0.0%	3.8%	4.5%	0.0%	3.6%	0.0%	0.0%	0.0%
Grade 10 (Matayom 4)	4	3	7	4	4	8	3	3	6	3	4	7
	18.2%	50.0%	25.0%	21.1%	57.1%	30.8%	13.6%	50.0%	21.4%	16.7%	50.0%	26.9%
Grade 11 (Matayom 5)	3	0	3	3	0	3	4	0	4	3	0	3
	13.6%	0.0%	10.7%	15.8%	0.0%	11.5%	18.2%	0.0%	14.3%	16.7%	0.0%	11.5%
Grade 12 (Matayom 6)	0	1	1	0	1	1	0	1	1	0	1	1
	0.0%	16.7%	3.6%	0.0%	14.3%	3.8%	0.0%	16.7%	3.6%	0.0%	12.5%	3.8%
Total number for this behavior	22	6	28 <sup>♣</sup>	19	7	26 <sup>♣</sup>	22	6	28 <sup>♣</sup>	18	8	26 <sup>♣</sup>
Percentage of all students who engaged in this behavior	1.6%	0.4%	2.0%	1.3%	0.5%	1.8%	1.6%	0.4%	2.0%	1.3%	0.6%	1.9%

<sup>&</sup> ≥1 times during the 30 days immediately preceding the survey

<sup>♣</sup> Significant grade differences for this variable, p < .05

<sup>♥</sup> Significant within row gender differences for this variable, p < .05

Table 29. Percentage of Secondary School Students Who Had Lifetime Illegal Injection Drug Use and Non-Prescriptive Medicine Use, by Grade and Gender

Grade	Lifetime illegal injection drug use			Medicine use <sup>(a)</sup>		
	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	11	2	13	27	37	64
	50.0%	40.0%	48.1%	14.3%	13.7%	13.9%
Grade 8 (Matayom 2)	5	0	5	34	56	90
	22.7%	0.0%	18.5%	18.0%	20.7%	19.6%
Grade 9 (Matayom 3)	0	0	0	33	71	104
	0.0%	0.0%	0.0%	17.5%	26.2%	22.6%
Grade 10 (Matayom 4)	3	2	5	22	36	58
	13.6%	40.0%	18.5%	11.6%	13.3%	12.6%
Grade 11 (Matayom 5)	3	0	3	41	37	78
	13.6%	0.0%	11.1%	21.7%	13.7%	17.0%
Grade 12 (Matayom 6)	0	1	1	32	34	66
	0.0%	20.0%	3.7%	16.9%	12.5%	14.3%
Total number for this behavior	22	5	27	189	271	460
Percentage of all students who engaged in this behavior	1.5%	0.4%	1.9%	13.5%	19.4%	32.9%

<sup>(a)</sup> ≥1 times during the 12 months preceding the survey

✱ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 30. Percentage of Secondary School Students Who Smoked a Whole Cigarette before Age 13 Years, Drank Alcohol before Age 13 Years, and Tried Marijuana before Age 13 Years, by Grade and Gender

Grade	Smoked a whole cigarette before age 13 years			Drank alcohol before age 13 years			Tried marijuana before age 13 years		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	6	7	13	24	27	51	12	1	13
	15.0%	36.8%	22.0%	16.6%	19.7%	18.1%	54.5%	20.0%	48.1%
Grade 8 (Matayom 2)	13	6	19	41	39	80	3	0	3
	32.5%	31.6%	32.2%	28.3%	28.5%	28.4%	13.6%	0.0%	11.1%
Grade 9 (Matayom 3)	4	2	6	22	39	61	2	0	2
	10.0%	10.5%	10.2%	15.2%	28.5%	21.6%	9.1%	0.0%	7.4%
Grade 10 (Matayom 4)	11	2	13	23	13	36	2	3	5
	27.5%	10.5%	22.0%	15.9%	9.5%	12.8%	9.1%	60.0%	18.5%
Grade 11 (Matayom 5)	6	2	8	24	12	36	3	0	3
	15.0%	10.5%	13.6%	16.6%	8.8%	12.8%	13.6%	0.0%	11.1%
Grade 12 (Matayom 6)	0	0	0	11	7	18	0	1	1
	0.0%	0.0%	0.0%	7.6%	5.1%	6.4%	0.0%	20.0%	3.7%
Total number for this behavior	40	19	59	145	137	282	22	5	27
Percentage of all students who engaged in this behavior	2.8%	1.4%	4.2%	10.4%	9.8%	20.2%	1.5%	0.4%	1.9%

◆ Significant grade differences for this variable,  $p < .05$

Table 31. Percentage of Secondary School Students Who Smoked Cigarettes on School Property, Drank Alcohol on School Property, Used Marijuana on School Property, Used Yaba on School Property, and Offered, Sold, or Given an Illegal Drug on School Property, by Grade and Gender

Grade	.Smoked cigarette on school property <sup>§</sup>			Drank alcohol on school property <sup>§</sup>			Used marijuana on school property <sup>&amp;</sup>			Used Yaba on school property <sup>&amp;</sup>			Offered, sold, or given an illegal drug on school property <sup>^</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	11	2	13	12	2	14	14	3	17	10	3	13	13	8	21
	21.6%	13.3%	19.7%	29.3%	12.5%	24.6%	56.0%	33.3%	50.0%	50.0%	42.9%	48.1%	21.0%	14.0%	17.6%
Grade 8 (Matayom 2)	7	1	8	5	0	5	4	0	4	4	0	4	11	8	19
	13.7%	6.7%	12.1%	12.2%	0.0%	8.8%	16.0%	0.0%	11.8%	20.0%	0.0%	14.8%	17.7%	14.0%	16.0%
Grade 9 (Matayom 3)	4	0	4	5	2	7	1	0	1	1	0	1	10	12	22
	7.8%	0.0%	6.1%	12.2%	12.5%	12.3%	4.0%	0.0%	2.9%	5.0%	0.0%	3.7%	16.1%	21.1%	18.5%
Grade 10 (Matayom 4)	15	7	22	9	5	14	3	5	8	2	3	5	11	7	18
	29.4%	46.7%	33.3%	22.0%	31.3%	24.6%	12.0%	55.6%	23.5%	10.0%	42.9%	18.5%	17.7%	12.3%	15.1%
Grade 11 (Matayom 5)	11	3	14	5	5	10	3	0	3	3	0	3	11	13	24
	21.6%	20.0%	21.2%	12.2%	31.3%	17.5%	12.0%	0.0%	8.8%	15.0%	0.0%	11.1%	17.7%	22.8%	20.2%
Grade 12 (Matayom 6)	3	2	5	5	2	7	0	1	1	0	1	1	6	9	15
	5.9%	13.3%	7.6%	12.2%	12.5%	12.3%	0.0%	11.1%	2.9%	0.0%	14.3%	3.7%	9.7%	15.8%	12.6%
Total number for this behavior	51	15	66 ♡	41	16	57 ♡	25	9	34 ♡	20	7	27 ♡	62	57	119
Percentage of all students who engaged in this behavior	3.6%	1.1%	4.7%	2.9%	1.2%	4.1%	1.8%	0.6%	2.4%	1.4%	0.5%	1.9%	4.4%	4.1%	8.5%

<sup>§</sup> on ≥1 of the 30 days immediately preceding the survey  
<sup>&</sup> ≥1 times during the 30 days immediately preceding the survey  
<sup>^</sup> during the 12 months immediately preceding the survey

♣ Significant grade differences for this variable, p < .05  
 ♡ Significant within row gender differences for this variable, p < .05

Table 32. Percentage of Secondary School Students Who Identified Their Sexual Orientation as Bisexual or Homosexual, Had Sexual Intercourse With the Same Sex or Both the Opposite Sex and the Same Sex, Had Someone Make Negative Comments Because They Thought these Students Were Gay or Lesbian, by Grade and Gender

	Identified their sexual orientation as bisexual or homosexual			Had sexual intercourse with the same sex or both the opposite sex and the same sex			Had someone make negative comments because they thought these students were gay or lesbian		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade	*								
Grade 7 (Matayom 1)	13	19	32	2	3	5	20	22	42
	22.8%	14.4%	16.9%	10.0%	6.5%	7.6%	12.5%	19.5%	15.4%
Grade 8 (Matayom 2)	8	27	35	1	3	4	27	21	48
	14.0%	20.5%	18.5%	5.0%	6.5%	6.1%	16.9%	18.6%	17.6%
Grade 9 (Matayom 3)	4	30	34	3	5	8	24	19	43
	7.0%	22.7%	18.0%	15.0%	10.9%	12.1%	15.0%	16.8%	15.8%
Grade 10 (Matayom 4)	10	24	34	1	10	11	24	15	39
	17.5%	18.2%	18.0%	5.0%	21.7%	16.7%	15.0%	13.3%	14.3%
Grade 11 (Matayom 5)	13	16	29	9	8	17	32	22	54
	22.8%	12.1%	15.3%	45.0%	17.4%	25.8%	20.0%	19.5%	19.8%
Grade 12 (Matayom 6)	9	16	25	4	17	21	33	14	47
	15.8%	12.1%	13.2%	20.0%	37.0%	31.8%	20.6%	12.4%	17.2%
Total number for this behavior	57	132	189 ♥	20	46	66♥	160	113	273♥
Percentage of all students who engaged in this behavior	4.4%	10.1%	14.5%	1.4%	3.3%	4.7%	11.5%	8.1%	19.6%

\* Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 33. Percentage of Secondary School Students Who Had Lifetime Sexual Intercourse, Had First Sexual Intercourse Before Age 13 Years, Had Sexual Intercourse with Four or More Persons During Their Life, and Currently Sexually Active, by Grade and Gender

Grade	Lifetime sexual intercourse			Had first sexual intercourse before age 13 years			Had sexual intercourse with four or more persons during their life			Currently sexually active <sup>#</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	6	3	9	8	3	11	1	0	1	7	4	11
	8.5%	5.7%	7.3%	47.1%	42.9%	45.8%	6.7%	0.0%	4.5%	18.4%	9.8%	13.9%
Grade 8 (Matayom 2)	8	4	12	4	2	6	1	1	2	5	1	6
	11.3%	7.5%	9.7%	23.5%	28.6%	25.0%	6.7%	14.3%	9.1%	13.2%	2.4%	7.6%
Grade 9 (Matayom 3)	10	5	15	1	0	1	0	2	2	3	5	8
	14.1%	9.4%	12.1%	5.9%	0.0%	4.2%	0.0%	28.6%	9.1%	7.9%	12.2%	10.1%
Grade 10 (Matayom 4)	13	12	25	2	0	2	3	0	3	4	11	15
	18.3%	22.6%	20.2%	11.8%	0.0%	8.3%	20.0%	0.0%	13.6%	10.5%	26.8%	19.0%
Grade 11 (Matayom 5)	21	11	32	2	1	3	7	1	8	13	7	20
	29.6%	20.8%	25.8%	11.8%	14.3%	12.5%	46.7%	14.3%	36.4%	34.2%	17.1%	25.3%
Grade 12 (Matayom 6)	13	18	31	0	1	1	3	3	6	6	13	19
	18.3%	34.0%	25.0%	0.0%	14.3%	4.2%	20.0%	42.9%	27.3%	15.8%	31.7%	24.1%
Total number for this behavior	71	53	124 <sup>♥</sup>	17	7	24	15	7	22	38	41	79 <sup>♥</sup>
Percentage of all students who engaged in this behavior	5.0%	3.8%	8.8%	1.2%	0.5%	1.7%	1.1%	0.5%	1.6%	2.7%	2.9%	5.6%

<sup>#</sup> Had sexual intercourse with 1 or more persons during the 3 months immediately preceding the survey

<sup>✿</sup> Significant grade differences for this variable,  $p < .05$

<sup>♥</sup> Significant within row gender differences for this variable,  $p < .05$

Table 34. Percentage of Secondary School Students Who Had Alcohol or Drug Use Before Last Sexual Intercourse,\*Had Condom Use during Last Sexual Intercourse,\* Had No Method of Family Planning before Last Sexual Intercourse,^ Had Been Pregnant or Had Gotten Someone Else Pregnant,^ and Taught in School about AIDS or HIV Infection, by Grade and Gender

	Alcohol or drug use before last sexual intercourse			Condom use during last sexual intercourse			No method of family planning before last sexual intercourse			Had been pregnant or had gotten someone else pregnant			Taught in school about AIDS or HIV infection		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade															
Grade 7 (Matayom 1)	7	1	8	3	1	4	5	3	8	7	4	11	62	94	156
	23.3%	8.3%	19.0%	8.3%	3.7%	6.3%	29.4%	50.0%	34.8%	58.3%	40.0%	50.0%	12.8%	15.1%	14.1%
Grade 8 (Matayom 2)	3	0	3	5	1	6	1	0	1	2	0	2	92	113	205
	10.0%	0.0%	7.1%	13.9%	3.7%	9.5%	5.9%	0.0%	4.3%	16.7%	0.0%	9.1%	19.0%	18.2%	18.6%
Grade 9 (Matayom 3)	3	1	4	4	3	7	1	0	1	1	0	1	90	139	229
	10.0%	8.3%	9.5%	11.1%	11.1%	11.1%	5.9%	0.0%	4.3%	8.3%	0.0%	4.5%	18.6%	22.3%	20.7%
Grade 10 (Matayom 4)	4	5	9	3	7	10	2	1	3	1	1	2	64	77	141
	13.3%	41.7%	21.4%	8.3%	25.9%	15.9%	11.8%	16.7%	13.0%	8.3%	10.0%	9.1%	13.3%	12.4%	12.8%
Grade 11 (Matayom 5)	10	2	12	14	7	21	5	1	6	1	1	2	100	93	193
	33.3%	16.7%	28.6%	38.9%	25.9%	33.3%	29.4%	16.7%	26.1%	8.3%	10.0%	9.1%	20.7%	15.0%	17.5%
Grade 12 (Matayom 6)	3	3	6	7	8	15	3	1	4	0	4	4	75	106	181
	10.0%	25.0%	14.3%	19.4%	29.6%	23.8%	17.6%	16.7%	17.4%	0.0%	40.0%	18.2%	15.5%	17.0%	16.4%
Total number for this behavior	30	12	42	36	27	63	17	6	23	12	10	22	483	622	1105♥
Percentage of all students who engaged in this behavior	38.0%	15.2%	*53.2%	45.6%	34.2%	*79.8%	13.7%	4.8%	^18.5%	9.6%	8.1%	^17.7%	34.4%	44.4%	78.8%

\* Among the 5.6% of students who were currently sexually active

^ Among the 8.8% of student who ever had sexual intercourse

♣ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 35. Percentage of Secondary School Students Who Ate Fruits  $\geq 3$  Times/Day, Ate Vegetables  $\geq 3$  Times/Day, and Drank  $>3$  Glasses of Milk/Day, by Grade and Gender

Grade	Ate fruits $\geq 3$ times/day <sup>≈</sup>			Ate vegetables $\geq 3$ times/day <sup>≈</sup>			Drank $>3$ glasses of milk/day <sup>≈</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	19	19	38	26	43	69	19	15	34
	18.4%	20.9%	19.6%	14.9%	20.3%	17.9%	18.1%	25.9%	20.9%
Grade 8 (Matayom 2)	24	13	37	44	31	75	28	15	43
	23.3%	14.3%	19.1%	25.3%	14.6%	19.4%	26.7%	25.9%	26.4%
Grade 9 (Matayom 3)	20	25	45	37	46	83	22	7	29
	19.4%	27.5%	23.2%	21.3%	21.7%	21.5%	21.0%	12.1%	17.8%
Grade 10 (Matayom 4)	20	8	28	22	25	47	15	6	21
	19.4%	8.8%	14.4%	12.6%	11.8%	12.2%	14.3%	10.3%	12.9%
Grade 11 (Matayom 5)	10	10	20	23	29	52	9	8	17
	9.7%	11.0%	10.3%	13.2%	13.7%	13.5%	8.6%	13.8%	10.4%
Grade 12 (Matayom 6)	10	16	26	22	38	60	12	7	19
	9.7%	17.6%	13.4%	12.6%	17.9%	15.5%	11.4%	12.1%	11.7%
Total number for this behavior	103	91	194♥	174	212	386	105	58	163♥
Percentage of all students who engaged in this behavior	7.4%	6.5%	13.9%	12.7%	15.3%	28.0%	7.6%	4.1%	11.7%

<sup>≈</sup> During the 7 days immediately preceding the survey

◆ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$



Table 36. Percentage of Secondary School Students Who Ate food from a Street Vender, Ate food or Drank with Someone Else Sharing the Same Bowl or Glass, and Ate food with Someone Else without a “Serving Spoon,” by Grade and Gender

Grade	Ate food from a street vender <sup>ⓐ</sup>			Ate food or drank with someone else sharing the same bowl or glass <sup>ⓐ</sup>			Ate food with someone else without a “serving spoon” <sup>ⓐ</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	15	28	43	55	79	134	54	86	140
	13.2%	19.2%	16.5%	13.7%	15.8%	14.9%	13.5%	16.1%	15.0%
Grade 8 (Matayom 2)	21	20	41	64	96	160	58	95	153
	18.4%	13.7%	15.8%	15.9%	19.2%	17.8%	14.5%	17.8%	16.4%
Grade 9 (Matayom 3)	23	30	53	69	108	177	71	121	192
	20.2%	20.5%	20.4%	17.2%	21.6%	19.6%	17.8%	22.6%	20.5%
Grade 10 (Matayom 4)	20	17	37	65	55	120	65	62	127
	17.5%	11.6%	14.2%	16.2%	11.0%	13.3%	16.3%	11.6%	13.6%
Grade 11 (Matayom 5)	24	24	48	86	75	161	82	82	164
	21.1%	16.4%	18.5%	21.4%	15.0%	17.9%	20.5%	15.3%	17.5%
Grade 12 (Matayom 6)	11	27	38	63	86	149	70	89	159
	9.6%	18.5%	14.6%	15.7%	17.2%	16.5%	17.5%	16.6%	17.0%
Total number for this behavior	114	146	260	402	499	901	400	535	935 <sup>♥</sup>
Percentage of all students who engaged in this behavior	8.2%	10.4%	18.6%	28.7%	35.6%	64.3%	28.7%	38.3%	67.0%

<sup>ⓐ</sup> ≥ 1 times/day during the 7 days immediately preceding the survey

⊛ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 37. Percentage of Secondary School Students Who Described Themselves as Overweight, Were Trying to Lose Weight, Exercised to Lose Weight or to Keep from Gaining Weight, Ate Less Food, Fewer Calories, or Foods Low in Fat to Lose Weight or to Keep from Gaining Weight, by Grade and Gender

Grade	Described themselves as slightly or very overweight			Were trying to lose weight			Exercised to lose weight or to keep from gaining weight*			Ate less food, fewer calories, or foods low in fat to lose weight or to keep from gaining weight*		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	21	36	57	30	56	86	52	71	123	26	58	84
	14.0%	16.2%	15.3%	16.4%	17.7%	17.2%	15.8%	17.2%	16.6%	14.7%	17.6%	16.6%
Grade 8 (Matayom 2)	32	42	74	41	63	104	67	84	151	35	56	91
	21.3%	18.9%	19.9%	22.4%	19.9%	20.8%	20.4%	20.4%	20.4%	19.8%	17.0%	18.0%
Grade 9 (Matayom 3)	27	35	62	38	64	102	64	84	148	45	72	117
	18.0%	15.8%	16.7%	20.8%	20.3%	20.4%	19.5%	20.4%	20.0%	25.4%	21.9%	23.1%
Grade 10 (Matayom 4)	23	32	55	18	47	65	42	58	100	24	42	66
	15.3%	14.4%	14.8%	9.8%	14.9%	13.0%	12.8%	14.1%	13.5%	13.6%	12.8%	13.0%
Grade 11 (Matayom 5)	25	39	64	32	45	77	58	62	120	28	50	78
	16.7%	17.6%	17.2%	17.5%	14.2%	15.4%	17.6%	15.0%	16.2%	15.8%	15.2%	15.4%
Grade 12 (Matayom 6)	22	38	60	24	41	65	46	53	99	19	51	70
	14.7%	17.1%	16.1%	13.1%	13.0%	13.0%	14.0%	12.9%	13.4%	10.7%	15.5%	13.8%
Total number for this behavior	150	222	372♥	183	316	499♥	329	412	741	177	329	506♥
Percentage of all students who engaged in this behavior	10.8%	15.9%	26.7%	13.1%	22.5%	35.6%	23.5%	29.3%	52.8%	12.6%	23.4%	36.0%

\* During the 30 days immediately preceding the survey

♥Significant within row gender differences for this variable,  $p < .05$

Table 38. Percentage of Secondary School Students Who Went Without Eating for >24 Hours to Lose Weight or to Keep from Gaining Weight, Took Diet Pills, Powders, or Liquids to Lose Weight or to Keep from Gaining Weight, and Vomited or Took Laxatives to Lose Weight or to Keep from Gaining Weight, by Grade and Gender

Grade	Went without eating for >24 hours to lose weight or to keep from gaining weight			Took diet pills, powders, or liquids to lose weight or to keep from gaining weight			Vomited or took laxatives to lose weight or to keep from gaining weight		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	10	11	21	8	7	15	10	8	18
	21.3%	22.4%	21.9%	25.8%	30.4%	27.8%	37.0%	21.6%	28.1%
Grade 8 (Matayom 2)	8	6	14	2	0	2	8	3	11
	17.0%	12.2%	14.6%	6.5%	0.0%	3.7%	29.6%	8.1%	17.2%
Grade 9 (Matayom 3)	8	9	17	8	5	13	3	9	12
	17.0%	18.4%	17.7%	25.8%	21.7%	24.1%	11.1%	24.3%	18.8%
Grade 10 (Matayom 4)	11	7	18	7	5	12	2	7	9
	23.4%	14.3%	18.8%	22.6%	21.7%	22.2%	7.4%	18.9%	14.1%
Grade 11 (Matayom 5)	6	6	12	5	3	8	3	5	8
	12.8%	12.2%	12.5%	16.1%	13.0%	14.8%	11.1%	13.5%	12.5%
Grade 12 (Matayom 6)	4	10	14	1	3	4	1	5	6
	8.5%	20.4%	14.6%	3.2%	13.0%	7.4%	3.7%	13.5%	9.4%
Total number for this behavior	47	49	96	31	23	54	27	37	64
Percentage of all students who engaged in this behavior	3.3%	3.5%	6.8%	2.2%	1.6%	3.8%	1.9%	2.7%	4.6%

\* During the 30 days immediately preceding the survey

✱ Significant grade differences for this variable,  $p < .05$

Table 39. Percentage of Secondary School Students Who Had Sufficient Vigorous Physical Activity, Did Not Participate in Any Vigorous Physical Activity, Had Sufficient Moderate Physical Activity, and Did Not Participate in Moderate Physical Activity, by Grade and Gender

Grade	Sufficient vigorous physical activity <sup>≈</sup>			Did not participate in any vigorous physical activity			Sufficient moderate physical activity <sup>#</sup>			Did not participate in moderate physical activity		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	58	49	107	13	30	43	29	13	42	21	51	72
	15.3%	18.8%	16.8%	16.7%	19.4%	18.5%	14.9%	14.9%	14.9%	17.5%	25.8%	22.6%
Grade 8 (Matayom 2)	77	59	136	12	16	28	39	21	60	19	19	38
	20.4%	22.7%	21.3%	15.4%	10.3%	12.0%	20.0%	24.1%	21.3%	15.8%	9.6%	11.9%
Grade 9 (Matayom 3)	74	55	129	16	31	47	39	31	70	25	41	66
	19.6%	21.2%	20.2%	20.5%	20.0%	20.2%	20.0%	35.6%	24.8%	20.8%	20.7%	20.8%
Grade 10 (Matayom 4)	54	38	92	9	17	26	32	12	44	16	26	42
	14.3%	14.6%	14.4%	11.5%	11.0%	11.2%	16.4%	13.8%	15.6%	13.3%	13.1%	13.2%
Grade 11 (Matayom 5)	70	33	103	15	26	41	29	6	35	23	27	50
	18.5%	12.7%	16.1%	19.2%	16.8%	17.6%	14.9%	6.9%	12.4%	19.2%	13.6%	15.7%
Grade 12 (Matayom 6)	45	26	71	13	35	48	27	4	31	16	34	50
	11.9%	10.0%	11.1%	16.7%	22.6%	20.6%	13.8%	4.6%	11.0%	13.3%	17.2%	15.7%
Total number for this behavior	378	260	638♥	78	155	233♥	195	87	282♥	120	198	318♥
Percentage of all students who engaged in this behavior	27.0%	18.6%	45.6%	5.6%	11.1%	16.7%	14.0%	6.2%	20.2%	8.6%	14.2%	22.8%

<sup>≈</sup> on  $\geq 3$  of the 7 days preceding the survey

<sup>#</sup> on  $\geq 5$  of the 7 days preceding the survey

◆ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 40. Percentage of Secondary School Students Who Had Done Strengthening Exercises, Attended Physical Education Classes, Exercised or Played Sports, <sup>∞</sup> and Played on Sport Teams, by Grade and Gender

Grade	Strengthening exercises <sup>≈</sup>			Attended Physical Education Classes <sup>*</sup>			Exercised or played Sports <sup>§</sup>			Played on sport teams <sup>^</sup>		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	40	28	68	96	136	232	71	79	150	88	99	187
	13.9%	20.6%	16.0%	15.7%	18.8%	17.4%	15.3%	16.6%	16.0%	16.1%	17.6%	16.9%
Grade 8 (Matayom 2)	49	20	69	118	129	247	79	76	155	110	111	221
	17.0%	14.7%	16.3%	19.3%	17.8%	18.5%	17.1%	16.0%	16.5%	20.1%	19.7%	19.9%
Grade 9 (Matayom 3)	62	31	93	115	159	274	87	120	207	106	129	235
	21.5%	22.8%	21.9%	18.8%	22.0%	20.5%	18.8%	25.2%	22.0%	19.4%	22.9%	21.2%
Grade 10 (Matayom 4)	45	22	67	87	89	176	67	65	132	77	73	150
	15.6%	16.2%	15.8%	14.2%	12.3%	13.2%	14.5%	13.7%	14.1%	14.1%	13.0%	13.5%
Grade 11 (Matayom 5)	54	13	67	112	100	212	90	65	155	97	66	163
	18.8%	9.6%	15.8%	18.3%	13.8%	15.9%	19.4%	13.7%	16.5%	17.8%	11.7%	14.7%
Grade 12 (Matayom 6)	38	22	60	83	111	194	69	71	140	68	85	153
	13.2%	16.2%	14.2%	13.6%	15.3%	14.5%	14.9%	14.9%	14.9%	12.5%	15.1%	13.8%
Total number for this behavior	288	136	424♥	611	724	1335	463	476	939♥	546	563	1109♥
Percentage of all students who engaged in this behavior	20.7%	9.7%	30.4%	43.7%	51.8%	95.5%	33.3%	34.1%	<sup>∞</sup> 67.4%	39.0%	40.2%	79.2%

<sup>∞</sup> Among the 95.5% of students who attended PE classes

<sup>≈</sup> on ≥ 3 of the 7 days preceding the survey

<sup>\*</sup> On one or more days in an average week when they were in school

<sup>§</sup> >20 Minutes during an average PE Class

<sup>^</sup> During the 12 months immediately preceding the survey

◆ Significant grade differences for this variable,  $p < .05$

♥ Significant within row gender differences for this variable,  $p < .05$

Table 41. Percentage of Secondary School Students Who Watched Television and Used Computers, by Grade and Gender

Grade	Watched television <sup>&amp;</sup>			Used Computers <sup>&amp;</sup>		
	Male	Female	Total	Male	Female	Total
Grade 7 (Matayom 1)	41	53	94	16	23	39
	16.7%	16.5%	16.6%	9.7%	14.9%	12.2%
Grade 8 (Matayom 2)	38	56	94	27	25	52
	15.4%	17.4%	16.6%	16.4%	16.2%	16.3%
Grade 9 (Matayom 3)	57	73	130	35	41	76
	23.2%	22.7%	22.9%	21.2%	26.6%	23.8%
Grade 10 (Matayom 4)	33	35	68	29	15	44
	13.4%	10.9%	12.0%	17.6%	9.7%	13.8%
Grade 11 (Matayom 5)	43	46	89	34	28	62
	17.5%	14.3%	15.7%	20.6%	18.2%	19.4%
Grade 12 (Matayom 6)	34	58	92	24	22	46
	13.8%	18.1%	16.2%	14.5%	14.3%	14.4%
Total number for this behavior	247	321	568	166	154	320 <sup>♥</sup>
Percentage of all students who engaged in this behavior	17.7%	23.1%	40.8%	11.9%	11.1%	23.0%

<sup>&</sup> ≥ 3 hours/day on an average school day

<sup>♣</sup> Significant grade differences for this variable,  $p < .05$

<sup>♥</sup> Significant within row gender differences for this variable,  $p < .05$

## Relationships between Resilience and Risk-Taking behavior

Results show that resilience was *positively* correlated to the following variables (see Table 42):

- *Demographic data*

- Age ( $r = 0.097, p < 0.000$ ),
- School level (grade level) ( $r = 0.114, p < 0.000$ ),
- Sufficiency of money received ( $r = 0.112, p < 0.000$ ),
- Average grades in a school ( $r = 0.192, p < 0.000$ ).

- *Behavior that contributes to unintentional injuries*

- Never used walking bridge use ( $r = .089, p < .001$ ),
- Never used crosswalk ( $r = 0.151, p < 0.000$ ).

- *Tobacco Use*

- Smoked a whole cigarette before age 13 ( $r = 0.088, p < 0.001$ ),
- Smoked >20 cigarettes/day ( $r = 0.121, p < 0.000$ ),
- Bought cigarettes in a store or gas station ( $r = 0.106, p < 0.000$ ),
- Tried to quit smoking cigarettes ( $r = 0.095, p < 0.000$ ).

- *Alcohol and Other Drug Use*

- Drank alcohol before age 13 ( $r = 0.064, p < 0.017$ ),
- Tried marijuana before age 13 ( $r = 0.123, p < 0.000$ ),
- Tried to quit Yaba use ( $r = 0.056, p < 0.035$ ),
- Had sexual intercourse with ( $r = 0.053, p < 0.045$ ).

· *Dietary behaviors and weight control*

- Exercised to lose weight or to keep from gaining weight

( $r = 0.07, p < 0.009$ ),

- Ate fruits  $\geq 3$  times/day ( $r = 0.095, p < 0.000$ ),

- Ate vegetables  $\geq 3$  times/day ( $r = 0.119, p < 0.000$ ).

· *Physical Activity*

- Sufficient vigorous physical activity ( $r = 0.103, p < 0.000$ ),

- Sufficient moderate physical activity ( $r = 0.124, p < 0.000$ ),

- Strengthening exercises ( $r = 0.067, p < 0.013$ ), and

- Played on  $>1$  sports teams ( $r = 0.066, p < 0.014$ ).

On the other hand, resilience was *negatively* correlated to the following demographic and risk behavior variables (see Table 43):

· *Demographic data*

- Was alone or with friends after school with no adult around

( $r = -0.06, p < 0.024$ ),

- Harmonious family atmosphere ( $r = -0.218, p < 0.000$ ).

· *Behavior that contributes to unintentional injuries*

- Carrying a weapon on school property ( $r = -0.081, p < 0.002$ ),

- Not going to school because of safety concerns ( $r = -0.092, p < 0.001$ ),



- Threatened or injured with a weapon on school property  
( $r = -0.071, p < 0.007$ ),
- Being in a physical fight ( $r = -0.059, p < 0.027$ ),
- Being in a physical fight on school property ( $r = -0.067, p < 0.013$ ),
- Experiencing dating violence ( $r = -0.063, p < 0.019$ ),
- Feeling sad or hopeless ( $r = -0.106, p < 0.000$ ),
- Seriously considered attempting suicide ( $r = -0.141, p < 0.000$ ),
- Made a suicide plan ( $r = -0.126, p < 0.000$ ),
- Attempted suicide ( $r = -0.136, p < 0.000$ ).

· *Tobacco Use*

- Lifetime cigarette use ( $r = -0.072, p < 0.007$ ),
- Current cigarette use ( $r = -0.128, p < 0.000$ ),
- Smoking cigarettes on school property ( $r = -0.112, p < 0.000$ ),
- Lifetime daily cigarette use ( $r = -0.082, p < 0.002$ ).

· *Alcohol and Other Drug Use*

- Current alcohol use ( $r = -0.062, p < 0.019$ ),
- Episodic heavy drinking ( $r = -0.058, p < 0.029$ ),
- Drank alcohol on school property ( $r = -0.095, p < 0.000$ ),
- Lifetime marijuana use ( $r = -0.111, p < 0.000$ ),
- Current marijuana use ( $r = -0.097, p < 0.000$ ),
- Used marijuana on school property ( $r = -.088, p < 0.001$ ),
- Lifetime Yaba (methamphetamine) use ( $r = -0.068, p < 0.011$ ),

- Current Yaba use ( $r = -0.069, p < 0.009$ ),
- Used Yaba on school property ( $r = -0.095, p < 0.000$ ),
- Lifetime cocaine use ( $r = -0.095, p < 0.000$ ),
- Current cocaine use ( $r = -0.098, p < 0.000$ ),
- Lifetime inhalant use ( $r = -.134, p < 0.000$ ),
- Current inhalant use ( $r = -0.09, p < 0.001$ ),
- Lifetime heroin use ( $r = -0.101, p < 0.000$ ),
- Current heroin use ( $r = -0.065, p < 0.015$ ),
- Lifetime Yae (ecstasy) use ( $r = -0.096, p < 0.000$ ),
- Current Yae (ecstasy) use ( $r = -0.073, p < 0.006$ ),
- Lifetime illegal injection drug use ( $r = -0.088, p < 0.001$ ),
- Offered, sold, or given an illegal drug on school property  
( $r = -0.063, p < 0.018$ ).

· *Sexual behavior and physical activity*

- Sexual orientation ( $r = -0.057, p < 0.032$ ),
- Had someone make negative comments because they thought  
these students were gay or lesbian ( $r = -0.07, p < 0.009$ ).

Table 42. Correlation Coefficients (r), *Positive Correlation*, between Resilience and Risk-taking Behavior

Variables	r	Resilience p-value (2-tailed)	N
<i>Demographic characteristics</i>			
- Age	0.097	0.000	1407
- school level (grade level)	0.114	0.000	1406
- Sufficiency of the received money	0.112	0.000	1407
- Average grades in a school	0.192	0.000	1241
<i>Behavior that contributes to unintentional injuries</i>			
- Never using walking bridge use	0.089	0.001	1404
- Never using crosswalk use	0.151	0.000	1404
<i>Tobacco use</i>			
- Smoked a whole cigarette before age 13	0.088	0.001	1404
- Smoked >20 cigarettes/day	0.121	0.000	1407
- Bought cigarettes in a store or gas station	0.106	0.000	1404
- Tried to quit smoking cigarettes	0.095	0.000	1402
<i>Alcohol and Other Drug Use</i>			
- Drank alcohol before age 13	0.064	0.017	1396
- Tried marijuana before age 13	0.123	0.000	1407
- Tried to quit Yaba use	0.056	0.035	1407
<i>Sexual behavior</i>			
- Had sexual intercourse with the same sex or both the same and opposite sex	0.053	0.045	1407
<i>Dietary behaviors and weight control</i>			
- Exercised to lose weight or to keep from gaining weight	0.07	0.009	1408
- Ate fruits $\geq$ 3 times/day	0.095	0.000	1393
- Ate vegetables $\geq$ 3 times/day	0.119	0.000	1385
<i>Physical activity</i>			
- Vigorous physical activity	0.103	0.000	1401
- Moderate physical activity	0.124	0.000	1399
- Strengthening exercises	0.067	0.013	1399
- Played on >1 sports teams	0.066	0.014	1403

Table 43. Correlation Coefficients (r), *Negative Correlation*, between Resilience and Risk-taking Behavior

Variables	Resilience		
	r	p-value (2-tailed)	N
<i>Demographic characteristics</i>			
- Was alone or with friends after school with no adult around	-0.06	0.024	1405
- Family atmosphere	-0.218	0.000	1405
<i>Behavior that contributes to unintentional injuries</i>			
- Carrying a weapon on the school property	-0.081	0.002	1405
- Not going to school because of safety concerns	-0.092	0.001	1406
- Threatened or injured with a weapon on school property	-0.071	0.007	1405
- Being in a physical fight	-0.059	0.027	1397
- Being in a physical fight on school property	-0.067	0.013	1406
- Experiencing dating violence	-0.063	0.019	1403
- Feeling sad or hopeless	-0.106	0.000	1408
- Seriously considered attempting suicide	-0.141	0.000	1407
- Made a suicide plan	-0.126	0.000	1405
- Attempted suicide	-0.136	0.000	1407
<i>Tobacco use</i>			
- Lifetime cigarette use	-0.072	0.007	1405
- Current cigarette use	-0.128	0.000	1406
- Smoking cigarettes on school property	-0.112	0.000	1405
- Lifetime daily cigarette use	-0.082	0.002	1406
<i>Alcohol and Other Drug Use</i>			
- Current alcohol use	-0.062	0.019	1407
- Episodic heavy drinking	-0.058	0.029	1408
- Drank alcohol on school property	-0.095	0.000	1408
- Lifetime marijuana use	-0.111	0.000	1407
- Current marijuana use	-0.097	0.000	1407
- Used marijuana on school property	-0.088	0.001	1405
- Lifetime Yaba (methamphetamine) use	-0.068	0.011	1406
- Current Yaba use	-0.069	0.009	1407
- Used Yaba on school property	-0.095	0.000	1405

Table 43 (continued). Correlation Coefficients (r), *Negative Correlation*, between Resilience and Risk-taking Behavior

Variables	r	Resilience p-value (2-tailed)	N
<i>Alcohol and Other Drug Use (cont.)</i>			
- Lifetime heroin use	-0.101	0.000	1406
- Lifetime cocaine use	-0.095	0.000	1406
- Current cocaine use	-0.098	0.000	1407
- Lifetime inhalant use	-.134	0.000	1408
- Current inhalant use	-0.09	0.001	1407
- Current heroin use	-0.065	0.015	1408
- Lifetime Yae (ecstasy) use	-0.096	0.000	1408
- Current Yae (ecstasy) use	-0.073	0.006	1407
- Lifetime illegal injection drug use	-0.088	0.001	1408
- Offered, sold, or given an illegal drug on school property	-0.063	0.018	1406
<i>Sexual behavior and physical activity</i>			
- Sexual orientation	-0.057	0.032	1403
- Had someone made negative comments because they thought these students were gay or lesbian	-0.07	0.009	1402

## CHAPTER 5

### Discussion and Conclusions

This chapter presents discussions of the study's major findings, limitations, conclusions as well as recommendations for further research on the subject of risk-taking behavior practices and resilience among Thai adolescents living in Bangkok which are related to the study's two hypotheses:

*Hypothesis I: Statistically, there are significant differences among gender and grade subgroups in various risk-taking behaviors.* The percentages of Thai adolescents living in Bangkok engaging in such risk-taking behavior as well as the significant differences of risk-taking behavior by gender or school grade levels (grades 7-12) are presented.

*Hypothesis II: Statistically, there is a significant relationship between resilience and risk-taking behavior among Thai adolescents living in Bangkok, Thailand.* The relationship among resilience, risk-taking behavior and personal characteristics of the study's participants are presented.

***Hypothesis I: Statistically, there are significant differences among gender and grade subgroups in various risk-taking behaviors.***

*Behavior That Contribute to Unintentional Injuries*

The survey used in the present study included 6 questions concerning personal safety, 10 questions concerning violence-related behavior, and 5 questions concerning sad feelings and attempted suicide. Major findings for each of these questions are presented below including, where applicable, comparison by gender and grade.

*Motorcycle Helmet Use*

Data from the present study indicate that among the 81.8% of students who had ridden a motorcycle, more than half (58.9 %) reported having rarely or never worn a helmet when either driving or riding on a motorcycle driven by someone else. This percentage is higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) which showed that 50.1% of the adolescents reported having rarely or never worn a motorcycle helmet during the 6 months immediately preceding the survey. Moreover, Praisri (2001) found that 68.5% of students in secondary school and vocational school in a metropolitan area in Northern Thailand reported never using or only sometimes using a helmet when riding a motorcycle. This finding is higher than results from the present study.

These findings are consistent with reports by the International Federation of Red Cross Red Crescent Southeast Societies that Thailand has one of the highest rates of

motorcycle injuries and deaths in Southeast Asia because not enough drivers wear safety helmets. This finding is also confirmed by the Office of Royal Thai Police (Tansubhapol, 2006) which reported that the number of motorcycle accidents in the country doubled between 2001 and 2005.

The U.S. 2005 YRBS (CDC, 2006) showed that among the 27.9% of students nationwide who had ridden a motorcycle during the 12 months preceding the survey, 36.5% had rarely or never worn a motorcycle helmet. This, when compared to findings of the present study, shows clearly that the percentage of Thai students engaging in such behavior is more than double that of U.S. teens. However, it should be noted that the use of motorcycles in the two countries is substantially different. In Bangkok, with one of the heaviest traffic problems, motorcycles are used as taxis. In fact, motorcycle taxi queues are located on many sois (small streets). Other local jurisdictions also permit motorcycles to be used as taxis. Although Thailand's helmet law enacted in December, 1994 requires that motorcyclists carry a spare helmet to be used by passengers, this law is seldom enforced (World Health Organization, 2005). Given these reasons, it is understandable that the percentage of students who had rarely or never wore a helmet when driving and or riding a motorcycle is relatively high in Thailand when compared to those in the United States.

When compared by gender, data from the present study indicate that, overall, the percentage of those having rarely or never worn a motorcycle helmet is higher among female (32.2%) than male (26.7%) students. This finding is contrary to the U.S. 2005



YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (38.4%) than female (33.2%) students.

Among grade levels, data from the present study indicate that, of those who have rarely or never worn a motorcycle helmet, students in grades 8 and 9 reported engaging in this risk behavior more so than those in each of the other four grades.

#### *Walking Bridge and Crosswalk Use*

Data from the present study indicate that only a few of the participants had never used a walking bridge (2.5%) or a crosswalk (7.2%) when crossing the street during the 12 months immediately preceding the survey. These findings are in sharp contrast with the findings of the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand which showed that 81.2% of students did not cross streets by using either a walking bridge or crosswalk. However, as previously noted, traffic is a major safety problem in Bangkok whereas this is not the case in most other local jurisdictions of the country. The traffic situation in Bangkok is especially bad during morning and evening peak times due to the surge of schoolchildren in and out of school; the lack of enforcement of traffic regulations such as double parking and parking in forbidden zones; and the fact that many drivers seem to pay no attention to highly sensitive safety areas such as school zones. Given these reasons, students and other pedestrians in Bangkok are more likely to utilize walking bridges or crosswalks than those who live in other local jurisdictions.

The U.S. 2005 YRBS study did not address utilizing either walking bridges or crosswalks.

### *Seat Belt Use*

Data from the present study indicate that among the 95.4 % of students who rode in a car driven by someone else, 29.8 % had rarely or never worn a seat belt during the 30 days immediately preceding the survey. This percentage is similar to data from the 2001 Bangkok YRBS which showed that 30.6% had rarely or never worn a seat belt when riding in a car during the 6 months immediately preceding the survey.

The U.S. 2005 YRBS (CDC, 2006) showed that only 10.2% of students had rarely or never worn seat belts when riding in a car driven by someone else which, when compared to findings from the present study, is approximately two-thirds less than Thai students.

Although the seat belt law in Thailand requires a driver and a passenger in the front seat of the vehicle to wear seat belts (Office of Council of State, 1995), the percentage of Thai students who had rarely or never worn a seat belt when riding in a car driven by someone else is higher than comparable data in the U.S. State mandated seat belt laws came into being in the early 1980's in the U.S. where children and teens today grew up in a culture of being "clicked" into child safety seats and seat belts. Buckling up has become habitual for many in the U.S. today. This coupled with the fact that most school systems in the United States offer a driver education program which includes the

safely driving education, could be major reasons why American students wear seat belts more often than Thai students do.

Among grade levels, data from the present study indicate that, of those who had rarely or never worn seat belts when riding in a car driven by someone else, students in grades 8 and 9 reported engaging in this risk behavior more than those in each of other four grades.

#### *Rode With a Driver Who Had Been Drinking Alcohol*

The results of the present study indicate that 20.2% of students had ridden one or more times in a car or other vehicle driven by someone who had been drinking alcohol during the 30 days immediately preceding the survey. This percentage is only slightly higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that 18.8% of them had ridden with a driver who had been drinking alcohol during the 30 days preceding the survey.

The U.S. 2005 YRBS (CDC, 2006) showed that 28.5% of students nationwide had ridden one or more times in a car or other vehicle driven by someone who had been drinking alcohol. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is about one-third less.

#### *Drove When Drinking Alcohol*

Data from the present study indicate that among the 42.2 % of students who had driven a car or other vehicle during the 30 days immediately preceding the survey,

11.1 % reported driving a car or other vehicle after drinking alcohol. This percentage is similar to data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that 12.1% had driven a car or other vehicle after drinking alcohol. However, Praisri (2001) found that 14.8% of students in secondary school and vocational school in a metropolitan area in Northern Thailand reported driving a car after drinking alcohol. This finding is somewhat higher than results from the present study.

The U.S. 2005 YRBS (CDC, 2006) showed that 9.9% of students nationwide had driven a car or other vehicle one or more times when they had been drinking alcohol during the 30 days preceding the survey. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is somewhat higher.

One of the most critical road safety risk factors in Thailand is driving after consuming alcohol. It is believed that some 50 to 60 % of traffic victims are affected by alcohol. Studies indicate that alcohol can be traced in the blood in about half of all fatality injured persons (Ministry of Transport, 2007). While it is illegal to buy alcohol before age 18 and drive after drinking in Thailand the law is not strictly enforced. Furthermore, alcohol is available everywhere, including at gas stations. Given this reason, Thai adolescents are more likely to drive a car after drinking alcohol than those in the United States.

When compared by gender, data from the present study indicate that, overall, the percentage of those having driven while they were drinking alcohol is higher among male (7.9%) than female (3.2%) students. This is similar to the U.S. 2005 YRBS (CDC, 2006)

which found that the percentage of students nationwide engaging in this risk behavior was higher among male (11.7%) than female (8.1%) students.

Among grade levels, data from the present study indicate that, of those who had driven a car or other vehicle after drinking alcohol, more students in grades 10 and 11 reported engaging in this risk behavior than those in each of the other four grades.

### *Carried a Weapon*

Results of the present study indicate that 10.2 % of students had carried a weapon (e.g., a gun, knife or club) on  $\geq 1$  of the 30 days immediately preceding the survey. This percentage is somewhat higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) which found that 8.5% of adolescents had carried a weapon.

The U.S. 2005 YRBS (CDC, 2006) showed that 18.5% of students nationwide had carried a weapon (e.g., a gun, knife, or club) on  $\geq 1$  of the 30 days preceding the survey. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is substantially lower.

When compared by gender, data from the present study indicate that, overall, the percentage of those having carried a weapon is higher among male (6.0%) than female (4.2%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (29.8%) than female (7.1%) students, although the gender differences are more pronounced among American youth.

### *Carried a Weapon on School Property*

Data from the present study indicate that 6.6 % of students had carried a weapon (e.g., a gun, knife, or club) on school property on  $\geq 1$  of the 30 days immediately preceding the survey. This percentage is almost identical to data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which found that 6.3% of adolescents had carried a weapon on school property.

The U.S. 2005 YRBS found that 6.5% of students nationwide had carried a weapon (e.g., a gun, knife, or club) on school property on  $\geq 1$  of the 30 days preceding the survey. This finding is approximately the same as the present study findings for Thai students engaging in this risk behavior.

### *Did Not Go to School Because of Safety Concerns*

Data from the present study indicate that 9.0 % of students had not gone to school on  $\geq 1$  of the 30 days immediately preceding the survey because they felt they would be unsafe either at school or on their way to or from school. This percentage is somewhat higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which found that 7.1% of them felt insecure on the way to school during the 30 days preceding the survey.

The U.S. 2005 YRBS (CDC, 2006) found that 6.0% of students nationwide had not gone to school on  $\geq 1$  of the 30 days preceding the survey because they felt they would be unsafe either at school or on their way to or from school. When compared to

findings from the present study, the percentage of Thai students involved in this behavior is higher.

#### *Threatened or Injured With a Weapon on School Property*

Results of the present study indicate that 5.4% of students had been threatened or injured with a weapon (e.g., a gun, knife, or club) on school property one or more times during the 12 months immediately preceding the survey. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which found that 7.9% of students nationwide had been threatened or injured.

When compared by gender, data from the present study indicate that, overall, the percentage of those having been either threatened or injured with a weapon on school property is higher among male (3.2%) than female students (2.2%). This finding is similar to the findings for the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (9.7%) than female (6.1%) students. Among grade levels, data from the present study indicate that, of those who had been either threatened or injured with a weapon, more students in grade 7 reported being involved in this risk behavior than those in each of the other five grades.

#### *Had Property Stolen or Damaged on School Property*

Data from the present study indicate that 21.5% of students had their property (e.g., car, clothing, or books) either stolen or deliberately damaged on school property

during the 12 months immediately preceding the survey. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which found that 29.8% of students had had their property either stolen or deliberately damaged on school property during the 12 months preceding the survey.

Among grade levels, data from the present study indicate that, of those who had their property (e.g., car, clothing, or books) either stolen or deliberately damaged on school property, more students in grade 7 reported being involved in this risk behavior than those in each of the other five grades.

#### *In a Physical Fight*

Results of the present study indicate that 47.7 % of students had been in a physical fight one or more times during the 12 months immediately preceding the survey. This percentage is higher than the findings of the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which found that 31.5% of adolescents had been involved in a violent event during the 12 months preceding the survey.

The U.S. 2005 YRBS (CDC, 2006) found that 35.9% of students nationwide had been in a physical fight during the 12 months preceding the survey. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is considerably higher.

When compared by gender, data from the present study indicate that, overall, the percentage of those having been in a physical fight is higher among male (25.2%) than



female (22.5%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (43.4%) than female (28.1%) students.

Among grade levels, data from the present study indicate that, of those who had been in a physical fight, more students in grades 7, 8, and 9 reported engaging in this risk behavior than those in each of the other three grades.

### *Injured in a Physical Fight*

Results of the present study indicate that 7.7% of students had been in a physical fight during the 12 months immediately preceding the survey in which they were injured and had to be treated by a doctor or nurse. This is somewhat higher than findings from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that 6.7% of adolescents had been injured by being physically assaulted and consequently required hospitalization.

The U.S. 2005 YRBS (CDC, 2006) showed that 3.6% of students nationwide had been in a physical fight during the 12 months preceding the survey in which they were injured and had to be treated by a doctor or nurse. When compared to findings from the present study, the percentage of Thai students injured in physical fights is more than double. This finding contrasts with data from the World Report on Violence and Health (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002) which found that the percentage of homicides in South East Asia were lower than those in the United States.

No single factor explains why some individuals behave violently toward others or why violence is more prevalent in some communities than in others. Violence is the result of the complex interplay of individual, relationship, social, cultural and environmental factors. Polk (2007) noted that adolescents are social by nature and this sociability predisposition leads them to engage in interaction with others human beings. These social interactions and their resultant negotiations can lead to interpersonal tensions that can, under the right conditions, manifest into interpersonal violence. Interactions that are primarily negative in context may have serious long-term consequences. For example, those adolescents who live with domestic violence are more likely to view the use of violence in their intimate relationships as an acceptable social norm, as well as an acceptable form of conflict resolution. Children who identify with television, film, and other forms of media characters may be at risk for being influenced by the violence portrayed by those media depictions, including violence-oriented animated computer games. Understanding how these factors are related to violence is one of the important steps in psychiatric and mental health approaches to preventing violence.

When compared by gender, data from the present study indicate that, overall, the percentage of those having been injured in a physical fight is higher among male (5.0%) than female students (2.7%). This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which found that the percentage of students nationwide engaging in this risk behavior was higher among male (4.8%) than female (2.4%) students.

Among grade levels, data from the present study indicate that, of those who have been injured in a physical fight, more students in grades 7 and 10 engaged in this risk behavior than those in each of the other four grades.

#### *In a Physical Fight on School Property*

Results of the present study indicate that 42.6% of students had been in a physical fight on school property one or more times during the 12 months immediately preceding the survey. The 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) found a considerably lower percentage (28.9%) of students had been involved in a violent event that that occurred on the school property.

The U.S. 2005 YRBS (CDC, 2006) found that 13.6% of students nationwide had been in a physical fight on school property during the 12 months preceding the survey. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is more than three times higher.

When compared by gender, data from the present study indicate that, overall, the percentage of those having been in a physical fight on school property is higher among male (23.2%) than female (19.4%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide involved in this risk behavior was higher among male (18.2%) than female (8.8%) students.

Among grade levels, data from the present study indicate that, of those who had been in a physical fight on school property, more students in grades 7, 8, and 9 reported engaging in this risk behavior than those in each of the other three grades.

### *Dating Violence*

Data from the present study indicate that 6.5% of students had been hit, slapped, or physically hurt on purpose by either their boyfriend or girlfriend during the 12 months immediately preceding the survey. This percentage is lower than the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 9.2% of students nationwide had been hit, slapped, or physically hurt on purpose by their boyfriend or girlfriend.

### *Forced to Have Sexual Intercourse*

Results of the present study indicate that 2.1% of students had been physically forced to have sexual intercourse. Although not an exact comparison, the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) found that 17.1% of adolescents were sexually assaulted and 2.4% were raped.

The U.S. 2005 YRBS (CDC, 2006) showed that 7.5% of students nationwide had been physically forced to have sexual intercourse. When compared to findings from the present study, the percentage of Thai students involved in this risk behavior is substantially lower.

### *Felt Sad or Hopeless*

Results of the present study indicate that 20.3% of all students had felt so sad or hopeless almost every day for >2 weeks in a row that they stopped carrying out some of their normal day-to-day activities during the 12 months immediately preceding the

survey. This percentage is similar to data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which found that 19.9% of adolescents had felt sad or hopeless. The results from the present study also are consistent with a study of secondary schools in Chon Buri province in Eastern Thailand which found that 21% of students reported a high level of depressive symptoms (Charoensuk, 2007) and earlier studies which showed that 45–60% of secondary school students reported high levels of depressive symptoms (Boonchoo, 2000; Sriphet, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 28.5% of students nationwide had felt so sad or hopeless almost every day for >2 weeks in a row that they stopped doing some of their usual activities. When compared to findings from the present study, the percentage of Thai students who report being sad or hopeless is somewhat lower.

#### *Seriously Considered Attempting Suicide*

Data from the present study indicate that 11.4% of students had seriously considered attempting suicide during the 12 months immediately preceding the survey. This percentage is similar to data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that 12% had seriously considered attempting suicide. Moreover, finding from Boonyamalik's study (2005) indicate that the estimated prevalence of significant suicidal ideation for the reference population was 11.2% (Boonyamalik, 2005).

The U.S. 2005 YRBS (CDC, 2006) showed that 16.9% of students nationwide had seriously considered attempting suicide during the 12 months preceding the survey.

When compared to findings from the present study, the percentage of Thai students who seriously considered suicide is somewhat lower.

#### *Made a Suicide Plan*

Results of the present study indicate that 11.5% of students had made a plan about how they would attempt suicide during the 12 months immediately preceding the survey. This percentage is lower than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which found that 15.9% had made a suicide plan.

The U.S. 2005 YRBS (CDC, 2006) showed that 13.0% of students nationwide had made a suicide plan. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is slightly lower.

#### *Attempted Suicide*

Data from the present study indicate that 9.3% of students had actually attempted suicide during the 12 months immediately preceding the survey. This percentage is somewhat higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which found that 8.0% had actually attempted suicide.

The U.S. 2005 YRBS (CDC, 2006) found that 8.4% of students nationwide had actually attempted suicide during the 12 months preceding the survey. When compared

to findings from the present study, the percentage of Thai students engaging in this risk behavior is somewhat higher.

Among grade levels, data from the present study indicate that, of those who had actually attempted suicide, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

#### *Suicide Attempt Treated by a Doctor or Nurse*

Results of the present study indicate that 12.4% of students had made a suicide attempt that resulted in an injury, poisoning, or overdose which required treatment by a doctor or nurse. Findings from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) showed that 1.7% of students had been hospitalized from actually attempting suicide.

The U.S. 2005 YRBS (CDC, 2006) showed that 2.3% of students nationwide had made a suicide attempt resulting in an injury, poisoning, or overdose that had to be treated by a doctor or nurse during the 12 months preceding the survey. When compared to findings from the present study, the percentage of Thai students involved in this risk behavior is substantially higher.

#### *Tobacco Use*

The present study included eight questions on the survey regarding tobacco use by Thai students. Discussions regarding these questions follow.

*Lifetime Cigarette Use*

Data from the present study indicate that 16.3% of students had ever tried cigarette smoking (i.e., lifetime cigarette use). This percentage is higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that 5.4% of adolescents reported cigarette smoking. The results from the present study are also consistent with several other studies or reports with respect to smoking cigarettes among Thai youth. For example, a report released in 2001 by the National Statistical Office indicated that 15.9% (1,822,100 people) of Thailand's young people (ages 15-24 years old) reported smoking. Also, a later report released in May 2004 shows that, while the overall number of smokers in Thailand is declining, both males and females (ages 15-24 years old) are highly likely to smoke. An earlier 1998 study by Sornsri found that 22% of high school students in Bangkok reported smoking cigarettes. Additionally, data from the present study are similar to the findings of the 2001 study of secondary schools and vocational schools in metropolitan area in northern Thailand which showed that 25.1% of students had ever tried cigarette smoking (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 54.3% of students had ever tried cigarette smoking (i.e., lifetime cigarette use). When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is approximately one-third lower.

When compared by gender, data from the present study indicated that, overall, the percentage of those having ever tried cigarette smoking is higher among male (10.4%)



than female (5.9%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (55.9%) than female (52.7%) students, although the gender differences are much more pronounced among Thai youth.

Among grade levels, data from the present study indicate that, of those who had ever tried cigarette smoking, more students in grades 8 and 10 reported engaging in this risk behavior than those in each of the other four grades.

#### *Current Cigarette Use*

Data from the present study indicate that 6.5% of students had smoked cigarettes on  $\geq 1$  of the 30 days immediately preceding the survey (i.e., current cigarette use). This percentage is lower than the findings of the 2001 study of secondary schools and vocational schools in metropolitan area in northern Thailand which found that 13.0% of students were active smokers (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 23.0% of students reported current cigarette use. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is approximately two-thirds lower.

When compared by gender, data from the present study indicate that, overall, the percentage of current cigarette use is higher among male (4.6%) than female (1.9%) students. However, the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of students nationwide who engaged in this risk behavior was approximately the same among male (22.9%) and female (23.0%) students.

Among grade levels, data from the present study indicate that, of those who reported current cigarette use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

#### *Current Frequent Cigarette Use*

Results of the present study indicate that 1.6% of students had smoked cigarettes on  $\geq 20$  of the 30 days immediately preceding the survey (i.e., current frequent cigarette use). This percentage is substantially lower than findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 9.4% of students nationwide reported engaging in this risk behavior.

Among grade levels, data from the present study indicate that, of those who reported current frequent cigarette use, students in grade 11 reported engaging in this risk behavior than those in each of the other four grades. No students in grade 9 reported this behavior.

#### *Smoked >10 Cigarettes/Day*

Results of the present study indicate that among the 6.5% of students who reported current cigarette use, only 0.6% of students had smoked >10 cigarettes/day on the days they smoked during the 30 days immediately preceding the survey. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which showed that among the 23.0% of students nationwide who reported current cigarette use, 10.7% of them reported have done so.

### *Bought Cigarettes in a Store or Gas Station*

Data from the present study indicate that among the 6.5% of all students who reported current cigarette use, 36.1% usually bought their cigarettes in a store (i.e., convenience store, supermarket, or discount store) or gas station during the 30 days immediately preceding the survey.

The U.S. 2005 YRBS (CDC, 2006) showed that among 19.1% students who reported current cigarette use and were aged <18 years old, 15.2% usually got their own cigarettes by buying them in a store (i.e., convenience store, supermarket, or discount store) or gas station during the 30 days preceding the survey. When compared to findings from the present study, American youth are more likely to be able to purchase cigarettes underage than Thai youth.

### *Lifetime Daily Cigarette Use*

Results of the present study indicate that 5.2% of students had ever smoked at least one cigarette every day for 30 days (i.e., lifetime daily cigarette use). This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 13.4% of students nationwide reported engaging in this risk behavior.

When compared by gender, data from the present study indicate that, overall, the percentage of those involved in lifetime daily cigarette use is significantly higher among male (3.1%) than female (2.1%) students. This contrasts with the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this

risk behavior was approximately the same among male (13.3%) and female (13.5%) students.

### *Tried to Quit Smoking Cigarettes*

Data from the present study indicate that among 13.1% of students who reported smoking cigarettes during the 12 months immediately preceding the survey, 52.2% had tried to quit smoking cigarettes. This percentage is similar to data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that two-thirds of adolescents who report smoking cigarettes had tried to quit smoking.

Among grade levels, data from the present study indicate that, of those who had tried to quit smoking cigarettes, more students in grades 8 and 11 reported engaging in this behavior higher than those in each of the other four grades.

### Alcohol and Other Drug Use

The present study includes 25 questions dealing with alcohol and other drug use among Thai adolescents. Major findings for each of these questions are presented below including, where applicable, comparison by gender and grade.

#### *Lifetime Alcohol Use*

Data from the present study indicate that 45.4% of students reported lifetime alcohol use. This percentage is higher than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which

showed that 37.3% of adolescents reported alcohol use. Data from this study are consistent with results from several other studies. A survey conducted by the Population and Social Research Institute, Mahidol University, found that 30.8 % of Thailand's young people between the ages of 15-24 consumed alcoholic beverages (Ministry of Public Health, 2005; Population and Social Research Institute, 1998). A 2001 report from the National Statistical Office indicated that 21.6% of the country's young people ages 15-24 reported drinking alcohol and 29% of the same age group residing in Bangkok reported drinking alcohol at least once weekly. Also, Sornsri (1998) found that 62% of high school students in Bangkok reported drinking alcohol, while the findings of the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand found that 48.5% of student had ever drunk alcohol (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 74.3% of students reported lifetime alcohol use. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is considerably lower.

Among grade levels, data from the present study indicate that, of those who reported lifetime alcohol use, more students in grade 9 reported engaging in this risk behavior than those in each of the other five grades.

#### *Current Alcohol Use*

Results of the present study indicate that 25.6% of students reported current alcohol use. This percentage is much lower than data from the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) which showed that

56.1% were frequent drinkers (1–20 days during the preceding 30 days of the survey).

The U.S. 2005 YRBS (CDC, 2006) showed that 43.3% of students reported current alcohol use. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is considerably lower.

When compared by gender, data from the present study indicate that, overall, the percentage of reporting current alcohol use is higher among male (13.3%) than female (12.3%) students. However, findings from the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of students nationwide engaging in this risk behavior is approximately the same among male (43.8%) and female (42.8%) students.

Among grade levels, data from the present study indicate that, of those who reported current alcohol use, more students in grades 9 and 11 engaged in this risk behavior than those in each of the other four grades.

### *Episodic Heavy Drinking*

Data from the present study indicate that 11.4% of students reported episodic heavy drinking. This percentage is lower than data from the U.S. 2005 YRBS (CDC, 2006) which found that 25.5% of students reported episodic heavy drinking.

When compared by gender, data from the present study indicate that, overall, the percentage of those involved in episodic heavy drinking is higher among male (7.1%) than female (4.3%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (27.5%) than female (23.5%) students.

Among grade levels, data from the present study indicate that, of those who reported episodic heavy drinking, more students in grade 11 reported engaging in this risk behavior than those in each of the other five grades.

### *Lifetime Marijuana Use*

Data from the present study indicate that 4.3% of students reported lifetime marijuana use. This percentage is lower than a finding of the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand which found that 8.3% of students had ever used marijuana (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) found that 38.4% of students reported lifetime marijuana use. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is approximately 90% less than this.

When compared by gender, data from the present study indicate that, overall, the percentage of lifetime marijuana use is higher among male (3.4%) than female (0.9%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (40.9%) than female (35.9%) students.

Among grade levels, data from the present study indicate that, of those who reported lifetime marijuana use, more students in grades 7 and 10 reported engaging in this risk behavior than those in each of the other four grades.

### *Current Marijuana Use*

Data from the present study indicate that 2.7% of students reported current marijuana use. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 20.2% of students nationwide reported current marijuana use.

When compared by gender, data from the present study indicate that, overall, the percentage of current marijuana use is higher among male (1.9%) than female (0.8%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (22.1%) than female (18.2%) students.

Among grade levels, data from the present study indicate that, of those who reported current marijuana use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

### *Lifetime Yaba (Methamphetamine) Use and Tried to quit Yaba use*

Results of the present study indicate that 2.4% of students reported lifetime Yaba use. This percentage is lower than findings of the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand which found that 6.9% of students had ever used Yaba (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 6.2% of students nationwide reported lifetime Yaba (*methamphetamine*) use. When compared to findings from the



present study, the percentage of Thai students engaging in this risk behavior is considerably lower.

When compared by gender, data from the present study indicate that, overall, the percentage of lifetime Yaba use is higher among male (1.8%) than female (0.6%) students. However, findings from the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of students nationwide engaging in this risk behavior was approximately the same among male (6.3%) and female (6.0%) students.

Among grade levels, data from the present study indicate that of those who reported lifetime Yaba use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades. However, all of these students reported having tried to quit Yaba.

#### *Current Yaba Use*

Data from the present study indicate that 2.1% of students reported current Yaba use. When compared by gender, data from the present study indicated that, overall, the percentage of students reporting current Yaba use is twice as high among male (1.4%) than female (0.7%) students.

Among grade levels, data from the present study indicate that, of those who reported current Yaba use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades. This may indicate an increasing acceptance of this drug among younger students.

### *Lifetime Daily Yaba Use*

Data from the present study indicate that 5.7% of students had ever used *Yaba* every day for 30 days (i.e., lifetime daily *Yaba* Use). This percentage revealed the same for both gender and grade levels for this risk behavior among Thai students.

### *Lifetime Cocaine Use*

Data from the present study indicate that 2.2% of students reported lifetime cocaine use. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 7.6% of students nationwide reported using cocaine.

When compared by gender, data from the present study indicate that, overall, the percentage of lifetime cocaine use is higher among male (1.6%) than female (0.6%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (8.4%) than female (6.8%) students.

Among grade levels, data from the present study indicate that, of those who reported lifetime cocaine use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

### *Current Cocaine Use*

Results of the present study indicate that 1.9% of students reported current cocaine use. This percentage is lower than findings from the U.S. 2005 YRBS (CDC,

2006) which showed that 3.4% of students nationwide reported engaging in this risk behavior.

When compared by gender, data from the present study indicate that, overall, the percentage of current cocaine use is higher among male (1.3%) than female (0.6%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (4.0%) than female (2.8%) students.

Among grade levels, data from the present study indicate that, of those who reported current cocaine use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

#### *Lifetime Inhalant Use*

Data from the present study indicate that 2.9% of students reported lifetime inhalant use. This finding is lower than the 2001 study of secondary schools and vocational schools in metropolitan area in northern Thailand which found that 5.4% of students engaging in this behavior (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 12.4% of students nationwide reported engaging in this risk behavior. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is considerably lower.

When compared by gender, data from the present study indicated that, overall, the percentage of lifetime inhalant use is higher among male (1.8%) than female (1.1%)

students. This finding is contrast to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among female (13.5%) than male (11.3%) students.

#### *Current Inhalant Use*

Results of the present study indicate that 2.2% of students reported current inhalant use. When compared by gender, the results indicated that that the percentage of those involving in current inhalant use is higher among male (1.7%) than female (0.5%) students.

Among grade levels, data from the present study indicate that, of those who reported current inhalant use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

#### *Lifetime Heroin Use*

Data from the present study indicate that 2.0% of students reported lifetime heroin use. This finding is lower than the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand which found that 3.8% of students engaged in this behavior (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that 2.4% of students nationwide reported lifetime heroin use. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is approximately the same.

When compared by gender, data from the present study indicate that, overall, the percentage of lifetime heroin use is higher among male (1.6%) than female (0.4%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (3.3%) than female (1.4%) students.

Among grade levels, data from the present study indicate that, of those who reported lifetime heroin use, more students in grade 7 reported engaging in this risk behavior than those in each of the other four grades. No 9<sup>th</sup> grade student reported having lifetime heroin use.

#### *Current Heroin Use*

Results of the present study indicate that 1.8% of students reported current heroin use. When compared by gender, data from the present study indicate that, overall, the percentage of engaging in this risk behavior is higher among male (1.3%) than female (0.5%) students.

Among grade levels, data from the present study indicate that, of those who reported current heroin use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

#### *Lifetime Yaae (ecstasy) Use*

Data from the present study indicate that 2.0% of students reported lifetime Yaae (*ecstasy*) use. This percentage is lower than findings from the U.S. 2005 YRBS (CDC,

2006) which showed that 6.3% of students nationwide reported engaged in this risk behavior.

When compared by gender, data from the present study indicate that, overall, the percentage of lifetime Yaee (*ecstasy*) use is higher among male (1.6%) than female (0.4%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (7.2%) than female (5.3%) students.

Among grade levels, data from the present study indicate that, of those who reported lifetime Yaee (*ecstasy*) use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

#### *Current Yaee (Ecstasy) Use*

Results of the present study indicate that 1.9% of students reported current Yaee (*ecstasy*) use. When compared by gender, data from the present study indicate that, overall, the percentage of current Yaee (*ecstasy*) use is higher among male (1.3%) than female (0.6%) students.

Among grade levels, data from the present study indicate that, of those who reported current Yaee (*ecstasy*) use, more students in grade 7 reported engaging in this risk behavior than those in each of the other four grades. The 9<sup>th</sup> grade had no students reporting current Yaee (*ecstasy*) use.

### *Lifetime Illegal Injection Drug Use*

Results of the present study indicate that 1.9% of students reported having lifetime illegal injection drug use. This percentage is similar to findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 2.1% of students nationwide reported engaging in this risk behavior.

When compared by gender, data from the present study indicate that, overall, the percentage of those having lifetime illegal injection drug use is higher among male (1.5%) than female (0.4%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was higher among male (3.0%) than female (1.1%) students.

Among grade levels, data from the present study indicate that, of those who reported having lifetime illegal injection drug use, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades. No 9<sup>th</sup> graders reported lifetime illegal injection drug use.

### *Medicine Use*

Data from the present study indicate that 32.9% of students had used prescriptive medicine which had not been authorized by a health professional during the 12 months immediately preceding the survey. This finding is consistent with reports of Ministry of Public Health, Thailand (2005) which stated that one-third of the drug consumption among Thai residents was carried out without the advice of professionals, such as doctors, pharmacists and other health personnel. Another survey conducted in 2001--

“The provincial health status survey”--found that 20% of family members with minor illness would purchase drugs for self-treatment from grocery and drug stores. The studies identified the use of antibiotics prior to visiting a doctor or health professional, particularly for treating respiratory and gastrointestinal tract diseases. The majority of such use was found to be either unnecessary or inadequate, or both. Although the Government continues to carry out an intense drug information dissemination to the public through various media including newspaper, radio, television and magazines, the majority of Thais continue to buy their drugs from drug business operators (Ministry of Public Health, 2005). Note: the purchase of some prescriptive medicine from grocery and drug stores in Thailand is not illegal.

When compared by gender, data from the present study indicate that, overall, the percentage of used non-prescriptive medicine is higher among female (19.4%) than male (13.5%) students.

Among grade levels, data from the present study indicate that, of those who had used non-prescriptive medicine, more students in grade 9 reported engaging in this risk behavior than those in each of the other five grades.

### *Age of Initiation of Risk Behaviors*

#### *Smoked a Whole Cigarette before Age 13 Years*

Data from the present study indicate that 4.2% of students had smoked a whole cigarette for the first time before age 13. This percentage is lower than findings from the



U.S. 2005 YRBS (CDC, 2006) which showed that 16.0% of students reported engaging in this risk behavior.

Among grade levels, data from the present study indicate that, of those who had smoked a whole cigarette for the first time before age 13, more students in grade 8 reported this than those in each of the other five grades.

### *Drank Alcohol before Age 13*

Data from the present study indicate that 20.2% of students had drunk alcohol for the first time before age 13. This finding is supported by reports prepared by the Thai Health Promotion Foundation (2006) which found that 21.3% of Thai male youth between the ages of 11 and 19 were drinking alcohol. Furthermore, the Thai Health Promotion Foundation reported that 50% of both male and female youths had consumed alcohol for the first time before age 15 (Health Promotion Foundation, 2006).

The U.S. 2005 YRBS (CDC, 2006) showed that 25.6% of students nationwide had drunk alcohol for the first time before age 13. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior was somewhat lower.

Among grade levels, data from the present study indicate that, of those who had drunk alcohol for the first time before age 13, more students in grade 8 reported this than those in each of the other five grades.

### *Tried Marijuana before Age 13*

Data from the present study indicate that 1.9% of students had tried marijuana for the first time before age 13. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which found that 8.7% of students nationwide reported engaging in this risk behavior before age 13.

Among grade levels, data from the present study indicate that, of those who had tried marijuana for the first time before age 13, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

### *Tobacco, Alcohol, and Other Drug Use on School Property*

#### *Current Cigarette Use on the School Property*

Data from the present study indicate that 4.7% of students reported currently using cigarettes on school property. This percentage is lower than data from the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 6.8% of students nationwide reported engaging in this risk behavior on school property.

When compared by gender, data from the present study indicated that, overall, the percentage of current cigarette use on school property is higher among male (3.6%) than female (1.1 %) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was approximately the same among male (7.4%) than female (6.2%) students.

Among grade levels, data from the present study indicate that, of those who reported current cigarette use on school property, more students in grade 10 reported engaging in this risk behavior than those in each of the other five grades.

#### *Drank Alcohol on School Property*

Data from the present study indicate that 4.1% of students reported having drunk at least one drink of alcohol on school property on  $\geq 1$  of the 30 days immediately preceding the survey. This percentage is similar to data from the U.S. 2005 YRBS (CDC, 2006) which found that 4.3% of students nationwide reported engaging in this risk behavior.

When compared by gender, data from the present study indicate that, overall, the percentage of those having drunk at least one drink of alcohol on school property is higher among male (2.9 %) than female (1.1%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide engaging in this risk behavior was approximately the same among male (5.3%) than female (3.3%) students.

Among grade levels, data from the present study indicate that, of those who reported having drunk at least one drink of alcohol on school property, more students in grades 7 and 10 reported engaging in this risk behavior than those in each of the other four grades.

### *Used Marijuana on School Property*

Data from the present study indicate that 2.4% of students had used marijuana on school property. This percentage is lower than data from the U.S. 2005 YRBS (CDC, 2006) which found that 4.5% of students nationwide reported engaging in this risk behavior.

When compared by gender, data from the present study indicate that, overall, the percentage of those using marijuana on school property is higher among male (1.8%) than female (0.6 %) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which found that the percentage of students nationwide engaging in this risk behavior was approximately the same among male (6.0%) than female (3.0%) students.

Among grade levels, data from the present study indicate that, of those who reported using marijuana on school property, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

### *Used Yaba (methamphetamine) on School Property*

Data from the present study indicate that 1.9% of students had used Yaba on school property. When compared by gender, data from the present study indicate that, overall, the percentage of using Yaba on school property is higher among male (1.4%) than female (0.5%) students.

Among grade levels, data from the present study indicate that, of those who reported using Yaba on school property, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

### *Offered, Sold, or Given an Illegal Drug on School Property*

Data from the present study indicate that 8.5% of students reported having been offered, sold, or given an illegal drug on school property. This percentage is considerably lower than data from the U.S. 2005 YRBS (CDC, 2006) which found that 25.4% of students nationwide have done so.

### *Sexual Behavior*

Twelve questions were asked in the present study relating to sexual behavior and AIDS education. Discussions about each of these are presented below.

#### *Sexual Orientation*

Data from the present study indicate that 14.5% of students described their sexual orientation as either homosexual or bisexual. This finding is similar to the finding of Thailand Ministry of Public Health (MOPH)-U.S. Centers for Disease Control and Prevention (CDC) Collaboration (2004) which found that 9% of males and 11.2% of females identified themselves as either homosexual or bisexual (van, Kilmarx , Jeeyapant, Manopaiboon, Korattana, Jenkins, et al., 2004).

When compared by gender, data from the present study indicated that, overall, the percentage of those describing themselves as either homosexual or bisexual is higher among female (10.1%) than male (4.4%) students.

Among grade levels, data from the present study indicate that, of those who described their sexual orientation as either homosexual or bisexual, more students in grades 8, 9, and 10 reported engaging in this risk behavior than those in each of the other three grades.

#### *Had Sexual Intercourse With*

Data from the present study indicate that 4.7% of students reported having had sexual intercourse with the same gender or with both the opposite and the same gender. This percentage is higher than data of the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that among the 10% of adolescents surveyed who had had sexual intercourse, 1% reported sex with a partner of the same gender.

When compared by gender, data from the present study indicate that, overall, the percentage of those having had sexual intercourse with partners of the same sex or with partners of both sexes is higher among female (3.3%) than male (1.4%) students.

#### *Had Someone Make Negative Comments Because They Thought These Students Were Gay or Lesbian*

Data from the present study indicate that 19.6% of all students had had offensive comments made to them or had been attacked because someone thought they were gay or lesbian.

When compared by gender, data from the present study indicate that, overall, the percentage of students who reported having had offensive comments made to them or been attacked because they were thought to be gay or lesbian is higher among male (11.5%) than female (8.1%) students. Among the grade levels, data from the present study indicate that, of those who reported this behavior, more students in grade 11 than those in each of the other five grades.

#### *Ever Had Sexual Intercourse*

Data from the present study indicate that 8.8% of students had sexual intercourse during their lifetimes. This percentage is lower than two other studies: the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that 10% of adolescents had sexual intercourse; and the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand which found that 23.0% of students had ever had sexual intercourse (Praisri, 2001).

When compared by gender, data from the present study indicated that, overall, the percentage of those having ever had sexual intercourse is higher among male (5.0%) than female (3.8%) students. This finding is consistent with the study of sexual behavior among children and youths ages 6-24 who were attending educational institutions during the period of 1989-1999 which found that thirteen percent (13.2%) of male and 5.7% of female students, in Bangkok, reported having had sexual intercourse (Isaranurak et al., 2000). Findings from the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of those having ever had sexual intercourse was approximately the same among male

(47.9%) than female (45.7%) students. Among grade levels, data from the present study indicate that, of those who ever had sexual intercourse, more students in grades 11 and 12 reported engaging in this risk behavior than those in each of the other four grades.

#### *Had First Sexual Intercourse before Age 13*

Data from the present study indicate that 1.7% of students had sexual intercourse for the first time before age 13. Compared to a study of sexual behavior among children and youths ages 6-24 years who were attending educational institutions during the 1989 and 1999 period, the present study shows fewer students having engaged in sexual intercourse. In the previous study, it was found that 16.0% up to 25.8% of male students in the Northeastern provinces of Thailand reported having had sexual intercourse and that 12 years old was the earliest age for having first sexual intercourse (Isaranurak et al., 2000).

The U.S. 2005 YRBS (CDC, 2006) showed that 6.2% of students had had sexual intercourse for the first time before age 13. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is substantially lower. Among grade levels, data from the present study indicate that, of those who had sexual intercourse for the first time before age 13, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.



### *Had Sexual Intercourse with Four or More Persons during Their Life*

Results of the present study indicate that 1.6% of students had sexual intercourse with  $\geq 4$  persons during their life. This finding is somewhat similar to the finding of the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) which showed that among the 10% of adolescents surveyed who had had sexual intercourse, 6% had more than two partners during the 3 months immediately preceding the survey.

The U.S. 2005 YRBS (CDC, 2006) reported that 14.3% of students nationwide had sexual intercourse with  $\geq 4$  persons during their life. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is much lower.

### *Currently Sexually Active*

Data from the present study indicate that 5.6% of students reported being currently sexually active. This percentage is lower than data from the findings from the U.S. 2005 YRBS (CDC, 2006) which report that 33.9% of students nationwide reported being currently sexually active.

When compared by gender, data from the present study indicated that, overall, the percentage of those reporting being currently sexually active is higher among female (2.9%) than male (2.7%) students. However, findings from the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of students nationwide engaging in this risk behavior was about the same among male (33.3%) and female (34.6%) students.

Among grade levels, data from the present study indicate that, of those who reported being currently sexually active, more students in grades 11 and 12 reported engaging in this risk behavior than those in each of the other four grades.

#### *Alcohol or Drug Use before Last Sexual Intercourse*

Data from the present study indicate that, among the 5.6% of student who were currently sexually active, 53.2% had drunk alcohol or used drugs before their last sexual intercourse. This percentage is higher than data of the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) which showed that among the 10% of adolescents who had sexual intercourse, 1.7% had used alcohol or drugs before having had sexual intercourse. However, the findings of the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand showed that among the 23% of students who reported having had sexual intercourse, 28.2% drank alcohol or used drugs before having such sexual intercourse (Praisri, 2001). This percentage is much higher than findings from the present study.

The U.S. 2005 YRBS (CDC, 2006) showed that among 33.9% of students nationwide who reported currently sexually active, 23.3% had drunk alcohol or used drugs before last sexual intercourse. When compared to findings from the present study, the percentage of Thai students engaging in this risk behavior is much lower.

### *Condom Use*

Data from the present study indicate that, among the 5.6% of students who were currently sexually active, 79.8% reported that either they or their partner had used a condom during their last sexual intercourse. Data of the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarpim, Hetrakul, & Kongsakon, 2005) found that among the 10% of adolescents who had had sexual intercourse, 7.0% reported that they had never used a condom. The findings of the 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand showed that among 23% of students who report having had sexual intercourse, 67% reported they did not use a condom (Praisri, 2001).

The U.S. 2005 YRBS (CDC, 2006) showed that among the 33.9% of students nationwide who were currently sexually active, 62.8% reported that either they or their partner had used a condom during last sexual intercourse. When compared to findings from the present study, the percentage of sexually active Thai students using condoms is higher.

### *No Method of Family Planning.*

Data from the present study indicate that among 8.8% of students who ever had sexual intercourse, 18.5% reported that neither they nor their partner had not used any method to prevent pregnancy during last sexual intercourse. This percentage is much lower than the findings of a 2001 study of secondary schools and vocational schools in a metropolitan area in northern Thailand which showed that among 23% of students who

reported having had sexual intercourse, 42.7% reported not using any birth control methods to prevent pregnancy (Praisri, 2001).

### *Pregnancy*

Data from the present study indicate that among 8.8% of students who ever had sexual intercourse, 17.7% reported that they had been pregnant or had gotten someone else pregnant. This percentage is higher than data of the 2001 Bangkok YRBS (Ruangkanchanasetr, Plitponkarnpim, Hetrakul, & Kongsakon, 2005) which showed that among the 10% of adolescents who had had sexual intercourse, 2.1% had become pregnant.

Among grade levels, data from the present study indicate that, of those who ever had sexual intercourse, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

### *Taught in School about AIDS or HIV Infection*

Data from the present study indicate that 78.8% of students had ever been taught in school about acquired immunodeficiency syndrome (AIDS) or HIV infection. This percentage is lower than data from the findings from the U.S. 2005 YRBS (CDC, 2006) which reported that 87.9% of students nationwide had ever been taught AIDS or HIV infection in school.

When compared by gender, data from the present study indicate that, overall, the percentage of those having been taught in school about AIDS or HIV infection is higher

among female (44.4%) than male (34.4%) students. However, findings from the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of those having been taught in school about AIDS or HIV infection was approximately the same among female (88.5%) and male (87.2%) students.

Among grade levels, data from the present study indicate that, of those who reported having been taught in school about AIDS or HIV infection, more students in grade 9 reported having been so than those in each of the other five grades.

### *Dietary Behaviors*

The present study included 13 questions relating to dietary behavioral practices including several practices concerned with controlling the students' weight. Discussion about these results follows.

#### *Ate Fruits $\geq 3$ Times/Day*

Data from the present study indicate that 13.9% of students had eaten fruits  $\geq 3$  times/day during the 7 days immediately preceding the survey. When compared by gender, overall, the percentage of those having eaten fruits  $\geq 3$  times/day is slightly higher among male (7.4%) than female (6.5%) students.

#### *Ate Vegetables $\geq 3$ Times/Day*

Data from the present study indicate that 28.0% of students had eaten vegetables  $\geq 3$  times per day during the 7 days immediately preceding the survey.

However, data from the findings of the U.S. 2005 YRBS (CDC, 2006) showed that 20.1% of students nationwide reported having eaten fruits and vegetables  $\geq 5$  times/day. When compared by gender, the U.S. 2005 YRBS (CDC, 2006) found that the percentage of those having eaten fruits and vegetables  $\geq 5$  times/day was higher among male (21.4%) than female (18.7%) students. A direct comparison cannot be made between the Thai and U.S. data on this variable.

*Drank >3 Glasses of Milk/Day*

Data from the present study indicate that 11.7% of students had drunk  $\geq 3$  glasses/day of milk during the 7 days immediately preceding the survey. This percentage is lower than data from the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 16.2% of students nationwide reported having done so.

When compared by gender, data from the present study indicated that, overall, the percentage of those having drunk  $\geq 3$  glasses/day of milk is higher among male (7.6%) than female (4.1%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of those having drunk  $\geq 3$  glasses/day of milk was higher among male (20.8%) than female (11.6%) students.

### *Ate Food from a Street Vendor*

Data from the present study indicate that 18.6% of students ate food from a street vendor  $\geq 1$  time/day during the 7 days immediately preceding the survey.

Some students like to eat food from street vendors which are available near school areas, especially in Bangkok. However, eating street food is risky since it may contain germs that cause illness, the most typical of which may cause food poisoning. Other possible sources of contamination from such food include dust, metal pieces from milling machines, charcoal, stone and sand particles, rice and corn husks, nails and hairs, unhygienic water, and fecal matter from unwashed hands (Zaney, 2007).

### *Ate Food or Drank with Someone Else Sharing the Same Bowl or Glass*

Data from the present study found that 64.3% of students ate from the same bowl or drank from the same glass with others  $\geq 1$  time/day during the 7 days immediately preceding the survey. Among grade levels, more students in grade 9 did so than those in each of the other five grades.

### *Ate Food with Someone Else Without Using a "Serving Spoon"*

Data from the present study indicate that 67.0% of students ate food with someone else without using a "serving spoon"  $\geq 1$  time/day during the 7 days immediately preceding the survey. When compared by gender, data from the present study indicated that, overall, the percentage of those doing so is higher among female (38.3%) than male (28.7%) students. Among the grade levels, data from the present study indicate that, of

those who reported eating food with someone else without using a serving spoon, more students in grade 9 reported having done than those in each of the other five grades. Thus the percentage of both “Eating food or drinking with someone else sharing the same bowl or glass” and “Eating food with someone else without using a serving spoon” are particularly high. Sharing food among adolescents is an important part of being in a peer group. Therefore, this habit must be considered a risky practice since diseases, especially viral hepatitis, can be spread by contaminated food and water. Hepatitis infection is a common infectious disease in many tropical countries. Thailand is an endemic area for this disease (Sugaroon & Wiwanitkit, 2005). The Epidemiology of Reported Hepatitis in Thailand indicated that in 2002, a total of 6,617 cases of hepatitis were reported for a rate of 10.6/100,000 population (Suchada et al., 2004).

### *Overweight and Weight Control*

#### *Described Themselves as Overweight*

Results of the present study indicate that 26.7% of students describe themselves as slightly or very overweight. This percentage is approximately the same as data from the U.S. 2005YRBS (CDC, 2006) which showed that 31.5% of students described themselves as slightly or very overweight.

When compared by gender, data from the present study indicate that, overall, the percentage of those describing themselves as slightly or very overweight is higher among female (15.9%) than male (10.8%) students. This finding is similar to the U.S. 2005



YRBS (CDC, 2006) which showed that the percentage of students nationwide describing themselves as overweight was higher among female (38.1%) than male (25.1%) students

*Were Trying to Lose Weight*

Data from the present study indicate that 35.6% of students were trying to lose weight. This percentage is lower than data from the U.S. 2005YRBS (CDC, 2006) which showed that 45.6% of students were trying to do so.

When compared by gender, data from the present study indicated that, overall, the percentage of those trying to lose weight is higher among female (22.5%) than male (13.1%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which found that the percentage of students nationwide trying to lose weight was much higher among female (61.7%) than male (29.9%) students.

*Exercised to Lose Weight or to Keep from Gaining Weight*

Data from the present study indicate that 52.8% of students exercised in order to either lose weight or keep from gaining weight. This percentage is lower than data from the U.S. 2005 YRBS (CDC, 2006) which reported that 60.0% of students had exercised either to either lose weight or keep from gaining weight.

*Ate Less Food, Fewer Calories, or Foods Low in Fat to Lose Weight or to Keep from Gaining Weight*

Data from the present study indicate that 36.0% of students had eaten either less food, fewer calories, or foods low in fat to either lose weight or keep from gaining weight during the 30 days immediately preceding the survey. This percentage is lower than data from the U.S. 2005 YRBS (CDC, 2006) which reported that 40.7% of students nationwide reported engaging in this risk behavior.

When compared by gender, data from the present study indicated that, overall, the percentage of those having eaten less food, fewer calories, or foods low in fat to either lose weight or keep from gaining weight is higher among female (23.4%) than male (12.6%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of students nationwide having done so was higher among female (54.8%) than male (26.8%) students.

*Went Without Eating for >24 Hours to Lose Weight or to Keep from Gaining Weight*

Data from the present study indicate that 6.8% of students had gone without eating for >24 hours to either lose weight or keep from gaining weight during the 30 days preceding the survey. This percentage is lower than data from the U.S. 2005 YRBS (CDC, 2006) which showed that 12.3% of students had done so.

*Took diet pills, powders, or liquids to lose weight or to keep from gaining weight*

Data from the present study indicate that 3.8% of students had taken diet pills, powders, or liquids without a doctor's advice to either lose weight or keep from gaining weight during the 30 days preceding the survey. This percentage is lower than findings from the U.S. 2005 YRBS (CDC, 2006) which found that 6.3% of students nationwide reported having done so.

Among grade levels, data from the present study indicate that, of those who had taken diet pills, powders, or liquids without a doctor's advice to either lose weight or keep from gaining weight, more students in grade 7 reported engaging in this risk behavior than those in each of the other five grades.

*Vomited or Took Laxatives to Lose Weight or To Keep From Gaining Weight.*

Data from the present study indicate that 4.6% of students had induced vomiting or taken laxatives to either lose weight or keep from gaining weight during the 30 days preceding the survey. This percentage is similar to the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 4.5% of students nationwide reported having done so.

Epidemics of bulimia and anorexia are occurring in the United States, particularly among girls. One can speculate that the weight loss tactics seen among Thai females in the present study may be attributed to westernization and the influence of U.S. media. The need for peer acceptance, the thinness of American and European models, and the developmental tasks of finding themselves, can lead to risky and destructive eating behavior among both male and female students.

### *Physical Activity*

The present study included eight questions dealing with physical activity by the students. Following is a discussion of each these behavioral practices.

#### *Vigorous Physical Activity and Moderate physical activity.*

Results of the present study indicate that 45.6% of students had engaged in sufficient *vigorous* physical activity, while 20.2% of students had engaged in sufficient *moderate* physical activity. This percentage is slightly lower than the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 68.7% of students nationwide reported having either sufficient vigorous physical activity and/or sufficient moderate physical activity.

When compared by gender, data from the present study indicate that, overall, the percentage of those having sufficient vigorous physical activity is higher among male (27.0%) than female (18.6%) students. Also for sufficient *moderate* physical activity, data from the present study indicate that the percentage of having engaged in this behavior is higher among male (14.0%) than female (6.2%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of those having sufficient vigorous physical activity and/or moderate physical activity was higher among male (75.8%) than female (61.5%) students.

Among grade levels, data from the present study indicate that, of those who reported having sufficient vigorous physical activity, more students in grades 8 and 9

reported this behavior than those in each of the other four grades. Similarly, sufficient *moderate* physical activity, data from the present study indicate that more students in grades 8 and 9 reported having engaged in this behavior than those in each of the other four grades.

*Had not participated in any vigorous physical activity or moderate physical activity*

Data from the present study indicate that 16.7% of students had not participated in any *vigorous* physical activity while 22.8% of the students had not participated in any *moderate* physical activity. This percentage is higher than the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 9.6% of students had not participated in any vigorous or moderate physical activity during the 7 days preceding the survey

When compared by gender, data from the present study indicate that, overall, the percentage of those having not participated in any vigorous physical activity is higher among female (11.1%) than male (5.6%) students while the percentage of those having not participating in any moderate physical activity is higher among female (14.2%) than male (8.6%) students. This finding is similar to the U.S. 2005 YRBS (CDC, 2006) which showed that the percentage of those having not participated in any vigorous or moderate physical activity was higher among female (11.3%) than male (7.9%) students.

Among grade levels, data from the present study indicate that, of those who had not participated in any *vigorous* physical activity, more students in grades 9 and 12 had not done so than those in each of the other four grades. For the percentage of those

having not participated in any *moderate* physical activity, more students in grades 7 and 9 had not done so than those in each of the other four grades.

### *Strengthening Exercises*

Results of the present study indicate that 30.4% of students had performed strengthening exercises (e.g., push-ups, sit-ups, and weightlifting) on  $\geq 3$  of the 7 days preceding the survey. This percentage is considerably lower than the findings from the U.S. 2003 YRBS (CDC, 2004) which showed that 51.9% of students had exercised to strengthen or tone their muscles (The U.S. 2005 YRBS data were not available for this behavior).

When compared by gender, data from the present study indicate that, overall, the percentage of those having carried out strengthening exercises is higher among male (20.7%) than female (9.7%) students. This finding is similar to the 2003 data for YRBS in the U.S. (CDC, 2004) which showed that the percentage of those having performed strengthening exercises was higher among male (60.1%) than female (43.4%) students.

Among the grade levels, data from the present study indicate that, of those who had performed strengthening exercises, more students in grade 9 reported having done so than those in each of the other five grades.

### *Attended Physical Education Classes*

Results of the present study indicate that 95.5% of students attended physical education (PE) classes on one or more days in an average week when they were in

school. This percentage is much higher than the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 54.2% of students attended PE classes.

Among grade levels, data from the present study indicate that, of those who attended PE classes, more students in grade 9 reported having done so than those in each of the other five grades.

*Exercised or Played Sports >20 Minutes during an Average PE Class*

Data from the present study indicate that among the 95.5% of students who attended PE classes, 67.4% reported having actually exercised or played sports >20 minutes during an average PE class. This percentage is lower than the findings from the U.S. 2005 YRBS (CDC, 2006) which found that among the 54.2% of students nationwide who attended PE classes, 84.0% reported having done so.

When compared by gender, data from the present study indicate that, overall, the percentage of those having exercised or played sports >20 minutes during an average PE class is higher among female (34.1%) than male (33.3%) students. This is in contrast to findings from the U.S. 2005 YRBS (CDC, 2006) which found that the percentage of having done so was higher among male (87.2%) than female (80.3%) students.

Among grade levels, data from the present study indicate that, of those who reported having actually exercised or played sports >20 minutes during an average PE class, more students in grade 9 reported having done so than those in each of the other five grades.

*Played on  $\geq 1$  Sports Teams*

Results of the present study indicate that 79.2% of students had played on  $\geq 1$  sports teams (run by their school or community groups) during the 12 months immediately preceding the survey. This percentage is higher than the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 56.0% of students nationwide reported having played on one or more sports teams.

When compared by gender, data from the present study indicate that, overall, the percentage of those having played on one or more sports teams is higher among female (40.2%) than male (39.0%) students. However, findings from the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of students nationwide who engaged in this practice was higher among male (61.8%) than female (50.2%) students.

Among grade levels, data from the present study indicate that, of those who had played on  $\geq 1$  sports teams, more students in grade 9 reported having done so than those in each of the other five grades.

*Watched Television  $\geq 3$  hours/day*

Results of the present study indicate that 40.8% of students watched television  $\geq 3$  hours/day on an average school day. This percentage is higher than the findings from the U.S. 2005 YRBS (CDC, 2006) which showed that 37.2% of students nationwide reported having watched  $>3$  hours/day on an average school day.

Among grade levels, data from the present study indicate that, of those who watched television  $\geq 3$  hours/day on an average school day, more students in



grade 9 reported having done so more than those in each of the other five grades.

#### *Used Computers $\geq$ 3 Hours/Day*

Results of the present study indicate that 23.0% of students used a computer for something other than school work (i.e., computer use)  $\geq$  3 hours/day on an average school day. This percentage is similar to the findings from the U.S. 2005 YRBS (CDC, 2006) which found that 21.1% of students nationwide used a computer for something other than school work.

When compared by gender, data from the present study indicate that, overall, the percentage of computer use is only slightly higher among male (11.9%) than female (11.1%) students. Conversely, the U.S. 2005 YRBS (CDC, 2006) showed that the percentage of computer use was much higher among male (27.4%) than female (14.8%) students.

Among grade levels, data from the present study indicate that, of those who used a computer for something other than school work (i.e., computer use)  $\geq$  3 hours/day on an average school day, more students in grade 9 did so than those in each of the other five grades.

**Hypothesis II: “Statistically, there is a significant relationship between resilience and risk-taking behavior among Thai adolescents living in Bangkok, Thailand.”**

*Relationships between Resilience and Personal Characteristics*

The present study found that resilience is *positively* correlated to age and school levels (Grade 7-12). In the other words, older youths are more resilient than younger youths. Additionally, the results from the present study also found that the mean resilience scores of students in the 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> grades were significantly higher than those of students in the 7<sup>th</sup> grade. When considered by age group, the results demonstrated that older students have higher mean resilience scores. More, specifically, the mean resilience score of students in the 17 year-old-age group was significantly higher than those in the 12 and 13 year-old age groups. This finding is supported by the summary of the International Resilience Research Project which consisted of interviews with 1,225 parents and their children from twenty-seven sites in twenty-two countries around the world. This research findings indicated that the age of a child is related to resilience and resilience continues to develop and strengthen over one’s lifetime (Grotberg, 1999).

The present study found that there is a positive relationship between resilience and the sufficiency of money received by the participants. Youth who received sufficient money were likely to have more resilience. Regarding this point, Grotberg (1995, 1998b) stated that the I HAVE factors of resilience are the external supports and resources that promote resilience. Before the child is

aware of who he/she is (I AM) or what he/she can do (I CAN), he/she needs external supports and resources to develop the feelings of safety and security that serve as the core for developing resilience. The sufficiency of money that the participants received is one source of external support and a resource (I HAVE) to promote resilience among youths.

On the other hand, resilience is negatively correlated to being alone or with friends one or more days after school with no adult around and family atmosphere (that is, higher resilience is seen in teens who report a more quarrelsome atmosphere in their families). It means that the students who were in risk situations were likely to have more resilience. These findings confirm the perspective of resilience as defined by many authors. For example, Grotberg (1955a) stated that resilience is a universal human capacity to face, overcome and even be strengthened by experiences of adversity. Masten (1994) noted that "resilience refers to a pattern over time, characterized by good eventual adaptation despite developmental risk, acute stressors, or chronic adversities." Gordon (1995) defined resilience as "the ability to thrive, mature, and increase competence in the face of adverse circumstances.

There is a positive relationship between resilience and average grades in a school. In short, the more resilient the students are, the higher average grades in a school they have. Grotberg (1995b, 1995c) noted that resilience is the ability to successfully undertake the task of each successive development stage. Not only the home and the school are involved in promoting resilience in teens, but the teens themselves become

increasingly responsible for promoting their own resilience. They are able to reflect more on the implications of what they plan to do (Grotberg, 2005). The high average grades in school might reflect their resiliency while such grades successfully would also promote their own resilience.

### *Positive Relationships between Resilience and Risk-taking Behavior*

The findings from the present study indicate that resilience is positively correlated to certain risk behavior practices: having never used a walking bridge or crosswalk; smoking a whole cigarette and drinking alcohol before age 13; and having tried marijuana before age 13; smoked >20 cigarettes/day; buying their own cigarettes from a convenience store or gas station; and having had sexual intercourse with only the same gender or with both the same and the opposite gender. In explaining these, Erikson (1968) states that adolescence is a period during which individuals must form a personal identity and avoid role diffusion and identity confusion. The goal is to achieve an integrated synthesis of one's past, present and future which, together, contribute to an adolescent identity. Grotberg (2005) suggested that to establish identity, the youth attempts to answer questions like: Who am I? How do I compare with other teens? What are my new relationships with my parents? What have I accomplished? Where do I go from here? Additionally, adolescence involves a period of experimentation, with importance attached to being a part of a peer group and peer pressure identification which contribute heavily to behavioral habits (Berk, 1996; Durkin, 1995; Erikson, 1963). These can lead them to engage in various types of risky behavior.

However, Grotberg (2005) also stated that the benefits of establishing a clear identity include greater skills in: comparing one's behavior with accepted standards; being helpful and supportive of others; reflecting on values, emotions, truths, and ideals; and integrating sexual interests with responsible behavior. Therefore, the resilient teens will have more practice in health promoting behavior than non-resilient ones. The findings of the present study found that resilience is positively related to promoting good health behavior: trying to quit smoking cigarettes, trying to quit using Yaba; exercising to lose weight or to keep from gaining weight; eating fruits or vegetable  $\geq 3$  times/day; having sufficient vigorous physical activity, having sufficient moderate physical activity, having strengthening exercises, and playing on  $>1$  sports teams.

#### *Negative Relationships between Resilience and Risk-taking Behavior*

The findings from the present study indicate that resilience is negative correlated to the following risk behavior:

- Carrying a weapon on school property, not going to school because of safety concerns, threatened or injured with a weapon on school property, being in a physical fight, being in a physical fight on school property, experiencing dating violence;
- Feeling sad or hopeless, seriously considered attempting suicide, made a suicide plan, and attempted suicide;
- Lifetime cigarette use, current cigarette use, smoking cigarettes on school property, and lifetime daily cigarette use;

- Current alcohol use, episodic heavy drinking, drank alcohol on school property, lifetime marijuana use, current marijuana use, used marijuana on school property, lifetime Yaba (methamphetamine) use, current Yaba use, used Yaba on school property, lifetime cocaine use, current cocaine use, lifetime inhalant use, current inhalant use, lifetime heroin use, current heroin use, lifetime Yae (ecstasy) use, current Yae (ecstasy) use, lifetime illegal injection drug use, and offered, sold, or given an illegal drug on school property.

These findings indicate that those adolescents who have higher resilience would have less tendency to engage in such risk-taking behavior as pointed out by many authors (Grotberg, 1995, 1999, 2005; Masten, 1994; Masten and Coatsworth, 1998; Rutter, 1985; Werner and Smith, 1992). These findings are similar to those of several other studies. Gordon Rouse, Ingersoll, and Orr (1998) found that resilient adolescents were less likely than non-resilient adolescents to initiate a variety of risky behaviors. Aronowitz and Morrison-Beedy (2004) as well as Kittivongvisut (2001) note that there is a negative correlation between resilience and risk-taking behavior. Lhimsoonthon (2000) found that adolescents living in the slum areas in Bangkok who were more resilient had significantly less drug-use behavior. A study of resilience among children in the eastern part of Thailand found that resiliency ameliorated some children's negative behavior (Somchit, 1998).

Additionally, results from the present study indicate that resilience is negative correlated to sexual orientation (students who described themselves as either homosexual

or bisexual were likely to have less resilience) and having someone make negative comments because they thought these students were gay or lesbian. As mentioned earlier, adolescence is a developmental state of identity (Erikson, 1968). If the teen is not successful in establishing identity, he/she may experience role confusion, not being sure of his/her true personality and switch from self-assured to self-doubting (Grotberg, 2005). Not only are the teens themselves responsible for promoting their own resilience, but the people around them are involved in either promoting or preventing their resilience.

#### Study Limitations

This study has four major limitations. First, it is a cross-sectional design, which necessitates caution in attributing causal explanations for the associations found. In this regard, it is also weak in its ability to reveal causal relationships (Polit & Hungler, 1999). Clearly, longitudinal studies could shed light on this issue. Secondly, the data apply only to adolescents who go to school and, therefore, is not representative of all persons in a particular age group. Thirdly, risk-taking behavior is measured among adolescents by administering questionnaires which required retrospective self-reports about engaging in risk behavior. The truthfulness and accuracy of these self-reports may be compromised because some behavior is difficult to recall and some are so sensitive that respondents may not want to report them. Furthermore, participants may purposely under- or over-report some risk-taking behavior because they believe engaging in such behavior is either socially undesirable or desirable (Brener, Billy, & Grady, 2003). Given these realities and since the data about risk-taking behavior are based on the participants' accounts, the

extent of the truthfulness and/or under- or over-reporting on a specific risk behavior cannot be determined, although the survey questions demonstrate good test-retest reliability (Brener et al., 2002).

Fourth and finally, regarding reliability of the questionnaire, some questions have low variability in responses, the Kappa (K) had a negative value or could not be calculated. This questionnaire should be investigated in other settings with a different response pattern to examine the K of these specific questions. Furthermore, the questionnaire, as in the YRBS, uses various referent timeframes, such as lifetime, the past 30 days, or the past 12 months. The shorter the referent timeframe, the more difficult it becomes to test reliability. An inconsistent response between Time 1 and Time 2 could reflect an actual behavior change if the referent timeframe is brief. For example, in the present study, a student reported at Time 1 that he had not driven after drinking during the past 30 days, and then reported at Time 2 that he had driven after drinking in the past 30 days. The responses might be inconsistent yet accurate if the student did drive after drinking during the 2-week test-retest interval and not before. Reliability studies in the future should measure those questions for which the answers cannot change over the two week time period; such as those asking about “past 12 months or lifetime” behavior rather than “past 30 days.”



## Conclusions and Recommendations

### *Conclusions*

This non-experimental, cross-sectional correlational study examined the relationships between resilience and risk-taking behavior among Thai adolescents living in Bangkok. Resilience was measured by using the State-Trait Resilience Inventory developed by Hiew, Mori, Shimizu and Tominaga (2000), which represents a modification of the Grotberg Resilience Checklist (1995c). Risk-taking behavior in this study includes six categories of behavior: (1) behavior that contributes to unintentional injuries and violence; (2) tobacco use; (3) alcohol and other drug use; (4) sexual behavior contributing to unintended pregnancy and sexually transmitted diseases, including HIV infection; (5) unhealthy dietary behavior; and (6) inadequate physical activity. To measure these, the researcher modified the 2003 YRBS developed by the U.S. Centers for Disease Control and Prevention (CDC, 2003). These modifications were made so that the instrument would be more applicable to the Thai participants. Changes were made to 12 items to acknowledge cultural differences; 10 items were removed due to their inapplicability in the Thai setting; and 19 items were added to more appropriately assess risk behavior among Thai adolescents. In all, the modified version of the YRBS included 9 demographic questions and 87 items of risk-taking behavior of which 65 items were the same as those used in the 2003 YRBS. The procedures used in modifying the questionnaire and in correctly translating it into the Thai language involved the following four steps: modifying the instrument, translating and back-translating of the modified

instrument, equivalence testing, conducting a pilot study, and test-retest reliability of the questionnaire. These procedures indicated that the modified version of YRBS has evidence of semantic, content, and conceptual equivalence as well as feasibility and acceptability. After that, test-retest reliability of this questionnaire was investigated on a sample of Thai secondary school students using a Kappa (K) statistic and percent observed agreement. This modified version of YRBS has been shown to be a reliable questionnaire for use among Thai adolescents to measure risk behavior.

This study premised two hypotheses, as follows:

*Hypothesis I: Statistically, there are significant differences among gender and grade subgroups in various risk-taking behaviors.*

*Hypothesis II: Statistically, there is a significant relationship between resilience and risk-taking behavior among Thai adolescents living in Bangkok.*

The results from this study indicate that risk-taking behavior occurred at all grade-levels studied (Grade 7-12) and both genders (males and females) reported participating in a variety of risk behavior. Furthermore, negative and positive relationships between resilience and risk-taking behavior were found. Information gained from this study provides a better understanding of the relationship between risk-taking behavior and resilience among Thai adolescents, which can be used to guide future interventions to decrease risky behavior in the 11-19 year old age group. Such interventions should include extensive training in social skills to combat illegal drug use and other high risk behavior. Interventions should be developed which promote the three resilience factors of "I HAVE," "I AM," and "I CAN"; thereby providing youth with the

ability to resist negative peer pressure, for example, by empowering them to “just say no.” Interventions should also be developed to teach good health promotion behavior practices, for example, the importance of eating healthy food.

Study results can be utilized also to improve psychiatric and mental health nursing practice and education and to encourage further research on preventing high risk-taking behavior by adolescents. In summary, these findings can inspire school/psychiatric and mental health nurses, teachers, parents or caregivers, and other members of society to be more aware of ways to foster resilience among young people and help them thrive in a constantly changing society.

### *Recommendations*

The findings from this study indicate that there are negative relationships between resilience and risk-taking behavior. Resilience may assist Thai adolescents in overcoming any risk-taking behavior they face. Therefore, it is recommended that the Royal Thai Government should establish and implement a resilience promotion program for the Bangkok school system, with the possibility of extending it to other jurisdictions in Thailand.

To increase instrument credibility, research should be extended to other jurisdictions -both urban and rural - to determine what, if any, study items should be revised or deleted from the survey. Taking into account any revision to the survey which may be necessary, comparative studies of urban and rural adolescents by age group, gender, and school grade to identify different approaches considered necessary to

ameliorate risk-taking behavior among Thai adolescents should be conducted. Over the longer term, the Royal Thai Government should be encouraged to implement an effective program to combat risk-taking behavior among Thai adolescents. This study can serve as a useful departure point for adopting such a national program.

To strengthen the findings of the study, items may be added to measure certain behavior that apply to each setting. For example, it may be useful to determine how adolescents are accessing tobacco products, alcohol and/or other drugs. It may also be useful to determine if on-school-property violence and substance use occur during or outside school hours.

### References

- Academic Committee on Substance Abuse Network at the Office of the Narcotics Control Board of Ministry of Justice. (2003). *Status of substance use 2003: National household survey (Estimation of population related substance abuse)*. Bangkok, Thailand: Drug Dependence Research Center, Institution of Health Research, Chulalongkorn University.
- Adler, N. E., Kegeles, S. M., & Genevro, J. L. (1992). Risk-taking and health. In J. F. Yates (Ed.), *Risk-taking behavior* (pp. 231-255). New York, NY: John Wiley & Sons.
- Aktan, G. B., Calkins, R. F., Ribisl, K. M., Kroliczak, A., & Kasim, R. M. (1997). *Test-retest reliability of psychoactive substance abuse and dependence diagnosis in telephone interviews using a modified Diagnostic Interview Schedule-Substance Abuse Module*. Retrieved September 07, 2006, from [http://www.findarticles.com/p/articles/mi\\_m0978/is\\_n2\\_v23/ai\\_19419561](http://www.findarticles.com/p/articles/mi_m0978/is_n2_v23/ai_19419561).
- Alexander, B. (1991). *Adolescence* (3rd ed.). MJ: Prentice Hall.
- Areechokchai, D., et al. (2003). *The result of surveillance of HIV infection related behavior among students grades 11, B.E. 2546*: Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health.
- Aronowitz, T., & Morrison-Beedy, D. (2004). Resilience to risk-taking behaviors in impoverished African American girls: the role of mother-daughter connectedness. *Research in Nursing & Health*, 27(1), 29-39.

- Berk, L. E. (1996). *Infants, children, and adolescents*. (2nd ed.). Boston: Allyn and Bacon.
- Boonchoo, P. (2000). *The prevalence of depression and the relationship between psychosocial factors and depression of grade 10 students in Ubonrajathanee*. Unpublished master's thesis, Bangkok, Thailand: Chulalongkorn University.
- Boonyamalik, P. (2005). *Epidemiology of adolescent suicidal ideation: Roles of perceived life stress, depressive symptoms, and substance use (Thailand)*. Unpublished Dissertation, Johns Hopkins U., US.
- Brener, N. D., Billy, J. O. G., & Grady, W. R. (2003). Assessment of factors affecting the validity of self reported health risk behavior among adolescents: Evidence from the scientific literature. *Journal of Adolescent Health, 33*, 436-457.
- Brener, N. D., & Collins, J. L. (1998). Co-occurrence of health-risk behaviors among adotescents in the United State. *Journal of Adolescent Health, 22*, 209-213.
- Brener, N. D., Kann, L., McManus, T. L., Kinchen, S., Sundberg, E. C., & Ross J. G. (2002). Reliability of the 1999 Youth Risk Behavior Survey Questionnaire. *Journal of Adolescent Health, 31*, 336–342.
- Brownson, R. C., Jackson-Thompson, J., Wilkerson, J. C., & Kiani, F. (1994). Reliability of information on chronic disease risk factors collected in the Missouri Behavioral Risk Factor Surveillance System. *Epidemiology, 5*(5), 545-549.

- Brooks-Gunn, J., & Paikoff, R.L. (1993). Sex is a gamble, kissing is a game: Adolescent sexuality and health promotion. In S.G. Millstein, A.C. Petersen, & E.O. Nightingale (Eds.), *Promoting the health of adolescents: Needs direction for the twenty-first century* (pp. 180–209). New York: Oxford.
- Bureau of Epidemiology, Department of Disease Control. (2003). *Epidemiological report: Table 1 a number of AIDS patients divided by ages and gender during September, 1984 to August, 2003*. Retrieved July 20, 2004, from <http://203.157.19.193/aids/Aidstab1.html>
- Bureau of Epidemiology, Department of Disease Control. (2004). *Information of a number of AIDS patients*. Retrieved May 14, 2004, from <http://epid.moph.go.th>
- Burns, N., & Grove, S. K. (1999). *Understanding nursing research* (2nd ed.). Philadelphia: W.B. Saunders Company.
- Centers for Disease Control and Prevention (CDC). (2000). *Youth risk behavior surveillance system*. Retrieved June 15, 2001, from <http://www.cdc.gov/nccdphp/dash/yrbs/trend.htm>.
- Centers for Disease Control and Prevention (CDC). (2003). *Youth Risk Behavior Surveillance System (YRBSS) High School Questionnaire*. Retrieved August 28, 2003, from <http://www.cdc.gov/nccdphp/dash/yrbs/2003/questionnaire.htm>.
- Centers for Disease Control and Prevention (CDC). (2004). Youth Risk Behavior Surveillance-United State, 2003. *Morbidity & Mortality Weekly Report*, 53(SS-2).
- Centers for Disease Control and Prevention (CDC). (2006). Youth Risk Behavior Surveillance-United State, 2005. *Morbidity & Mortality Weekly Report*, 55 (SS-5)

- Charoensuk, S. (2007). Negative thinking: A key factor in depressive symptoms in Thai adolescents. *Issues in Mental Health Nursing, 28*, 55-74.
- Chowsilpa, S. (2003). Reliability of State-Trait Resilience Inventory (STRI) in Thai students: A study at Chiang Mai University. *South Asian Journal of Psychiatry, 1*(1), 15-16.
- Chuprapawan, C. et. al. (2000). *Report on study of cause of death in Thailand phase 1*. Ministry of Public Health.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educ Psychol Meas, 20*, 37-46.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.
- Cohen, J. (1992). A Power Primer. *Psychological Bulletin, 112*(1), 155–159.
- Cohen, R., & Frank-Stromborg, M. (1997). Cancer risk and assessment. In S. Groenwald, M. H. Frogge, M. Goodman & C. H. Yarbrow (Eds.), *Cancer nursing: principles and practice* (4th ed., pp. 108-132). Boston: Jones & Bartlett.
- Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281-302.
- Costello, E.J., Erkanli, A., Federman, E., & Angold, A. (1999). Development of psychiatric comorbidity with substance abuse in adolescents: Effects of timing and sex. *Journal of Clinical Child Psychology, 28* (3), 298-311.



- Cowan, P. A., Cowan, C. P., & Schulz, M. S. (1996). Thinking about risk and resilience in families. In E. M. Hetherington & E. A. Blechman (Eds.), *Stress, coping, and resiliency in children and families*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers.
- Department of Mental Health. (2004). *Situational review of adolescent sexual behavior, life skills promotion and counseling services*. MOPH-US CDC Collaboration. Bangkok, Thailand.: Thailand.
- DiClemente, R. J., Hensen, W. B., & Ponton, L. E. (1996). *Handbook of adolescent health risk behaviors*. New York: Plenum Press.
- Dillman, D. A. (2000). *Mail and internet Surveys: The tailored design method*. New York: John Wiley & Son.
- Dryfoos, J. G. (1990). *Adolescent at risk*. London: Oxford University Press.
- Dryfoos, J. G. (1991). Preventing high-risk behavior. *American Journal of Public Health*, 81, 157-158.
- Dunn, W. R., Wolf, B. R., Amendola, A., Andrish, J. T., Kaeding, C., Marx, R. G., et al. (2004). Multirater agreement of arthroscopic meniscal lesions. *The American Journal of Sports Medicine*, 32(8), 1937-1940.
- DuRant, R. H., Smith, J. A., Kreiter, S. R., & Krowchuk, D. P. (1999). The relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. *Archives of Pediatrics & Adolescent Medicine*, 153(3), 286-291.

- Durkin, K. (1995). *Development social psychology from infancy to old age*.  
Boston: Blackwell.
- Dusek, J. B. (1991). *Adolescent development and behavior* (2 ed.). New Jersey: Prentice Hall.
- Elliott, D. S. (1993). Health-enhancing and health-compromising lifestyles. In S. G. Millstein, A. C. Petersen & E. O. Nightingale (Eds.), *Promoting the health of adolescents*. New York, NY: Oxford University Press.
- Erikson, E. H. (1963). *Childhood and society* (2nd ed.). New York: Norton.
- Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.
- Farrell, A. D., Anchors, D. M., & Danish, S. J., & Howard, C. W. (1992). Risk factors for drug use in rural adolescents. *Journal of alcohol and drug education*, 22, 313-328.
- Feinstein, A. R., & Cicchetti, D. V. (1990). High agreement but low kappa I: The problems of two paradoxes. *J Clin Epidemiol*, 43, 543-549.
- Felner, R. D. (1991). Prevention of substance abuse and related disorders in childhood and adolescence: A developmentally-based, comprehensive ecological approach. *Community Health*, 14(3), 12-22.
- Flaherty, J. A., Gaviria, F. M., Pathak, D., Mitchell, T., Wintrob, R., Richman, J. A., et al. (1988). Developing instruments for cross cultural psychiatric research. *Journal of Nervous and Mental Disease*, 176(5), 257-263.
- Flay, B., & Weeks, K. (1993). Young adolescents' attitudes toward sex and substance use: Implication for AIDS prevention. *Aids Education and Prevention*, 5, 340-351.

- Fleiss, L. J. (1981). *Statistical Methods for Rates and Proportions* (2nd ed.). New York: John Wiley & Sons.
- Foster, J. R. (1997). Successful coping, adaptation and resilience in the elderly: An interpretation of epidemiologic data. *Psychiatric Quarterly*, 68(3), 189-219.
- Frank-Stromborg, M., Heusinkveld, K., & Rohan, K. (1996). Evaluating cancer risks and preventive oncology. In R. McCorkle, M. Grant, M. Frank-Stromborg & S. B. Baird (Eds.), *Cancer nursing: A comprehensive textbook* (2nd ed., pp. 213-264). Philadelphia: Saunders.
- Furby, L., & Beyth-Marion, R. (1990). *Risk-taking in adolescence: A decision making perspective*. Washington, DC: National Academy Press.
- Garnezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, 55, 97-111.
- Garnezy, N. (1991). Resilience in children's adaptation to negative life events and stressed environments. *Pediatric Annals*, 20, 459-466.
- Garnezy, N. (1993). Children in poverty: Resilience despite risk. *Psychiatry*, 56, 127-136.
- Gemelli, R. (1996). *Normal child and adolescent development*. Washington, DC: American Psychiatric Press.
- Gillis, A., & Jackson, W. (2002). *Research for nurses: Methods and interpretation*. Philadelphia: F.A. Davis.

- Gordon, K. A. (1995). The self-concept and motivational patterns of resilient African American high school students. *Journal of Black Psychology, 21*, 239-255.
- Gordon-Rouse, K. A., Ingersoll, G. M., & Orr, D. P. (1998). Longitudinal health endangering behavior risk among resilient and nonresilient early adolescents. *Journal of Adolescent Health, 23*(5), 297-302.
- Grotberg, H. E. (1995a). *The International resilience project*. Retrieved July 10, 2005, from <http://resilnet.uiuc.edu/library/grotb98a.html#note1>
- Grotberg, E. H. (1995b). *The International resilience project: Research, application, and policy*. Retrieved July 10, 2005, from <http://resilnet.uiuc.edu/library/grotb95a.html>
- Grotberg, E. H. (1995c). *A guide to promoting resilience in children: Strengthening the human spirit*. The Hague, Netherlands: Bernard Van Leer Foundation.
- Grotberg, E. H. (1996). *The International resilience project: Research and application*. Retrieved July 10, 2005, from <http://resilnet.uiuc.edu/library/grotb96a.html>
- Grotberg, E. H. (1997). *The International resilience project: Findings from the research and the effectiveness of interventions*. Retrieved July 10, 2005, from <http://resilnet.uiuc.edu/library/grotb97a.html>
- Grotberg, E. H. (1998a). *The International resilience project*. Retrieved July 10, 2005, from <http://resilnet.uiuc.edu/library/grotb98a.html>
- Grotberg, E. H. (1998b). I am, I have, I can: What family worldwide taught us about resilience. *Reaching Today's Youth, 2*(3), 36-39.
- Grotberg, E. H. (1999). *Tapping your inner strength*. Oakland, CA: New Harbinger.

- Grotberg, E. H. (2001). Resilience programs for children in disaster. *Ambulatory Child Health, 7*(2), 75-83.
- Grotberg, E. H. E. (2003). *Resilience for today*. Westport, CT: Praeger.
- Grotberg, E. H. (2004). From Terror to Triumph: The Path to Resilience. In C. Stout (Ed.), *Psychology of Terrorism: Coping with the continuing threat* (Condensed Edition ed., pp. 199-211). Westport, CT: Praeger.
- Grotberg, E. H. (2005). *Resilience for Tomorrow*. Retrieved March 20, 2007, from [http://resilnet.uiuc.edu/library/grotberg2005\\_resilience-for-tomorrow-brazil.pdf](http://resilnet.uiuc.edu/library/grotberg2005_resilience-for-tomorrow-brazil.pdf)
- Gumbiner, J. (2003). *Adolescent assessment*. Hoboken, New Jersey: John Wiley & Sons.
- Harper, A. (1986). *The health of populations*. New York: Springer.
- Harrell, J. S., Bangdiwala, S. I., Deng, S., Webb, J. P., & Bradley, C. (1998). Smoking initiation in youth: The roles of gender, race, socioeconomic, and developmental status. *Journal of Adolescent Health, 23*(5), 271-279.
- Hawkins, W. E. (1996). Problem behaviors and health-enhancing practices of adolescents: A multivariate analysis. *Journal of School Health, 16*(8), 46-54.
- Hiew, C. C. (1999). *Development of a State Resilience Scale*. Presented at the Annual Meeting of the International Council of Psychologists. Salem, Massachusetts.
- Hiew, C., & Malchett, K. (2002). Resilience measurement: Using a resilience scale. In R. Roth & F. Farley (Eds.), *The Spiritual Side of Psychology at Century's End* (pp. 139-148). Lengerich: Pabst Science.

- Hiew, C. C., Mori, T., Shimizu, M., & Tominaga, M. (2000). Measurement of resilience development: Preliminary result with a State-Trait resilience Inventory. *Journal of Learning & Curriculum Development, 1*, 111-117.
- Hopkins, W. (2003). *A New view of statistics 2003: Precision of measurement*. Retrieved May 12, 2006, from <http://sportsci.org/resource/stats/index.html>
- Hunt, R. J. (1986). Percent agreement, Pearson's correlation and kappa as measures of inter-examiner reliability. *J Dent Res, 65*, 128-130.
- Igra, V., & Irwin, C. e. Jr. (1996). Theories of adolescent risk-taking behavior. In R. J. Diclemente, W. B. Hansen, & L. E. Ponton (Eds.), *Handbook of adolescent health risk behavior* (pp.35-51). New York: Plenum Press.
- Irwin, C. E. (1990). The theoretical concept of at-risk adolescents. *Adolescent Medicine: State of the Art Reviews, 1*, 1-14.
- Irwin, C. E. Jr. (1993). Adolescence and risk taking: How are they related? In N. J. Bell & R. W. Bell (Eds.), *Adolescent risk taking* (pp. 7-28). London: Sage.
- Irwin, C. E. Jr., & Shafer, M. A. (1992). Adolescent sexuality: The problem of negative outcomes of a normative behavior. In D. Rogers & E. Ginzberg (Eds.), *Adolescents at risk medical and social perspective* (pp. 35-79). Boulder, Co: Westville Press.
- Isaranurak, S. (2000). *Review of sexual health status of children and the youth age 6-24 years in education institutes during 1989-1999*. Bangkok: Charoendee Printing.
- Jakobsson, U., & Westergren, A. (2005). Statistical methods for assessing agreement for ordinal data. *Scand J Caring Sci, 19* (4), 427-431.

- Jensen, P.S., Hinshaw, S.P., Kraemer, H.C., Lenora, N., Newcorn, J.H., Abikoff, H.B., et al. (2001). ADHD comorbidity findings from the MTA study: Comparing comorbid subgroups. *Journal of the American Academy of Child and Adolescent Psychiatry, 40* (2), 147-158.
- Jessor, R., & Jessor, S. (1977). *Problem behavior and psychosocial development: A longitudinal study of youth*. New York, NY: Academic Press.
- Kanjanachitra, C., Phothisita, C., Archavanijkul, K., Aimaem, W., Witoonthienra, K., Rojanaprai Wongse, S., et al. (2004). *Thais' health 2003*. Nakhonprathom, Thailand: Population and Social Research Institute, Mahidol University, Thai Health Promotion Foundation.
- Kittivongvisut, A. (2001). *Relationships between resilience factors, perception of adversities and risk behaviors in vocational students*. Master's Thesis in Nursing Science (Community Health Nursing), Faculty of Graduate Studies, Mahidol University, Thailand.
- Koopman, C., Rosario, M., & Rotheram-Borus, M. J. (1994). Alcohol and drug use and sexual behaviors placing runaways at risk for HIV infection. *Addictive Behavior, 19*, 95- 103.
- Kraemer, H., Periyakoil, V., & Noda, A. (2002). Tutorial in biostatistics: Kappa coefficients in medical research. *Statistics in Medicine, 21*, 2109–2129.
- Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., Lozano, R., (eds.) (2002). *World report on violence and health*: Geneva: World Health Organization.

- Kumpfer, K. L. (1999). Factor and process contributing to resilience: The resilience framework. In M. D. Glantz & J. L. Johnson (Eds.). *Resilience and development: Positive life adaptation*. New York: Kluwer Academic/Plenum.
- Kundel, H. L. (2003). Polansky M, Measurement of observer agreement. *Radiology* 228, 303–308.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, 33, 159-174.
- Last, J. M. (1995). *A dictionary of epidemiology*. New York: Oxford University Press.
- Lantz, C. A., & Nebenzahl, E. (1996). Behavior and interpretation of the kappa statistics: resolution of the two paradoxes. *J Clin Epidemiol* 49, 431-434.
- Leffert, N., Benson, P. L., Scales, P. C., Sharma, A. R., Drake, D. R., & Blyth, D. A. (1998). Developmental assets: Measurement and prediction of risk behaviors among adolescents. *Applied Developmental Science*, 2, 209-230.
- Lhimsoonthon, B. (2000). *The relationships between resilience factors, perceived life adversities, personal characteristics, and substance use behavior of slum adolescents lingering in a public playground*. Master's Thesis in Nursing Science (Community Health Nursing), Faculty of Graduate Studies, Mahidol University, Thailand.
- Lindenberg, C. S., Solorzano, R. M., Krantz, M. S., Galvis, C., Baroni, G., & Strickland, O. (1998). Risk and resilience: building protective factors. *American Journal of Maternal Child Nursing*, 23(2), 99-104.



- Lindberg, L. D., Boggess, S., Porter, L., & Williams, S. (2000). *Teen Risk-Taking: A Statistical Portrait*. Retrieved July 10, 2005, from <http://aspe.hhs.gov/health/reports/TeenRisk/TeenRiskTaking.html>
- Luthar, S. S. (1993). Annotation: Methodological and conceptual issues in research on childhood resilience. *Journal of Child Psychology and Psychiatry*, *34*, 441-454.
- Masten, A. S. (1994). Resilience in individual development: Successful adaptation despite risk and adversity. In M. C. Wang & G. W. Gordon (Eds.), *Educational resilience in inner-city America*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.
- Masten, A. S. (2001). Ordinary Magic: Resilience Processes in Development. *American Psychologist*, *56*(3), 227-238.
- Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, *53*, 205–220.
- Millstein, S. G., Irwin, C. E., Adler, N. E., Cohn, L. D., Kegeles, S.M., & Dolcini, M.M. (1992). Health-risk behaviors and health concerns among young adolescents. *Pediatrics*, *89*, 422-428.
- Ministry of Education. (2007). *The education system in Thailand 2007*. Retrieved March 26, 2007, from [http://www.bic.moe.go.th/fileadmin/BIC\\_Document/book/MOEEaflet/Thai-ed-system.pdf](http://www.bic.moe.go.th/fileadmin/BIC_Document/book/MOEEaflet/Thai-ed-system.pdf)
- Ministry of Public Health. (1999). Thailand health profile 1997-1998. Bangkok: Transportation Organization.

- Ministry of Public Health. (2005). *Thailand Health Profile 1999-2000*. Retrieved July 10, 2005, from [http://www.moph.go.th/ops/thealth\\_44/](http://www.moph.go.th/ops/thealth_44/)
- Ministry of Transport. (2007). *Roads and road safety GRSP in Thailand projects*. Retrieved March 28, 2007, from <http://209.85.165.104/search?q=cache:lyCXf6epUnQJ:www.grsproadsafety.org/print.php%3Fpageid%3D28+drunk,+drive,+Thailand,law&hl=en&ct=clnk&cd=13&gl=us>
- Moon, M. W., & Henry, J. (2001). *Report of Youth Risk Behavior Survey: Albemarle County middle and high school students year 2001*. School of Nursing, Virginia Commonwealth University School of Nursing, Richmond, Virginia, USA.
- Moshman, D. (1999). *Adolescent psychological development: Rationality, morality, and identity*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Muuss, R. E. (1990). *Adolescent behavior and society* (4th ed.). Philadelphia: McGraw-Hill.
- Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development, 70* (5), 1181-1196.
- Neiger, B. (1991). *Resilient reintegration: Use of structural equations modeling*. Dissertation for Doctoral of Philosophy, Department of Health Education the University of Utah.
- Nicolson, D., & Ayers, H. (1997). *Adolescent problems: A practical guide for parents and teachers*. London: David Fulton Publishers.

- Office of Council of State. (1995). *Land Traffic Act (No.5) B.E. 2538 (1995)*. Retrieved March 28, 2007, from [http://www.krisdika.go.th/searchShowFile.jsp?path=%2Fexport%2Fnew\\_htdocs%2Fdata%2Flaw%2Flaw2%2F%25a803%2F%25a803-20-2538-005.pdf](http://www.krisdika.go.th/searchShowFile.jsp?path=%2Fexport%2Fnew_htdocs%2Fdata%2Flaw%2Flaw2%2F%25a803%2F%25a803-20-2538-005.pdf)
- Palmer, C., & Sainfort, F. (1993). Toward a new conceptualization and operationalization of risk perception within the genetic counseling domain. *Journal of Genetic Counseling, 2*, 275-294.
- Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale, NY: Lawrence Erlbaum Associates, Inc.
- Perkins, D. E., Luster, T., & Villarruel, F. A. (1998). An ecological, risk-factor examination of adolescents' sexual activity in three ethnic groups. *Journal of Marriage and the Family, 60*, 600–623.
- Peters, J. (1994). Familial cancer risk: Part II. Breast cancer risk counseling and genetic susceptibility testing. *The Journal of Oncology Management, 14*-22.
- Piaget, J. (1972). *The psychology of the child*. New York: Basic Books.
- Plant, T. M. (2002). Neurophysiology of puberty. *Journal of Adolescent Health, 31*(6, Supplement 1), 185-191.
- Polk, R. K. (2007). *Evaluating the national outcomes: Program outcomes for youth risk behavior (Adolescent violence)*. Retrieved April 07, 2007, from <http://ag.arizona.edu/fcs/cyfernet/nowg/ythadolvio.html>
- Polit, D. F., & Hungler, B. P. (1999). *Nursing research: Principles and methods* (6th ed.). Philadelphia: Lippincott.

- Population and Social Research Institute. (1998). *Survey of situation of the Thai youths*. Bangkok, Thailand: Mahidol University.
- Praisri, J. (2001). *Factor influence health risk behaviors among adolescent student*. Thesis of Master Degree of master of Nursing Science (Community Health Nursing), Faculty of Graduate Studies, Mahidol University, Thailand.
- Resnick, G., & Burt, M. (1996). Youth at risk: definitions and implications for service delivery. *American Journal of Orthopsychiatry*, 66(2), 172-188.
- Rew, L., & Horner, S.D. (2003). Youth resilience framework for reducing health-risk behaviors in adolescents. *Journal of Pediatric Nursing*, 18(6), 379-88.
- Rew, L. (2005). *Adolescent health: A multidisciplinary approach to theory, research, and intervention*. Thousand Oaks: Sage.
- Rodgers, B. L. (1993). Concept analysis: an evolutionary view. In B. L. Rodgers & K. A. Knafl (Eds.), *Concept development in nursing: foundations, techniques, and applications*. Philadelphia: Saunders.
- Rogers, A. C. (1997). Vulnerability, health and health care. *Journal of Advanced Nursing*, 26, 65-72.
- Rouse, K.A.G., Ingersoll, G. M., & Orr, D. P. (1998). Longitudinal health endangering Behavior risk among resilient and nonresilient early adolescents. *Journal of Adolescent Health*, 23(5), 297-302.
- Rowan, F. (1996). The high stakes of risk communication. *Preventive Medicine*, 25(1), 26-29.

- Ruangkanchanasetr, S., Plitponkarpim, A., Hetrakul, P., & Kongsakon, R. (2005). Youth risk behavior survey: Bangkok, Thailand. *Journal of Adolescent Health, 36*(3), 227-235.
- Rutter, M. (1985). Family and school influences on cognitive development. *Journal of Child Psychology and Psychiatry, 26*, 683-704.
- Rutter, M. (1988). Epidemiological approaches to developmental psychopathology. *Archives of General Psychiatry, 45*, 486-95.
- Sedgwick, R. (2005). *Education in Thailand 2005*. Retrieved March 26, 2007, from [http://209.85.165.104/search?q=cache:bAu2SfAf\\_lkJ:www.wes.org/ewent/05mar/practical.htm+university+entrance+examination+,Thailand&hl=en&ct=clnk&cd=5&gl=us](http://209.85.165.104/search?q=cache:bAu2SfAf_lkJ:www.wes.org/ewent/05mar/practical.htm+university+entrance+examination+,Thailand&hl=en&ct=clnk&cd=5&gl=us)
- Shiffman, S. (2000). Real-Time Self-Report of Momentary States in the Natural Environment: Computerized Ecological Momentary Assessment. In A. Stone, J. Turkkan, C. Bachrach, J. Jobe, H. Kurtzman & V. Cain (Eds.), *The Science of Self-Report: Implications for Research and Practice* (p.278). Mahwah, NJ: Lawrence Erlbaum Associates.
- Skolbekken, J.-A. (1995). The risk epidemic in medical journals. *Social Science & Medicine, 40*(3), 291-305.
- Small, S.A., & Luster, T. (1994). Adolescent sexual activity: An ecological, risk-factor approach. *Journal of Marriage and the Family, 56*, 181–192.

- Smith-Khuri, E., Iachan, R., Scheidt, P. C., Overpeck, M. D., Gabhainn, S. N., Pickett, W., et al. (2004). A Cross-national study of violence-related behaviors in adolescents. *Archives of Pediatrics & Adolescent Medicine, 158*(6), 539-544.
- Somchit, S. (1998). *The relationships between resilience factors, perception of adversities, negative behavior, and academic achievement of 4<sup>th</sup> to 6<sup>th</sup> grade in Thad-Thong, Chonburi, Thailand*. Master's Thesis in Nursing Science (Community Health Nursing), Faculty of Graduate Studies, Mahidol University, Thailand.
- Sornsri, C. (1998). *The study of health risk behaviors of adolescents in Bangkok secondary school*. Master's thesis in Nursing Science (Community Health Nursing), Faculty of Graduate Studies, Mahidol University, Thailand.
- Sperber, A. D., Devellis, R. F., & Boehlecke, B. (1994). Cross-cultural translation: Methodology and validation. *Journal of Cross-cultural Psychology, 25*(4), 501-524.
- Steinberg, L. (1993). *Adolescence* (3rd ed.). New York: McGraw Hill, Inc.
- Sriphet, C. (2001). *Factors influencing adolescent depression*. Unpublished master's thesis, Bangkok, Thailand: Mahidol University.
- Steinberg, L. (1993). *Adolescence*. New York: McGraw Hill.
- Stronski, S.M., Ireland, M., Michaud, P., Narring, F., & Resnick, M.D. (2000). Protective correlates of stages in adolescent substance use: A Swiss national study. *Journal of Adolescent Health, 26*, 420-427.

Suchada, J., Khanchit, L., Ellie, C., Sonja, J. O., Ubolrat, N., & Kumnuan, U. (2004).

*Epidemiology of Reported Hepatitis in Thailand 1993-2002*. Retrieved March 3, 2006, from [http://www.cdc.gov/ncidod/global/ieip/abstracts/hep\\_iceid04.htm](http://www.cdc.gov/ncidod/global/ieip/abstracts/hep_iceid04.htm)

Sugaroon, S., & Wiwanitkit, V. (2005). *Hepatitis A Vaccination: Is It Necessary For Thai*

*Adults?* Retrieved March 3, 2007, from

<http://www.ispub.com/ostia/index.php?xmlFilePath=journals/ijaai/vol3n2/hepatitis.xml>

Suwan, P., et al. (1996). *Study on behaviors and environmental conditions for health promotion among youths, housewives and factory workers*.

Ministry of Public Health, Thailand.

Tansubhapol, K. (2006). *Thailand: sharp rise in motorcycle deaths prompts public*

*awareness initiative*. Retrieved December 4, 2006, from

[http://72.14.209.104/search?q=cache:5X\\_cs\\_zEEcJ:www.ifrc.org/docs/news/06/06090803/+Motorcycle+helmet+,+Thailand,+Law&hl=en&gl=us&ct=clnk&cd=16](http://72.14.209.104/search?q=cache:5X_cs_zEEcJ:www.ifrc.org/docs/news/06/06090803/+Motorcycle+helmet+,+Thailand,+Law&hl=en&gl=us&ct=clnk&cd=16)

Thai Health Promotion Foundation. (2005). *Tobacco-related diseases: Costs outstrip tax revenue*. Retrieved July 30, 2005, from

[http://www.thaihealth.or.th/en/news\\_content.php?id=49](http://www.thaihealth.or.th/en/news_content.php?id=49)

The Central Intelligence Agency. (2005, July 14, 2005). *The world factbook*. Retrieved

July 21, 2005, from <http://www.cia.gov/cia/publications/factbook/geos/th.html>

The Government Public Relations Department. (2004). *Thailand joins WHO in reducing tobacco use*. Retrieved July 28, 2005, from

[http://thailand.prd.go.th/the\\_inside\\_view.php?id=59](http://thailand.prd.go.th/the_inside_view.php?id=59)

- Thompson, W. D., & Walter, S. D. (1988). A reappraisal of the kappa coefficient. *J Clin Epidemiol*, *41*, 949–958.
- Treiman, K. A., & Beck, K. H. (1996). Adolescent gender differences in alcohol problem behaviors and the social contexts of drinking. *Journal of School Health*, *66*(8), 299-303.
- Tusaie, K., & Dyer, J. (2004). Resilience: A historical review of the construct. *Holistic Nursing Practice*, *18*(1), 3-10.
- UNAIDS. (2005). *2004 Thailand country profile HIV/AIDS situation in Thailand and national response to the epidemic*. Retrieved July 29, 2005, from [http://www.un.or.th/unaidsth/related\\_document1.php](http://www.un.or.th/unaidsth/related_document1.php)
- Valois, R. F., Thatcher, W. G., Drance, J. W., & Reininger, B. M. (1997). Comparison of selected health risk behaviors between adolescents in public and private high school in South Carolina. *Journal of School Health*, *67*(10), 434-439.
- Van Agt, H. M. E., Essink-Bot, M., Krabbe, P. F. M., & and Bonsel, G. J. (1994). Test-retest reliability of health state valuations collected with the EuroQol questionnaire. *Soc. Sci. Med*, *39*, 1537-1544
- van, G. F., Kilmarx , P., Jeeyapant S, Manopaiboon, C., Korattana, S., Jenkins, R. A., et al. (2004). The prevalence of bisexual and homosexual orientation and related health risks among adolescents in northern Thailand. *Arch Sex Behav*, *33*(2), 137-147.



- Vernon, S. W., & Roberts, R. E. (1981). Measuring nonspecific psychological distress and other dimensions of psychopathology. Further observations on the problem. *Archives of General Psychiatry*, 38(11), 1239-1247.
- Viera, A. J., & Garrett, J. M. (2005). Understanding Interobserver Agreement: The Kappa Statistic *Family Medicine*, 37, 360-363.
- Waltz, C. F., Strickland, O. L., & Lenz, E. R. (1991). *Measurement in nursing research* (2nd ed.). Philadelphia: F.A. Davis.
- Waltz, C. F., Strickland, O. L., & Lenz, E. R. (2005). *Measurement in nursing and health research* (3rd ed.). New York: Springer.
- Werner, E., & Smith, R. S. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: McGraw Hill.
- Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University.
- Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science*, 4(3), 81-85.
- Wichstrom, L. (2001). The Impact of pubertal timing on adolescents' alcohol use. *Journal of Research on Adolescence*, 11(2), 131.
- Wilens, T.E., Biederman, J., Mick, E., Faraone, S.V., & Spencer, T. (1997). Attention deficit hyperactivity disorder (ADHD) is associated with early onset substance use disorders. *The Journal of Nervous and Mental Disease*, 185 (8), 475-482.
- Wood, M. J., & Brink, P. J. (1998). Correlational designs. In J. B. Pamela & J. W. Marilyn. *Advanced design in nursing research* (2nd ed.). London: Sage.

World Health Organization (WHO). (2005). *Approach to adolescents*. Retrieved July 10, 2005, from <http://www.un.org.in/Jinit/who.pdf>

Zaney, G. D. (2007). *Can the street food vending industry live up to the standards?* Retrieved March 3, 2007, from [http://www.ghana.gov.gh/dexadd/feature/food\\_vending.pdf](http://www.ghana.gov.gh/dexadd/feature/food_vending.pdf)

Zimmerman, M. A., & Arunkumar, R. (1994). Resiliency research: Implications for schools and policy. *Social Policy Report*, 8, 1-17.

**APPENDIX A**

**Explanatory Letter**

LETTERHEAD of each School, Bangkok, Thailand

Date

Dear Parent/Guardian,

The administrators of your child's school are please to be working with Dr. Martha W. Moon and Ms. Patcharin Nintachan, of Virginia Commonwealth University School of Nursing in Richmond, Virginia, USA on a project to look at risk behavior in children. We are writing to you to ask for your assistance in a study to assess risk and resilience in youth aged 11-19 years.

Your child has been selected to participate in this survey because he/she is a student in this school. If you agree that your child can participate, and your child agrees also, your child will be asked to privately complete the survey that asks about health behavior such as tobacco use, alcohol and other drug use, sexual behavior, behavior (including suicidal tendencies) that result in unintentional injuries and violence, weight control behavior, dietary intake, and inadequate physical activity. The survey will take approximately 40-60 minutes to complete and will be administered after school or during a free period. The survey has been designed to protect your child's privacy. Your child will be asked to put his/her grade level on the survey but will not be asked to put his/her name on the survey. Completing the survey is voluntary. Whether or not your child answers the questions will not affect your child's grade in any way. If your child is not comfortable answering a question, he/she can leave it blank or stop taking the survey at any time.

Your child's information will be kept confidential. The consent form signed by you and assent form signed by your child will not be linked to the completed surveys. Your child may not get any direct benefit from this study, but the information we learn from adolescents in this study may help us develop better ways of learning about the health behavior of Thai adolescents.

If you desire additional information about the survey, please contact Ms. Patcharin Nintachan, Department of Nursing, Faculty of Medicine RamaThibodi Hospital, Mahidol University, Thailand at 02-201-1769. A copy of the survey will be available at the school for review. Thank you for your cooperation in this matter.

If you agree to allow your child to participate in this study, we would like for you to do the following things: 1) read the enclosed parental permission form and sign it after you have had all of your questions answered; 2) ask your child to return the permission form in the envelope provided to his/her teacher within the next 2 weeks.

Thank you for your cooperation. We are looking forward to hearing from you.

Sincerely,

Mr. ....  
Director

## APPENDIX B

### Documentary Proof of VCU IRB

- Research Subject Information and Parental Permission Form
- Youth Assent Form

**MCV Campus**

**V i r g i n i a C o m m o n w e a l t h U n i v e r s i t y**

**Office of Research Subjects  
Protection**

Office of Research

BioTech Research Park, Building One  
800 East Leigh Street, Suite 111  
P.O. Box 980568  
Richmond, Virginia 23298-0568

804 828-0868  
Fax: 804 827-1448  
TDD: 1-800-828-1120

DATE: December 14, 2005

TO: Martha W. Moon, RN, PhD, MPH  
Department of Integrative Systems  
Box 980567

FROM: Andrea Hastillo, MD  
Chairperson, VCU IRB Panel C  
Box 980568

*CK reviewed  
for AH*

RE: **VCU IRB #: 6189**

**Title: Resilience and Risk-taking Behavior among Thai Adolescents Living in Bangkok**

The following study involving the research use of human subjects was approved by the VCU IRB on October 27, 2005 according to 45 CFR 46.108(b). This research involves children and is approved under 45 CFR 46.404. The changes requested by the Panel received in the Office of Research Subjects Protection on December 12, 2005 satisfactorily meet the stipulations set forth in the October 27, 2005. This approval includes the following items reviewed by this Panel:

**RESEARCH APPLICATION/PROPOSAL:** None

**PROTOCOL:** Resilience and Risk-taking Behavior among Thai Adolescents Living in Bangkok (dated 11/23/05)-stamped received 12/12/05

**CONSENT/ASSENT:**

- Research Subject Information and Parental Permission Form (dated 10/3/05), 3 pages
- Youth Assent Form (dated 10/11/05), 2 pages

**ADDITIONAL DOCUMENTS:** None

**This approval expires on September 30, 2006. Federal Regulations/VCU Policy and Procedures require continuing review prior to continuation of approval past that date.** Continuing Review report forms will be mailed to you prior to the scheduled review.

This Institutional Review Board is in compliance with good clinical practices (GCP) as defined under the U.S. Food and Drug Administration (FDA) regulations and the International Conference on Harmonization (ICH) guidelines. Virginia Commonwealth University is approved by DHHS to conduct human subjects research under a Federal Wide Assurance #FWA00005287. **All correspondence related to this research study must include the IRB protocol number and the investigator's name(s) to assist us in locating your file. Please note that the CCHR number is no longer valid, if applicable.**

If you have any questions, please contact Dr. Andrea Hastillo, Chairperson, VCU IRB Panel C, at [ahastill@hsc.vcu.edu](mailto:ahastill@hsc.vcu.edu) or 828-9204; or you may contact Nichole Haywood, IRB Coordinator, VCU Office of Research Subjects Protection, at [nsrichar@hsc.vcu.edu](mailto:nsrichar@hsc.vcu.edu) or 827-1446.

Attachment – Terms of Approval

In order to comply with federal regulations, industry standards, and the terms of this approval, the investigator must (*as applicable*):

- 1) Conduct the research as described in and required by the approved protocol.
- 2) Obtain informed consent from all subjects without coercion or undue influence, and provide the potential subject sufficient opportunity to consider whether or not to participate (unless Waiver of Consent is specifically approved).
- 3) Document informed consent using only the most recently dated consent form bearing the VCU IRB "APPROVED" stamp (unless Waiver of Consent Documentation is specifically approved).
- 4) Provide non-English speaking subjects with a translation of the approved consent form in the subject's first language. The panel must approve the translated version.
- 5) Obtain prior approval from the VCU IRB before implementing any changes whatsoever in the approved protocol or consent form, unless such changes are necessary to protect the safety of human research subjects. Any departure from these approved documents must be reported to the VCU IRB immediately.
- 6) Adverse Event/Unanticipated Problem Reporting Timeline: Please refer to the VCU IRB Written Policies and Procedures (specifically WPP #: VIII-7) available at <http://www.research.vcu.edu/oeco/fedreg-info/vcuirbwpp.doc>
- 7) Other Reporting Timelines:
  - Report in writing to the VCU IRB within 10 days of any such changes made to protect the safety of human subjects enrolled on this study.
  - Report to the VCU IRB within 10 days the receipt of any new information that may adversely affect the safety of the subjects or the conduct of the trial.
- 8) Obtain prior approval from the VCU IRB before use of any advertisement or other material for recruitment of study subjects.
- 9) Promptly report and/or respond to all inquiries by the VCU IRB concerning the conduct of the approved research when so requested.
- 10) All protocols that administer acute medical treatment to human research subjects must have an emergency preparedness plan. For additional information, please refer to guidance on Emergency Preparedness Plans at [http://www.research.vcu.edu/oeco/guidance\\_epp.html](http://www.research.vcu.edu/oeco/guidance_epp.html)
- 11) The VCU IRBs operate under the regulatory authorities as described within:
  - U.S. Department of Health and Human Services Title 45, Part 46, Subparts A, B, C, and D (for all research, regardless of source of funding)
  - U.S. Food and Drug Administration Chapter 1 of Title 21 CFR 50 (for FDA regulated research only)
  - U.S. Food and Drug Administration Chapter I of Title 21 CFR 56 (for FDA regulated research only)
  - Commonwealth of Virginia Code of Virginia 32.1 Chapter 5.1 Human Research (for all research)
- 12) If you plan to involve subjects in this study at a site under the jurisdiction of an institution other than VCU or the VCU Health System, you must refer to the guidance on the Use of a Non-VCU Site/Facility in the VCU IRB Written Policies and Procedures (specifically WPP #: XVII-6) available at <http://www.research.vcu.edu/oeco/fedreg-info/vcuirbwpp.doc> . This guidance includes the requirements to: (1) request permission to do so in writing from the office of the person at that institution who has responsibility for protecting the rights and well being of human research subjects; and (2) determine that adequate resources are available at the site to conduct your study safely and effectively in full accordance with the approved protocol. You may proceed to conduct your study at the site only if that office or that person provides you with written permission to do so.

## RESEARCH SUBJECT INFORMATION AND PARENTAL PERMISSION FORM

**TITLE:** Resilience and Risk-taking Behavior among Thai Adolescents Living in Bangkok

**VCU IRB Protocol Number:**

This consent form may contain words that you do not understand. Please ask the study staff to explain any words that you do not clearly understand. You may take time to consider this consent form before making your decision.

**Purpose of the Study:**

The purpose of this research study is to determine the relationships between resilience (the ability to overcome hardship) and risk-taking behavior of (a) behaviors that contribute to unintentional injuries and violence; (b) tobacco use; (c) alcohol and other drug use; (d) sexual behavior resulting in unintended pregnancy and sexually transmitted diseases, including HIV infection; (e) unhealthy dietary behaviors; and (f) inadequate physical activity among Thai adolescents living in urban areas. The survey includes questions about resilience and risk behaviors. Your child is being asked to participate in this study because your child is a student at the secondary school in Bangkok.

**Description of the study and your child's involvement:**

If you decide to allow your child to be in this study, you will be asked to sign this permission form after you have had all your questions answered and understand what will happen to your child.

In this study, your child will be asked to privately complete the survey. The survey will take approximately 40-60 minutes to complete and will be administered after school or during a free period.

**Risks and Discomforts:**

There are minimal risks associated with this study. The survey in this study asks questions about your child's personal behavior that may possibly make your child feel uncomfortable. If your child becomes upset during the survey, he or she will be referred to the school counselor immediately. Even though this is not a test, your child may experience test anxiety but it is not more than for a typical test in school. Completing the survey is voluntary. Whether or not your child answers the questions will not affect your child's grade in any way. If your child is not comfortable answering a question, he/she can leave it blank or stop taking the survey at any time. There is no risk to confidentiality because identifying information on the assent and consent forms will not be linked to the completed surveys.

APPROVED

10/27/05 JH/NH



**Benefits:**

You child may not get any direct benefit from this study, but, the information we learn from adolescents in this study may help us develop better ways of learning about the health behavior of Thai adolescents.

**Costs:**

There are no costs for participating in this study other than the time your child will spend filling out the survey.

**Alternatives:**

The alternative is to NOT participate in this study.

**Confidentiality:**

We will not tell anyone the answers your child gives us, however information from the study and the permission form and participant assent form signed by you and your child may be looked at or copied for research or legal purposes by Virginia Commonwealth University. Your child's information will be kept confidential. The survey will be self-administered with no identifiers. The permission form signed by you and assent form signed by your child will not be linked to the completed surveys. The researchers will not know which one is your child's response. Therefore, the researchers will not be able to tell you, teachers, and your child's friend about your child information. What we find from this study may be presented at meetings or published in papers, but your child's name will never be used in these presentations or papers.

**Voluntary Participation and Withdrawal:**

Your child does not have to participate in this study. If you choose to allow your child to participate your child may decide to not participate in this study. If your child does participate, your child may freely withdraw from the study at any time without any penalty. In addition, your child may also choose not to answer particular questions that are asked in the study. Your child's decision will not affect your child's future in the school.

**Questions**

In the future, you may have questions about your participation in this study. If you have any questions, contact:

Martha W. Moon, R.N., PhD, M.P.H  
Virginia Commonwealth University School of Nursing  
1220 East Broad Street, Richmond, VA 23298-0567  
Tel: +804-828-1336 (USA)

Patcharin Nintachan, Doctoral Student  
Virginia Commonwealth University School of Nursing,  
1220 East Broad Street, Richmond, VA 23298-0567  
Tel: +804-353-2189 (USA) and (662)-201-1769 (Thailand)

APPROVED

10/27/05 JH/NH

If you have any questions about your rights as a participant in this study, you may contact:

Office for Research Subjects Protection  
Virginia Commonwealth University  
800 East Leigh Street, Suite 111  
P.O. Box 980568, Richmond, VA 23298  
Telephone: 804-828-0868

**The Ethical Clearance Committee on Human Rights Related to Research Involving Human Subjects**  
Research Center, Faculty of Medicine Ramathibodi Hospital, Mahidol University  
270 Rama 6 Road, Thung Phra Ya Thai, Ratchathewi  
Bangkok 10400, Thailand  
Tel: (662)-201-1544

**Why is the investigator doing this study?**

The investigator is conducting this research to fulfill her requirements for a doctoral degree at VCU. The findings of the study will also be important to understand risk behavior and resilience in Thai adolescents.

**Consent:**

I have been given the chance to read this consent form. I understand the information about this study. Questions I wanted to ask about the study have been answered. My signature says that I am willing for my child to participate in this study. **Please give this permission form to your child to return to the school after you have signed it.**

\_\_\_\_\_  
Name of Child

\_\_\_\_\_  
Name of Legally Authorized Representative (Printed)

\_\_\_\_\_  
Legally Authorized Representative Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Person Conducting Informed Consent Discussion / Witness (Printed)

\_\_\_\_\_  
Signature of Person Conducting Informed Consent Discussion / Witness

\_\_\_\_\_  
Date

\_\_\_\_\_  
Investigator signature

\_\_\_\_\_  
Date

10/27/05 JH/AH

## YOUTH ASSENT FORM

**TITLE:** Resilience and Risk-taking Behavior among Thai Adolescents Living in Bangkok

**VCU IRB Protocol Number:**

This form may have some words that you do not know. Please ask the study staff to explain any words that you do not know. You may take home a copy of this form to think about and talk to your parents about before you decide if you want to be in this study.

**What is this study about?**

The purpose of this research study is to determine the relationships between resilience (the ability to overcome hardship) and risk-taking behavior of (a) behaviors that contribute to unintentional injuries and violence; (b) tobacco use; (c) alcohol and other drug use; (d) sexual behavior resulting in unintended pregnancy and sexually transmitted diseases, including HIV infection; (e) unhealthy dietary behaviors; and (f) inadequate physical activity among Thai adolescents living in urban areas. The survey contains questions about risk behavior and resilience. You are being asked to participate in this study because you are a student at the secondary school in Bangkok.

**What will happen to me if I choose to be in this study?**

In this study, you will be asked to individually complete the survey. The survey will take approximately 40-60 minutes to complete and will be administered after school or during a free period. If you decide to be in this research study, you will be asked to sign this form. Do not sign the form until you have all your questions answered, and understand what will happen to you.

**What might happen if I am in this study?**

The questions in this study are about your personal behavior, and answering them may possibly make you feel uncomfortable. Completing the survey is voluntary. If you are not comfortable answering a question, just leave it blank. Whether or not you answer the questions will not affect your grades in any way. Your assent form will not be linked to your completed survey.

**Will you tell anyone what I say?**

We will not tell anyone the answers you give us. We will not share your answers with your teachers or parents or friends. If we talk about this study in speeches or in writing, we will never use your name. The results of this study will be analyzed and reported only as group data; therefore, it will not be possible to identify anyone from reports or publications that result from this study.

**Do I have to be in this study?**

You do not have to be in this study. If you choose to be in the study you may stop at any time. No one will blame you or criticize you if you drop out of the study.

APPROVED

10/27/05 JH/NH

**Questions**

If you have questions about being in this study, you can talk to the following persons or you can have your parent or another adult call:

Martha W. Moon, R.N., PhD, M.P.H  
Virginia Commonwealth University School of Nursing  
1220 East Broad Street, Richmond, VA 23298-0567, USA, Tel: +804-828-1336

Patcharin Nintachan, Doctoral student  
Virginia Commonwealth University School of Nursing  
1220 East Broad Street, Richmond, VA 23298-0567, USA, Tel: +804-201-1769

If you have questions about your rights as a research subject, you may contact:

Office of Research Subjects Protection  
Virginia Commonwealth University, 800 East Leigh Street, Suite 111  
PO Box 980568, Richmond, VA 23298, USA, Tel : +804- 828-0868

The Ethical Clearance Committee on Human Rights Related to Research Involving Human Subjects  
Faculty of Medicine Ramathibodi Hospital, Mahidol University  
270 Rama 6 Road, Thung Phra Ya Thai, Ratchathewi, Bangkok 10400, Thailand  
Tel: 662-201-1544

Do not sign this form if you have any questions. Be sure someone answers your questions.

**Consent:**

I have read this form. I understand the information about this study. I am willing to be in this study.

---

Youth name printed	Youth signature	Date
--------------------	-----------------	------

---

Name of Person Conducting Informed Assent Discussion / Witness printed

---

Signature of person conducting informed Assent Discussion / Witness	Date
---	------

---

Investigator signature	Date
------------------------	------

APPROVED

10/27/05 JH/NH

## APPENDIX C

Documentary Proof of Ethical Clearance Committee on Human Rights Related to Research Involving Human Subjects, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.



คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล  
ถนนพระราม 6 กทม. 10400  
โทร. (662) 354-7275, 201-1296 โทรสาร (662) 354-7233  
Faculty of Medicine, Ramathibodi Hospital, Mahidol University  
Rama VI Road, Bangkok 10400, Thailand  
Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

เอกสารรับรองโดยคณะกรรมการจริยธรรมการวิจัยในคน  
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี  
มหาวิทยาลัยมหิดล

เลขที่ ๐๓๖๔/๒๕๕๘

ชื่อโครงการ ความแข็งแรงในชีวิตและพฤติกรรมเสี่ยงของวัยรุ่นไทยที่อาศัยอยู่ใน  
กรุงเทพมหานคร

เลขที่โครงการ/รหัส ID ๑๑-๔๘-๐๕ บ


ชื่อหัวหน้าโครงการ นางสาวพัชรินทร์ นินทจันทร์

ที่ทำงาน ภาควิชาพยาบาลศาสตร์  
คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี  
มหาวิทยาลัยมหิดล

ขอรับรองว่าโครงการดังกล่าวข้างต้นได้ผ่านการพิจารณาเห็นชอบโดยสอดคล้องกับแนวปฏิบัติฯ เหล่านี้  
จากคณะกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

ลงนาม


ประธานกรรมการจริยธรรมการวิจัยในคน

  
ศาสตราจารย์ นายแพทย์บุญส่ง องค์กรพัฒน์กุล

ลงนาม

รองคณบดี รักษาราชการแทน

คณบดีคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

  
(รองศาสตราจารย์ นายแพทย์จรชิตเทพ ตันเผ่าพงษ์)

วันที่รับรอง

๑๖ พฤศจิกายน ๒๕๕๘



คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล  
ถนนพระราม 6 กทม. 10400  
โทร. (662) 354-7275, 201-1296 โทรสาร (662) 354-7233

Faculty of Medicine, Ramathibodi Hospital, Mahidol University  
Rama VI Road, Bangkok 10400, Thailand  
Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

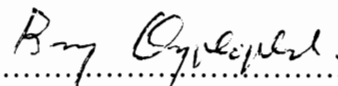
**Documentary Proof of Ethical Clearance Committee on Human Rights  
Related to Researches Involving Human Subjects  
Faculty of Medicine, Ramathibodi Hospital, Mahidol University**

No. 0764/2005

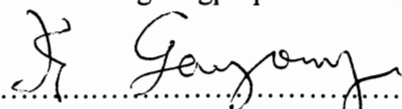
<b>Title of Project</b>	Resilience and Risk-Taking Behavior Among Thai Adolescents Living in Bangkok
<b>Protocol Number</b>	ID 11-48-09
<b>Principal Investigator</b>	Miss. Patcharin Nintachan
<b>Official Address</b>	Department of Nursing Faculty of Medicine, Ramathibodi Hospital Mahidol University

*The aforementioned project has been reviewed and approved by Committee on Human Rights Related to Researches Involving Human Subjects, based on the Declaration of Helsinki.*

**Signature of Chairman  
Committee on Human Rights Related to  
Researches Involving Human Subjects**

  
 .....  
 Prof. Boonsong Ongphiphadhanakul, M.D.

**Signature of Dean (Acting)**

  
 .....  
 Assoc. Prof. Kunchitthape Tanpowpong, M.D.

**Date of Approval**

November 16, 2005

## APPENDIX D

Thai Adolescent Resilience and Risk Survey (English version)



## **Thai Adolescent Resilience and Risk Survey**

Dear participants,

This survey consists of two questionnaires. The first part (33 questions) asks you to describe yourself and the second part (96 questions) asks you about health behavior. Answer the questions based on what you really do and who you are. The information you give will be used to develop better health education and life-skill training programs for young people like yourself. **DO NOT** write your name on this survey. The answers you give will be kept private. No one will know what you write.

Completing the survey is voluntary. Whether or not you answer the questions will not affect your grade in any way. If you are not comfortable answering a question, just leave it blank. The questions that ask about your background will be used only to describe the types of students completing this survey. The information will not be used to find out your name. No names will ever be identified.

Make sure to read every question. Fill in the ovals completely. When you are finished, follow the instructions of the person giving you the survey.

**Thank you very much for your participation.**

## Part 1

### **Part 1.1**

**Instructions:** A number of statements below are used by people to describe themselves. Read each statement and then fill in the oval on the answer sheet that indicates how strongly you agree or disagree with each statement that describes yourself **at the present time.**

### **AT THE PRESENT TIME:**

1. I have someone who loves me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I have a person outside my home who I can tell about my problems or feelings.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I am praised for doing things on my own.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I can count on my family being there when needed.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I have someone who I want to be like (role model).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I believe things will turn out alright.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I do endearing things that make people like me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

**AT THE PRESENT TIME (continue):**

8. I have faith in a higher being.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. I am willing to try new things.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I like to achieve in what I do.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. I feel that what I do makes a difference in how things come out.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. I like myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. I can focus on a task and stay with it.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I have a sense of humor.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. I make plans to do things.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

**Part 1.2**

Read each statement and fill in the oval on the answer sheet that indicate how strongly you agree or disagree with each statement that describes you in the past as **a child**.

**AS A CHILD:**

16. I am expected to be a helpful person.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. I am calm even in times of difficulties.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. Others see me as alert and physically active.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. I believe in myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. My parents give me much attention.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

21. My family has high expectations of me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

**AS A CHILD (continue):**

22. When I am upset or in trouble, there is usually someone that I can turn to.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

23. I am successful in school.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

24. I actively do things to help others.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

25. I feel that I understand myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

26. I am exposed to stressful difficulties that I learned to handle.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

27. I feel that things will turn out well even in difficult situations.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

28. I know how to plan for the future.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

**AS A CHILD (continue):**

29. Others usually seem happy to see me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

30. My parents tell me that I am good-natured and easy-going.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

31. I have warm positive relationships with adults.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

32. I am persistent in my actions till I succeed.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

33. I am able to figure out effective ways of dealing with problems.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Continue to **Part 2** →→→

**Part 2**

**Directions:** Fill in the oval on the answer sheet that corresponds to the letter that best describes your response.

34. How old are you?

- A. 11 years old or younger
- B. 12 years old
- C. 13 years old
- D. 14 years old
- E. 15 years old
- F. 16 years old
- G. 17 years old
- H. 18 years old or older

35. What is your sex?

- A. Female
- B. Male

36. What level are you in a school?

- A. Mathayom 1 (grade 7)
- B. Mathayom 2 (grade 8)
- C. Mathayom 3 (grade 9)
- D. Mathayom 4 (grade 10)
- E. Mathayom 5 (grade 11)
- F. Mathayom 6 (grade 12)

37. What is your ethnicity?

- A. Thai
- B. Chinese
- C. Other

38. In the past 12 months, with whom did you live?

- A. On your own
- B. With your family
- C. With a friend
- D. Other

39. How many days a week are you at home or at a friend's house after school for more than an hour with no adult around?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 or more days

40. How sufficient is the money you receive?

- A. Never sufficient
- B. Rarely sufficient
- C. Sometimes sufficient
- D. Always sufficient

41. During the past 12 months, how has been the atmosphere in your family.

- A. Quarrelling most of the time
- B. Sometime quarrelling
- C. Harmonious

42. During the past 12 months, how would you describe your grades in school?

- A. Mostly A's
- B. Mostly B's
- C. Mostly C's
- D. Mostly D's
- E. Mostly F's
- F. None of these grades
- G. Not sure

**The next 6 questions ask about personal safety.**

43. During the past 12 months, when you drove a motorcycle or rode on a motorcycle driven by someone else, how often did you wear a helmet?

- A. I did not drive a motorcycle or ride on a motorcycle driven by someone else during the past 12 months
- B. Never wore helmet
- C. Rarely wore a helmet
- D. Sometimes wore a helmet
- E. Most of the time wore a helmet
- F. Always wore a helmet



44. During the past 12 months, when you wanted to cross the street how often did you use a walking bridge, if a walking bridge were available?
- A. Never
  - B. Sometimes
  - C. Most of the time
  - D. Always
45. During the past 12 months, when you wanted to cross the street how often did you use crosswalk, if a crosswalk were available?
- A. Never
  - B. Sometimes
  - C. Most of the time
  - D. Always
46. How often do you wear a seat belt when riding in a car driven by someone else?
- A. I never sat in a car driven by someone else
  - B. Never
  - C. Rarely
  - D. Sometimes
  - E. Most of the time
  - F. Always
47. During the past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking alcohol?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or more times
48. During the past 30 days, how many times did you drive a car or other vehicle when you had been drinking alcohol?
- A. I never drove a car or other vehicle
  - B. 0 times
  - C. 1 time
  - D. 2 or 3 times
  - E. 4 or 5 times
  - F. 6 or more times

**The next 10 questions ask about violence-related behaviors.**

49. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?
- A. 0 days
  - B. 1 day
  - C. 2 or 3 days
  - D. 4 or 5 days
  - E. 6 or more days
50. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club on school property?
- A. 0 days
  - B. 1 day
  - C. 2 or 3 days
  - D. 4 or 5 days
  - E. 6 or more days
51. During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?
- A. 0 days
  - B. 1 day
  - C. 2 or 3 days
  - D. 4 or 5 days
  - E. 6 or more days
52. During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or 7 times
  - F. 8 or 9 times
  - G. 10 or 11 times
  - H. 12 or more times

53. During the past 12 months, how many times has someone stolen or deliberately damaged your property such as your car, clothing, or books on school property?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or 7 times
  - F. 8 or 9 times
  - G. 10 or 11 times
  - H. 12 or more times
54. During the past 12 months, how many times were you in a physical fight?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or 7 times
  - F. 8 or 9 times
  - G. 10 or 11 times
  - H. 12 or more times
55. During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or more times
56. During the past 12 months, how many times were you in a physical fight on school property?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or 7 times
  - F. 8 or 9 times
  - G. 10 or 11 times
  - H. 12 or more times
57. During the past 12 months, did your boyfriend or girlfriend ever hit, slap, or physically hurt you on purpose?
- A. Yes
  - B. No

58. Have you ever been physically forced to have sexual intercourse when you did not want to?
- A. Yes
  - B. No

**The next 5 questions ask about sad feelings and attempted suicide.**

Sometimes people feel so depressed about the future that they may consider attempting suicide that is, taking some action to end their own life.

59. During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?
- A. Yes
  - B. No
60. During the past 12 months, did you ever seriously consider attempting suicide?
- A. Yes
  - B. No
61. During the past 12 months, did you make a plan about how you would attempt suicide?
- A. Yes
  - B. No
62. During the past 12 months, how many times did you actually attempt suicide?
- A. 0 times
  - B. 1 time
  - C. 2 or 3 times
  - D. 4 or 5 times
  - E. 6 or more times
63. If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?
- A. I did not attempt suicide during the past 12 months
  - B. Yes
  - C. No

**The next 8 questions ask about tobacco use.**

64. Have you ever tried cigarette smoking?
- A. Yes
  - B. No
65. How old were you when you smoked a whole cigarette for the first time?
- A. I have never smoked a whole cigarette
  - B. 8 years old or younger
  - C. 9 or 10 years old
  - D. 11 or 12 years old
  - E. 13 or 14 years old
  - F. 15 or 16 years old
  - G. 17 years old or older
66. During the past 30 days, on how many days did you smoke cigarettes?
- A. 0 days
  - B. 1 or 2 days
  - C. 3 to 5 days
  - D. 6 to 9 days
  - E. 10 to 19 days
  - F. 20 to 29 days
  - G. All 30 days
67. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?
- A. I did not smoke cigarettes during the past 30 days
  - B. Less than 1 cigarette per day
  - C. 1 cigarette per day
  - D. 2 to 5 cigarettes per day
  - E. 6 to 10 cigarettes per day
  - F. 11 to 20 cigarettes per day
  - G. More than 20 cigarettes per day
68. During the past 30 days, how did you usually get your own cigarettes? (Select only one response.)
- A. I did not smoke cigarettes during the past 30 days
  - B. I bought them in a store such as a convenience store, supermarket, discount store, or gas station
  - C. I gave someone else money to buy them for me
  - D. I borrowed (or bummed) them from someone else
  - E. A person 18 years old or older gave them to me
  - F. I took them from a store or family member
  - G. I got them some other way

69. During the past 30 days, on how many days did you smoke cigarettes on school property?
- A. 0 days
  - B. 1 or 2 days
  - C. 3 to 5 days
  - D. 6 to 9 days
  - E. 10 to 19 days
  - F. 20 to 29 days
  - G. All 30 days
70. Have you ever smoked cigarettes daily, that is, at least one cigarette every day for 30 days?
- A. Yes
  - B. No
71. During the past 12 months, did you ever try to quit smoking cigarettes?
- A. I did not smoke during the past 12 months
  - B. Yes
  - C. No

**The next 5 questions ask about drinking alcohol.**

This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey.

72. During your life, on how many days have you had at least one drink of alcohol?
- A. 0 days
  - B. 1 or 2 days
  - C. 3 to 9 days
  - D. 10 to 19 days
  - E. 20 to 39 days
  - F. 40 to 99 days
  - G. 100 or more days
73. How old were you when you had your first drink of alcohol other than a few sips?
- A. I have never had a drink of alcohol other than a few sips
  - B. 8 years old or younger
  - C. 9 or 10 years old
  - D. 11 or 12 years old
  - E. 13 or 14 years old
  - F. 15 or 16 years old
  - G. 17 years old or older

74. During the past 30 days, on how many days did you have at least one drink of alcohol?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

75. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 to 5 days
- E. 6 to 9 days
- F. 10 to 19 days
- G. 20 or more days

76. During the past 30 days, on how many days did you have at least one drink of alcohol on school property?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

**The next 4 questions ask about marijuana use.**

77. During your life, how many times have you used marijuana?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 to 99 times
- G. 100 or more times

78. How old were you when you tried marijuana for the first time?

- A. I have never tried marijuana
- B. 8 years old or younger
- C. 9 or 10 years old
- D. 11 or 12 years old
- E. 13 or 14 years old
- F. 15 or 16 years old
- G. 17 years old or older

79. During the past 30 days, how many times did you use marijuana?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

80. During the past 30 days, how many times did you use marijuana on school property?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

**The next 5 questions ask about Yaba (methamphetamine) use**

81. During your life, how many times have you used Yaba ?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

82. During the past 30 days, how many times have you used Yaba ?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times



83. During the past 30 days, on how many days did you use Yaba on school property?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

84. Have you ever used Yaba everyday for 30 days?

- A. Yes
- B. No

85. During the past 12 months, did you ever try to quit using Yaba ?

- A. I did not use Yaba during the past 12 months
- B. Yes
- C. No

**The next 11 questions ask about other drugs.**

86. During your life, how many times have you used cocaine?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

87. During the past 30 days, how many times did you use cocaine?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

88. During your life, how many times have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

89. During the past 30 days, how many times have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

90. During your life, how many times have you used heroin?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

91. During the past 30 days, how many times have you used heroin?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

92. During your life, how many times have you used Yae (ecstasy)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 to 39 times
- F. 40 or more times

93. During the past 30 days, how many times have you used Yaee (ecstasy)?
- A. 0 times
  - B. 1 or 2 times
  - C. 3 to 9 times
  - D. 10 to 19 times
  - E. 20 to 39 times
  - F. 40 or more times
94. During your life, how many times have you used a needle to inject any illegal drug into your body?
- A. 0 times
  - B. 1 time
  - C. 2 or more times
95. During the past 12 months, has anyone offered, sold, or given you an illegal drug on school property?
- A. Yes
  - B. No
96. During the past 12 months, how many times have you used medicine which had not been approved by a health professional (your parents bought for you or you bought by yourself).
- A. 0 times
  - B. 1 or 2 times
  - C. 3 to 9 times
  - D. 10 to 19 times
  - E. 20 to 39 times
  - F. 40 or more times

**The next 11 questions ask about sexual behavior.**

97. Which of the following best describes your sexual orientation?
- A. Heterosexual (attracted to opposite sex)
  - B. Bisexual (attracted to both sexes)
  - C. Homosexual [Gay or Lesbian] (attracted to the same sex)
  - D. Not sure
98. Have you ever had sexual intercourse?
- A. Yes
  - B. No

99. How old were you when you had sexual intercourse for the first time?

- A. I have never had sexual intercourse
- B. 11 years old or younger
- C. 12 years old
- D. 13 years old
- E. 14 years old
- F. 15 years old
- G. 16 years old
- H. 17 years old or older

100. With whom have you had sexual intercourse?

- A. I have not had sexual intercourse with anyone
- B. The opposite sex
- C. The same sex
- D. Both the opposite sex and the same sex

101. Has anyone made offensive comments or attacked you because they thought you were gay or lesbian (at school or on your way to or from school)?

- A. Yes
- B. No

102. During your life, with how many people have you had sexual intercourse?

- A. I have never had sexual intercourse
- B. 1 person
- C. 2 people
- D. 3 people
- E. 4 people
- F. 5 people
- G. 6 or more people

103. During the past 3 months, with how many people did you have sexual intercourse?

- A. I have never had sexual intercourse
- B. I have had sexual intercourse, but not during the past 3 months
- C. 1 person
- D. 2 people
- E. 3 people
- F. 4 people
- G. 5 people
- H. 6 or more people

104. Did you drink alcohol or use drugs before you had sexual intercourse the last time?

- A. I have never had sexual intercourse
- B. Yes
- C. No

105. The last time you had sexual intercourse, did you or your partner use a condom?

- A. I have never had sexual intercourse
- B. Yes
- C. No

106. The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy? (Select only one response.)

- A. I have never had sexual intercourse
- B. No method was used to prevent pregnancy
- C. Birth control pills
- D. Condoms
- E. Depo-Provera (injectable birth control)
- F. Withdrawal
- G. Some other method
- H. Not sure

107. How many times have you been pregnant or gotten someone pregnant?

- A. I have never had sexual intercourse
- B. 0 times
- C. 1 time
- D. 2 or more times
- E. Not sure

**The next 7 questions ask about body weight.**

108. How do you describe your weight?

- A. Very underweight
- B. Slightly underweight
- C. About the right weight
- D. Slightly overweight
- E. Very overweight

109. Which of the following are you trying to do about your weight?
- A. Lose weight
  - B. Gain weight
  - C. Stay the same weight
  - D. I am not trying to do anything about my weight
110. During the past 30 days, did you exercise to lose weight or to keep from gaining weight?
- A. Yes
  - B. No
111. During the past 30 days, did you eat less food, fewer calories, or foods low in fat to lose weight or to keep from gaining weight?
- A. Yes
  - B. No
112. During the past 30 days, did you go without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight?
- A. Yes
  - B. No
113. During the past 30 days, did you take any diet pills, powders, or liquids without a doctor's advice to lose weight or to keep from gaining weight?
- A. Yes
  - B. No
114. During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?
- A. Yes
  - B. No

**The next 6 questions ask about food you ate or drank during the past 7 days.**

Think about all the meals and snacks you had from the time you got up until you went to bed. Be sure to include food you ate at home, at school, at restaurants, or anywhere else.

115. During the past 7 days, how many times did you eat fruit?  
(Do not count fruit juice.)

- A. I did not eat fruit during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

116. During the past 7 days, how many times did you eat vegetables?

- A. I did not eat vegetables during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

117. During the past 7 days, how many times did you eat food from a street vender?

- A. I did not eat food from street vender during the past 7 days
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

118. During the past 7 days, how many times did you eat food or drink with someone else sharing the same bowl or glass?

- A. 0 times
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

119. During the past 7 days, how many times did you eat food with someone else without a “serving spoon”?

- A. 0 time
- B. 1 to 3 times during the past 7 days
- C. 4 to 6 times during the past 7 days
- D. 1 time per day
- E. 2 times per day
- F. 3 times per day
- G. 4 or more times per day

120. During the past 7 days, how many glasses of milk (250 ml) did you drink? (Include the milk you drank in a glass, cup, or from a carton)

- A. I did not drink milk during the past 7 days
- B. 1 to 3 glasses during the past 7 days
- C. 4 to 6 glasses during the past 7 days
- D. 1 glass per day
- E. 2 glasses per day
- F. 3 glasses per day
- G. 4 or more glasses per day

**The next 8 questions ask about physical activity.**

121. On how many of the past 7 days did you exercise or participate in physical activity for at least 20 minutes that made you sweat and breathe hard, such as basketball, football, running, swimming laps, fast bicycling, or aerobic activities?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

122. On how many of the past 7 days did you participate in physical activity for at least 30 minutes that did not make you sweat or breathe hard, such as fast walking, slow bicycling, skating, or mopping floors?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days



123. On how many of the past 7 days did you do exercises to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

124. On an average school day, how many hours do you watch TV?

- A. I do not watch TV on an average school day
- B. Less than 1 hour per day
- C. 1 hour per day
- D. 2 hours per day
- E. 3 hours per day
- F. 4 hours per day
- G. 5 or more hours per day

125. On a school day, how many hours do you use computer for entertainment purposes, for example, playing game, using the internet or chat with your friends or others?

- A. I do not use computer on a school day
- B. Less than 1 hour per day
- C. 1 hour per day
- D. 2 hours per day
- E. 3 hours per day
- F. 4 hours per day
- G. 5 or more hours per day

126. In an average week when you are in school, on how many days do you go to physical education (PE) classes?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days

127. During an average physical education (PE) class, how many minutes do you spend actually exercising or playing sports?
- A. I do not take PE
  - B. Less than 10 minutes
  - C. 10 to 20 minutes
  - D. 21 to 30 minutes
  - E. 31 to 40 minutes
  - F. 41 to 50 minutes
  - G. 51 to 60 minutes
  - H. More than 60 minutes
128. During the past 12 months, on how many different sports did you play on teams? (Include any teams run by your school or community groups.)
- A. 0 kind of sports
  - B. 1 kind of sports
  - C. 2 kinds of sports
  - D. 3 or more kinds of sports

**The next question asks about AIDS education.**

129. Have you ever been taught about AIDS or HIV infection in school?
- A. Yes
  - B. No
  - C. Not sure

This is the end of the survey.  
Thank you very much for your participation.

## APPENDIX E

Thai Adolescent Resilience and Risk Survey (Thai version)

## แบบสอบถามความแข็งแกร่งในชีวิตและพฤติกรรมเสี่ยงของวัยรุ่นไทย

เรียน ผู้เข้าร่วมการศึกษาวิจัย

แบบสอบถามนี้ประกอบไปด้วย 2 ส่วน ส่วนที่ 1 (33 ข้อ) เป็นข้อคำถามที่ขอให้ท่านอธิบายเกี่ยวกับตัวท่านเอง ส่วนที่ 2 (96 ข้อ) ถามท่านเกี่ยวกับพฤติกรรมสุขภาพ การตอบคำถามเหล่านี้อยู่บนพื้นฐานของความจริงที่ท่านทำอะไรและท่านเป็นใคร ข้อมูลที่ท่านตอบแบบสอบถามจะถูกใช้เพื่อพัฒนาการศึกษาด้านสุขภาพและพัฒนาโปรแกรมการฝึกทักษะชีวิตสำหรับเยาวชนที่อยู่ในวัยเดียวกับท่าน กรุณาอย่าเขียนชื่อของท่านลงบนแบบสอบถามนี้หรือบนกระดาษคำตอบ คำตอบของท่านจะถูกเก็บเป็นความลับจะไม่มีใครได้ล่วงรู้คำตอบของท่าน

การตอบแบบสอบถามเป็นไปด้วยความสมัครใจ ไม่ว่าท่านจะตอบคำถามหรือไม่ก็ตามจะไม่มีผลกระทบใดๆ กับผลการเรียนของท่าน ดังนั้นถ้าท่านรู้สึกไม่สบายใจที่จะตอบคำถามใดที่ท่านสามารถเว้นว่างไว้ คำถามที่ถามเกี่ยวกับข้อมูลพื้นฐานของท่านจะใช้เพียงเพื่ออธิบายลักษณะของผู้เข้าร่วมการศึกษาครั้งนี้ กรุณาระบายในกระดาษคำตอบให้เต็มวงกลม ○ ซึ่งอยู่หน้าข้อที่ตรงกับคำตอบของท่านมากที่สุด เมื่อท่านตอบแบบสอบถามเรียบร้อยแล้วกรุณาทำตามขั้นตอนของบุคคลที่มอบแบบสอบถามให้ท่าน

ขอขอบคุณที่ตอบแบบสอบถาม

## แบบสอบถามส่วนที่ 1

### แบบสอบถามส่วนที่ 1.1

**คำชี้แจง :** ข้อความข้างล่างนี้เป็นข้อความที่บุคคลใช้ในการบรรยายตนเอง กรุณาอ่านแต่ละข้อความ และกรุณาระบายในกระดาษคำตอบให้เต็มวงกลม  ซึ่งอยู่หน้าตัวเลขเพียงหมายเลขเดียวในแต่ละข้อ เพื่อแสดงระดับความเห็นด้วยหรือไม่เห็นด้วยของท่านเกี่ยวกับข้อความแต่ละข้อความที่พูดถึง ตัวท่าน

### ในปัจจุบัน

ข้อ 1. ฉันมีคนที่รักฉัน

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 2. ฉันมีคนที่ไม่ได้อยู่บ้านเดียวกัน ซึ่งฉันสามารถเล่าปัญหาหรือความรู้สึกของฉันได้

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 3. ฉันได้รับคำชมในสิ่งที่ฉันทำด้วยตนเอง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 4. ฉันสามารถพึ่งครอบครัวของฉันได้ในยามจำเป็น

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 5. ฉันมีคนที่ฉันอยากเป็นเหมือนเขา (เป็นแบบอย่าง)

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 6. ฉันเชื่อว่าสิ่งต่างๆ จะเปลี่ยนไปในทางที่ดี

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ในปัจจุบัน:**

ข้อ 7. ฉันทำแต่สิ่งดีๆ ที่ทำให้คนอื่นชื่นชอบฉัน

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 8. ฉันมีศรัทธาในผู้สูงส่ง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 9. ฉันเต็มใจที่จะลองทำสิ่งใหม่ๆ

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 10. ฉันอยากประสบความสำเร็จในสิ่งที่ทำ

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 11. ฉันรู้สึกว่าคุณให้ความสำคัญกับผลลัพธ์ที่ออกมา

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 12. ฉันชอบตัวเอง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 13. ฉันสามารถมุ่งความสนใจไปที่งานและอยู่กับงานนั้นได้

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 14. ฉันเป็นคนมีอารมณ์ขัน

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 15. ฉันวางแผนก่อนทำสิ่งต่างๆ

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

## แบบสอบถามส่วนที่ 1.2

**คำชี้แจง :** กรุณาอ่านข้อความและกรณาระบายในกระดาษคำตอบให้เต็มวงกลม  ซึ่งอยู่หน้าตัวเลขเพียงหมายเลขเดียวในแต่ละข้อ เพื่อแสดงระดับความเห็นด้วย หรือไม่เห็นด้วยของท่านเกี่ยวกับ

ข้อความแต่ละข้อความที่พูดถึงตัวท่านใน ช่วงที่เป็นเด็ก

**ข้อ 16.** ฉันถูกคาดหวังว่าจะเป็นคนคอยช่วยเหลือผู้อื่น

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ข้อ 17.** ฉันสงบสติอารมณ์ได้แม้จะอยู่ในภาวะที่มีปัญหายุ่งยาก

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ข้อ 18.** คนอื่นๆ มองว่าฉันเป็นคนตื่นตัวและกระฉับกระเฉง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ข้อ 19.** ฉันเชื่อตัวเอง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ข้อ 20.** พ่อแม่ให้ความสนใจฉันมาก

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ข้อ 21.** ครอบครัวมีความคาดหวังในตัวฉันสูง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

**ข้อ 22.** เวลาที่ฉันไม่สบายใจหรือมีปัญหา ก็มักจะมีบางคนที่ฉันสามารถปรึกษาได้

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ช่วงที่เป็นเด็ก:

ข้อ 23. ฉันประสบความสำเร็จในโรงเรียน

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 24. ฉันทำสิ่งต่างๆ อย่างกระฉับกระเฉงในการช่วยเหลือผู้อื่น

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 25. ฉันรู้สึกว่าคุณเข้าใจตนเอง

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 26. ฉันเผชิญกับอุปสรรคที่สร้างความเครียดให้และได้เรียนรู้ที่จะแก้ไขปัญหานั้น

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 27. ฉันรู้สึกว่าทุกสิ่งทุกอย่างจะกลับกลายเป็นดีเมื่ออยู่ในภาวะยากลำบาก

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 28. ฉันรู้วิธีวางแผนสำหรับอนาคต

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 29. คนอื่น ๆ มักจะดูมีความสุขเมื่อได้พบเห็นฉัน

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 30. พ่อแม่ของฉันบอกฉันว่าฉันเป็นคนมีนิสัยดีและวางตัวสบายๆ

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง



ข้อ 31. ฉันมีความสัมพันธ์ที่อบอุ่นกับผู้ใหญ่

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 32. ฉันไม่ละความพยายามในการปฏิบัติงานจนกว่าฉันจะประสบความสำเร็จ

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

ข้อ 33. ฉันคิดหาวิธีที่มีประสิทธิภาพในการจัดการกับปัญหา

1	2	3	4	5
ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง

หน้าต่อไปเป็นแบบสอบถามส่วนที่ 2 →

## แบบสอบถามส่วนที่ 2

คำชี้แจง: กรุณาอ่านข้อความและกรณาระบาย ใน  
 กระดาษคำตอบให้เต็มวงกลม  ซึ่งอยู่หน้าข้อที่ตรงกับ  
 คำตอบของท่านมากที่สุด

ข้อ 34. ท่านอายุเท่าไร

- A. 11 ปี หรือต่ำกว่า
- B. 12 ปี
- C. 13 ปี
- D. 14 ปี
- E. 15 ปี
- F. 16 ปี
- G. 17 ปี
- H. 18 ปี หรือมากกว่า

ข้อ 35. ท่านเพศอะไร

- A. หญิง
- B. ชาย

ข้อ 36. ท่านเรียนระดับไหน

- A. ม.1
- B. ม.2
- C. ม.3
- D. ม.4
- E. ม.5
- F. ม.6

ข้อ 37. ท่านมีเชื้อชาติอะไร

- A. ไทย
- B. จีน
- C. อื่น ๆ

ข้อ 38. ในระยะ 12 เดือนที่ผ่านมา ท่านพักอาศัย  
 อยู่กับใคร

- A. อยู่คนเดียว
- B. อยู่กับครอบครัว
- C. อยู่กับเพื่อน
- D. อื่น ๆ

ข้อ 9. ท่านใช้เวลาอยู่บ้านหรือบ้านเพื่อนตามลำพัง  
 มากกว่า 1 ชั่วโมง โดยไม่มีผู้ใหญ่อยู่ด้วยกี่วันต่อ  
 สัปดาห์

- A. 0 วัน
- B. 1 วัน
- C. 2 วัน
- D. 3 วัน
- E. 4 วัน
- F. 5 วัน หรือมากกว่า

ข้อ 40. ท่านได้รับเงินเพียงพอแค่ไหน

- A. ไม่เพียงพอ
- B. ไม่ค่อยเพียงพอ
- C. เพียงพอบางครั้ง
- D. เพียงพอเสมอ

ข้อ 41. ในระยะ 12 เดือนที่ผ่านมาบรรยากาศ  
 ในครอบครัวของท่านเป็นอย่างไร

- A. ทะเลาะเบาะแว้งกันเป็นส่วนใหญ่
- B. ทะเลาะเบาะแว้งกันเป็นบางครั้ง
- C. รักใคร่กลมเกลียว

- ข้อ 42. ในระยะ 12 เดือนที่ผ่านมา ผลการเรียนของท่านในโรงเรียนเป็นอย่างไร
- เกรด 4 เป็นส่วนใหญ่
  - เกรด 3 เป็นส่วนใหญ่
  - เกรด 2 เป็นส่วนใหญ่
  - เกรด 1 เป็นส่วนใหญ่
  - เกรด 0 เป็นส่วนใหญ่
  - ไม่มีผลการเรียนดังที่กล่าวมา
  - ไม่แน่ใจ

### 6 ข้อต่อไปนี้ถามเกี่ยวกับความปลอดภัยส่วนบุคคล

- ข้อ 43. ในระยะ 12 เดือนที่ผ่านมา เมื่อท่านขับขี่จักรยานยนต์ หรือซ้อนท้ายจักรยานยนต์ที่ขับขี่โดยผู้อื่น ท่านสวมหมวกนิรภัยบ่อยแค่ไหน

- ข้าพเจ้าไม่เคยขับขี่จักรยานยนต์ หรือซ้อนท้ายจักรยานยนต์ที่ขับขี่โดยผู้อื่น ในระยะ 12 เดือนที่ผ่านมา
- ไม่เคยสวมหมวกนิรภัย
- สวมหมวกนิรภัยนานๆ ครั้ง
- สวมหมวกนิรภัยเป็นบางครั้ง
- สวมหมวกนิรภัยเกือบทุกครั้ง
- สวมหมวกนิรภัยทุกครั้ง

- ข้อ 44. ในระยะ 12 เดือนที่ผ่านมา เมื่อท่านต้องการข้ามถนน ท่านข้ามสะพานลอยกี่ครั้ง(ถ้ามีสะพานลอยในบริเวณนั้น)

- ไม่เคย
- บางครั้ง
- เกือบทุกครั้ง
- ทุกครั้ง

- ข้อ 45. ในระยะ 12 เดือนที่ผ่านมาเมื่อท่านมีความจำเป็นต้องข้ามถนน ท่านใช้ทางม้าลายบ่อยแค่ไหน

- ไม่เคย
- บางครั้ง
- เกือบทุกครั้ง
- ทุกครั้ง

- ข้อ 46. ท่านคาดเข็มขัดนิรภัยบ่อยแค่ไหน เมื่อนั่งรถยนต์ที่ขับโดยผู้อื่น

- ข้าพเจ้าไม่เคยนั่งรถยนต์ที่ขับโดยผู้อื่น
- ไม่เคย
- นานๆ ครั้ง
- บางครั้ง
- เกือบทุกครั้ง
- ทุกครั้ง

- ข้อ 47. ในระยะ 30 วันที่ผ่านมา ท่านโดยสารรถยนต์หรือยานพาหนะต่าง ๆ ที่ขับโดยผู้อื่น ซึ่งดื่มเครื่องดื่มแอลกอฮอล์ กี่ครั้ง

- 0 ครั้ง
- 1 ครั้ง
- 2 หรือ 3 ครั้ง
- 4 หรือ 5 ครั้ง
- 6 ครั้ง หรือมากกว่า

- ข้อ 48. ในระยะ 30 วันที่ผ่านมาท่านขับรถยนต์หรือยานพาหนะอื่น ๆ ขณะดื่มแอลกอฮอล์กี่ครั้ง

- ข้าพเจ้าไม่เคยขับรถยนต์หรือยานพาหนะอื่น ๆ
- 0 ครั้ง
- 1 ครั้ง
- 2 หรือ 3 ครั้ง
- 4 - 5 ครั้ง
- 6 ครั้งหรือมากกว่า

**10 คำถามต่อไปนี้ถามเกี่ยวกับนิสัยที่เกี่ยวข้องกับ**

**ความรุนแรง**

**ข้อ 49.** ในระยะ 30 วัน ที่ผ่านมานี้ท่านพกอาวุธ

เช่น ปืน, มีด, หรือ กระบอง กี่วัน

- A. 0 วัน
- B. 1 วัน
- C. 2 หรือ 3 วัน
- D. 4 หรือ 5 วัน
- E. 6 วัน หรือมากกว่า

**ข้อ 50.** ในระยะ 30 วันที่ผ่านมาท่านพกอาวุธ

เช่น ปืน, มีด, หรือ กระบอง ในเขตพื้นที่ของ  
โรงเรียนกี่วัน

- A. 0 วัน
- B. 1 วัน
- C. 2 หรือ 3 วัน
- D. 4 หรือ 5 วัน
- E. 6 วัน หรือมากกว่า

**ข้อ 51.** ในระยะ 30 วันที่ผ่านมา กี่วันที่ท่านไม่ไป

โรงเรียนเพราะรู้สึกที่โรงเรียนไม่ปลอดภัย  
หรือระหว่างทาง ไป หรือ กลับ จากโรงเรียน

- A. 0 วัน
- B. 1 วัน
- C. 2 หรือ 3 วัน
- D. 4 หรือ 5 วัน
- E. 6 วัน หรือมากกว่า

**ข้อ 52.** ในระยะ 12 เดือนที่ผ่านมา มีคนมาขู่เชิญ

หรือทำร้ายท่านด้วยอาวุธ เช่น ปืน, มีด

หรือ กระบอง ในเขตพื้นที่ของโรงเรียนกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2 หรือ 3 ครั้ง
- D. 4 หรือ 5 ครั้ง
- E. 6 หรือ 7 ครั้ง
- F. 8 หรือ 9 ครั้ง
- G. 10 หรือ 11 ครั้ง
- H. 12 ครั้ง หรือมากกว่า

**ข้อ 53.** ในระยะ 12 เดือนที่ผ่านมา มีคนขโมย

หรือทำลายทรัพย์สินของท่านอย่างจงใจ

เช่น รถยนต์ เสื้อผ้า หรือหนังสือใน

เขตพื้นที่ของโรงเรียนกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2 หรือ 3 ครั้ง
- D. 4 หรือ 5 ครั้ง
- E. 6 หรือ 7 ครั้ง
- F. 8 หรือ 9 ครั้ง
- G. 10 หรือ 11 ครั้ง
- H. 12 ครั้ง หรือมากกว่า

**ข้อ 54.** ในระยะ 12 เดือนที่ผ่านมา ท่านอยู่ร่วมใน

เหตุการณ์ชกต่อยกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2 หรือ 3 ครั้ง
- D. 4 หรือ 5 ครั้ง
- E. 6 หรือ 7 ครั้ง
- F. 8 หรือ 9 ครั้ง
- G. 10 หรือ 11 ครั้ง
- H. 12 ครั้ง หรือมากกว่า

ข้อ 55. ในระยะ 12 เดือนที่ผ่านมา ท่านอยู่ร่วมในเหตุการณ์ชกต่อยซึ่งทำให้ท่านได้รับบาดเจ็บและต้องรับการรักษาพยาบาลโดยแพทย์หรือพยาบาลกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2-3 ครั้ง
- D. 4-5 ครั้ง
- E. 6 ครั้ง หรือมากกว่า

ข้อ 56. ในระยะ 12 เดือนที่ผ่านมา ท่านอยู่ร่วมในเหตุการณ์ชกต่อยในเขตพื้นที่ของโรงเรียนกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2 หรือ 3 ครั้ง
- D. 4 หรือ 5 ครั้ง
- E. 6 หรือ 7 ครั้ง
- F. 8 หรือ 9 ครั้ง
- G. 10 หรือ 11 ครั้ง
- H. 12 ครั้ง หรือมากกว่า

ข้อ 57. ในระยะ 12 เดือนที่ผ่านมา คู่รักของท่านเคยคบตี หรือทำร้ายร่างกายท่านด้วยความตั้งใจหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 58. ท่านเคยถูกใช้กำลังบังคับในการมีเพศสัมพันธ์ทั้ง ๆ ที่ไม่ต้องการหรือไม่

- A. เคย
- B. ไม่เคย

## 5 คำถามต่อไปนี้ ถามเกี่ยวกับอารมณ์เศร้าโศกและความพยายามในการฆ่าตัวตาย

ข้อ 59. ในระยะ 12 เดือนที่ผ่านมา ท่านเคยรู้สึกเสียใจหรือหมดหวังเกือบทุกวันจนท่านหยุดปฏิบัติกิจกรรมบางอย่างที่เคยกระทำเป็นประจำเป็นเวลา 2 สัปดาห์ หรือมากกว่านั้นหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 60. ในระยะ 12 เดือนที่ผ่านมา ท่านเคยมีความคิดที่จะพยายามฆ่าตัวตายอย่างจริงจังหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 61. ในระยะ 12 เดือนที่ผ่านมา ท่านเคยวางแผนเกี่ยวกับวิธีการฆ่าตัวตายหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 62. ในระยะ 12 เดือนที่ผ่านมา ท่านพยายามฆ่าตัวตายอย่างจริงจังกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2 หรือ 3 ครั้ง
- D. 4 หรือ 5 ครั้ง
- E. 6 ครั้ง หรือมากกว่า

ข้อ 63. ถ้าหากท่านพยายามฆ่าตัวตายในระยะ 12 เดือนที่ผ่านมา การพยายามนั้นมีผลต่อการบาดเจ็บ เป็นพิษต่อร่างกาย หรือยาเกินขนาดที่ต้องการรักษาโดยแพทย์หรือพยาบาลหรือไม่

- A. ข้าพเจ้าไม่เคยพยายามฆ่าตัวตาย

ในระยะ 12 เดือนที่ผ่านมา

- B. เคย
- C. ไม่เคย

## 8 คำถามต่อไปนี้ ถามเกี่ยวกับการใช้บุหรี่

ข้อ 64. ท่านเคยสูบบุหรี่หรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 65. ท่านอายุเท่าไร เมื่อสูบบุหรี่หมคมวนครั้งแรก

- A. ฉันไม่เคยสูบบุหรี่ทั้งมวน
- B. 8 ปี หรือน้อยกว่า
- C. 9 หรือ 10 ปี
- D. 11 หรือ 12 ปี
- E. 13 หรือ 14 ปี
- F. 15 หรือ 16 ปี
- G. 17 ปี หรือมากกว่า

ข้อ 66. ในระยะเวลา 30 วันที่ผ่านมา ท่านสูบบุหรี่กี่วัน

- A. 0 วัน
- B. 1 หรือ 2 วัน
- C. 3 ถึง 5 วัน
- D. 6 ถึง 9 วัน
- E. 10 ถึง 19 วัน
- F. 20 ถึง 29 วัน
- G. ทั้ง 30 วัน

ข้อ 67. ในระยะเวลา 30 วันที่ผ่านมา ในวันที่ท่านสูบบุหรี่

ท่านสูบบุหรี่กี่มวนต่อวัน

- A. ข้าพเจ้าไม่เคยสูบบุหรี่ในระยะเวลา 30 วัน ที่ผ่านมา
- B. น้อยกว่า 1 มวน ต่อวัน
- C. 1 มวนต่อวัน
- D. 2 ถึง 5 มวนต่อวัน
- E. 6 ถึง 10 มวนต่อวัน
- F. 11 ถึง 20 มวนต่อวัน
- G. มากกว่า 20 มวนต่อวัน

ข้อ 68. ในระยะเวลา 30 วันที่ผ่านมา ท่านมักจะได้นุหรี่มาด้วยวิธีการใด (โปรดเลือกเพียง 1 คำตอบ)

- A. ข้าพเจ้าไม่ได้สูบบุหรี่ในระยะเวลา 30 วันที่ผ่านมา
- B. ข้าพเจ้าซื้อบุหรี่ในร้านค้า เช่น ร้านสะดวกซื้อ ซูเปอร์มาร์เก็ต หรือปั้มน้ำมัน
- C. ข้าพเจ้าให้เงินคนอื่นเพื่อไปซื้อให้ข้าพเจ้า
- D. ข้าพเจ้าขอยืม (หรือ ขอ) นุหรี่จากคนอื่น
- E. คนที่อายุ 18 ปี หรืออายุมากกว่า ให้นุหรี่แก่ข้าพเจ้า
- F. ข้าพเจ้าได้นุหรี่จากร้านค้าหรือสมาชิกในครอบครัว
- G. ข้าพเจ้าได้นุหรี่มาโดยวิธีทางอื่น

ข้อ 69. ในระยะเวลา 30 วันที่ผ่านมา ก็วันที่ท่านสูบบุหรี่ในเขตพื้นที่ของโรงเรียน

- A. 0 วัน
- B. 1 หรือ 2 วัน
- C. 3 ถึง 5 วัน
- D. 6 ถึง 9 วัน
- E. 10 ถึง 19 วัน
- F. 20 ถึง 29 วัน
- G. ทั้ง 30 วัน

ข้อ 70. ท่านเคยสูบบุหรี่อย่างน้อย 1 มวนต่อวัน

ติดต่อกันเป็นเวลา 30 วันหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 71. ในระยะเวลา 12 เดือนที่ผ่านมาท่านเคยพยายามที่จะเลิกสูบบุหรี่หรือไม่

- A. ข้าพเจ้าไม่เคยสูบบุหรี่ในระยะเวลา 12 เดือนที่ผ่านมา
- B. เคย
- C. ไม่เคย

**5 คำถามต่อไปนี้ถามเกี่ยวกับการดื่มเครื่องดื่มประเภท แอลกอฮอล์ซึ่งรวมถึงการดื่มเบียร์ ไวน์ ไวน์กลเดอร์**

- ข้อ 72. ในช่วงชีวิตที่ผ่านมา ท่านได้ดื่มเครื่องดื่มประเภทแอลกอฮอล์อย่างน้อย 1 แก้ว เป็นเวลา กี่วัน
- A. 0 วัน  
B. 1 หรือ 2 วัน  
C. 3 ถึง 9 วัน  
D. 10 ถึง 19 วัน  
E. 20 ถึง 39 วัน  
F. 40 ถึง 99 วัน  
G. 100 วันหรือมากกว่า
- ข้อ 73. ท่านดื่มเครื่องดื่มประเภท แอลกอฮอล์ครั้งแรก ที่นอกเหนือจากการจับเมื่ออายุเท่าไร
- A. ข้าพเจ้าไม่เคยท่านดื่มเครื่องดื่มประเภทแอลกอฮอล์ที่นอกเหนือจากการจับ  
B. 8 ปี หรือต่ำกว่า  
C. 9 หรือ 10 ปี  
D. 11 หรือ 12 ปี  
E. 13 หรือ 14 ปี  
F. 15 หรือ 16 ปี  
G. 17 ปี หรือมากกว่า
- ข้อ 74. ในระยะเวลา 30 วันที่ผ่านมา ท่านได้ดื่มเครื่องดื่มประเภทแอลกอฮอล์อย่างต่ำ 1 ชนิด กี่วัน
- A. 0 วัน  
B. 1 หรือ 2 วัน  
C. 3 ถึง 5 วัน  
D. 6 ถึง 9 วัน  
E. 10 ถึง 19 วัน  
F. 20 ถึง 29 วัน  
G. ทั้ง 30 วัน

ข้อ 75. ในระยะเวลา 30 วันที่ผ่านมา เป็นเวลาที่วันที่ท่านได้ดื่มเครื่องดื่มประเภทแอลกอฮอล์ 5 แก้วขึ้นไปติดต่อกันหมดภายใน 2 ชั่วโมง

- A. 0 วัน  
B. 1 วัน  
C. 2 วัน  
D. 3 ถึง 5 วัน  
E. 6 ถึง 9 วัน  
F. 10 ถึง 19 วัน  
G. 20 วัน หรือมากกว่า
- ข้อ 76. ในระยะเวลา 30 วันที่ผ่านมา ท่านได้ดื่มเครื่องดื่มประเภทแอลกอฮอล์ในเขตพื้นที่ของโรงเรียน กี่วัน
- A. 0 วัน  
B. 1 หรือ 2 วัน  
C. 3 ถึง 5 วัน  
D. 6 ถึง 9 วัน  
E. 10 ถึง 19 วัน  
F. 20 ถึง 29 วัน  
G. ทั้ง 30 วัน

**4 คำถามต่อไปนี้ถามเกี่ยวกับการใช้กัญชา**

- ข้อ 77. ในช่วงชีวิตที่ผ่านมา ท่านเคยใช้กัญชากี่ครั้ง
- A. 0 ครั้ง  
B. 1 หรือ 2 ครั้ง  
C. 3 ถึง 9 ครั้ง  
D. 10 ถึง 19 ครั้ง  
E. 20 ถึง 39 ครั้ง  
F. 40 ถึง 99 ครั้ง  
G. 100 ครั้งหรือมากกว่า

ข้อ 78. ท่านพยายามใช้กัญชาครั้งแรกเมื่อท่านอายุเท่าไร

- A. ฉันไม่เคยพยายามใช้กัญชา
- B. 8 ปี หรือต่ำกว่า
- C. 9 หรือ 10 ปี
- D. 11 หรือ 12 ปี
- E. 13 หรือ 14 ปี
- F. 15 หรือ 16 ปี
- G. 17 หรือ มากกว่า

ข้อ 79. ในระยะเวลา 30 วันที่ผ่านมา ท่านใช้กัญชากี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 80. ในระยะเวลา 30 วันที่ผ่านมา ท่านเสพกัญชา

ในเขตพื้นที่ของโรงเรียนกี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

##### 5 คำถามต่อไปนี้อาจเกี่ยวข้องกับยาบ้า

*(สารเมทแอมเฟตามีน)*

ข้อ 81. ในช่วงชีวิตที่ผ่านมาท่านได้ใช้ ยาบ้ากี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 82. ในระยะเวลา 30 วันที่ผ่านมา ท่านได้ใช้

ยาบ้า กี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 83. ในระยะเวลา 30 วันที่ผ่านมา ท่านได้ใช้

ยาบ้า ในเขตพื้นที่ของโรงเรียน กี่วัน

- A. 0 วัน
- B. 1 หรือ 2 วัน
- C. 3 ถึง 5 วัน
- D. 6 ถึง 9 วัน
- E. 10 ถึง 19 วัน
- F. 20 ถึง 29 วัน
- G. ทั้ง 30 วัน

ข้อ 84. ท่านเคยใช้ ยาบ้า ติดต่อกันทุกวัน เป็นเวลา

30 วันหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 85. ในระยะเวลา 12 เดือนที่ผ่านมา ท่านได้เคยพยายาม

เลิกใช้ ยาบ้า หรือไม่

- A. ข้าพเจ้าไม่เคยใช้ยาบ้าในระยะเวลา 12 เดือนที่ผ่านมา
- B. เคย
- C. ไม่เคย



11 คำถามต่อไปนี้ถามเกี่ยวกับสารเสพติดชนิดอื่น ๆ

ข้อ 86. ในช่วงชีวิตที่ผ่านมา ท่านใช้สารเสพติดประเภทโคเคน กี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 87. ในระยะ 30 วันที่ผ่านมา ท่านใช้สารเสพติดประเภทโคเคน ทั้งหมดกี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 88. ในช่วงชีวิตที่ผ่านมา ท่านดื่มเครื่องดื่มสารระเหยจากกระป๋อง หรือสูดดมจากสีหรือสเปรย์เพื่อทำให้รู้สึกเคลิบเคลิ้มบ่อยครั้งแค่ไหน

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 89. ในระยะ 30 วันที่ผ่านมา ท่านดื่มเครื่องดื่มสารระเหยจากกระป๋องหรือสูดดมจากสีและสเปรย์เพื่อทำให้รู้สึกเคลิบเคลิ้มบ่อยครั้งแค่ไหน

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 90. ในช่วงชีวิตที่ผ่านมา ท่านเคยใช้เฮโรอินกี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 91. ในระยะ 30 วันที่ผ่านมา ท่านได้ใช้เฮโรอินกี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 92. ในช่วงชีวิตที่ผ่านมาท่านเคยใช้ ยาอี (ecstasy) กี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 93. ในระยะ 30 วันที่ผ่านมา ท่านได้ใช้

ยาอี (ecstasy) กี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

ข้อ 94. ในช่วงชีวิตที่ผ่านมาท่านใช้เข็มฉีดยา

เพื่อฉีดยาที่ผิดกฎหมายเข้าร่างกาย

ของท่านกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ครั้ง
- C. 2 ครั้ง หรือมากกว่า

ข้อ 95. ในระยะ 12 เดือนที่ผ่านมา เคยมีคนเสนอ ขาย

หรือให้สิ่งเสพติดผิดกฎหมาย ให้แก่ท่าน

ในเขตพื้นที่ของโรงเรียนหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 96. ในช่วง 12 เดือนที่ผ่านมา ท่านใช้ยาชุดที่บิดา

มารดาซื้อให้หรือท่านหาซื้อเองโดยไม่มีใบสั่งยาจาก

แพทย์ กี่ครั้ง

- A. 0 ครั้ง
- B. 1 หรือ 2 ครั้ง
- C. 3 ถึง 9 ครั้ง
- D. 10 ถึง 19 ครั้ง
- E. 20 ถึง 39 ครั้ง
- F. 40 ครั้ง หรือมากกว่า

## 11 คำถามต่อไปนี้ถามเกี่ยวกับอุปนิสัยด้าน

### เพศสัมพันธ์

ข้อ 97. ข้อใดต่อไปนี้เป็นบ่งบอกถึงแนวโน้มเรื่องเพศ  
ของท่าน

- A. ชอบแต่เพศตรงข้าม (Hetero-sexual)
- B. ชอบทั้งเพศตรงข้ามและเพศเดียวกัน  
(Bisexual)
- C. ชอบแต่เพศเดียวกัน (Homosexual: เกย์  
หรือเลสเบียน)
- D. ไม่แน่ใจ

ข้อ 98. ท่านเคยมีเพศสัมพันธ์ หรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 99. ท่านอายุเท่าไร เมื่อมีเพศสัมพันธ์ครั้งแรก

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. 11 ปีหรือต่ำกว่า
- C. 12 ปี
- D. 13 ปี
- E. 14 ปี
- F. 15 ปี
- G. 16 ปี
- H. 17 ปี หรือมากกว่า

ข้อ 100. ท่านเคยมีเพศสัมพันธ์กับใคร

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์กับใคร
- B. ผู้หญิง
- C. ผู้ชาย
- D. ผู้หญิง และ ผู้ชาย

ข้อ 101. เคยมีคนวิจารณ์ต่อหน้าท่านหรือโจมตีท่าน  
เพราะว่าเขาคิดว่าท่านเป็นเกย์หรือเลสเบียน  
หรือไม่ (ที่โรงเรียนหรือระหว่างทางที่ไปหรือ  
กลับจากโรงเรียน)

- A. มี
- B. ไม่มี

ข้อ 102. ในช่วงชีวิตที่ผ่านมาท่านมีเพศสัมพันธ์กับคน  
กี่คน

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. 1 คน
- C. 2 คน
- D. 3 คน
- E. 4 คน
- F. 5 คน
- G. 6 คน หรือมากกว่า

ข้อ 103. ในระยะ 3 เดือนที่ผ่านมา คนที่ท่านเคยมีเพศ  
สัมพันธ์ด้วยกี่คน

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. ข้าพเจ้าเคยมีเพศสัมพันธ์ แต่ไม่ใช่ระยะ 3  
เดือนที่ผ่านมา
- C. 1 คน
- D. 2 คน
- E. 3 คน
- F. 4 คน
- G. 5 คน
- H. 6 คน หรือมากกว่า

ข้อ 104. ท่านเคยดื่มเครื่องดื่มประเภทแอลกอฮอล์หรือ  
ใช้สารเสพติดก่อนการมีเพศสัมพันธ์ในครั้ง  
หลังสุดหรือไม่

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. เคย
- C. ไม่เคย

ข้อ 105. ครั้งสุดท้ายที่ท่านมีเพศสัมพันธ์ ท่านหรือคู่  
นอนของท่านใช้ถุงยางอนามัยหรือไม่

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. ใช่
- C. ไม่ใช่

ข้อ 106. ครั้งสุดท้ายของการมีเพศสัมพันธ์ของท่าน  
ท่านหรือคู่ของท่านป้องกันการตั้งครรภ์โดยวิธีใด

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. ไม่เคยใช้วิธีใดในการป้องกันการตั้งครรภ์
- C. ยาคุมกำเนิด
- D. ถุงยางอนามัย
- E. Drpo-Provera (ยาฉีดคุมกำเนิด)
- F. หลั่งข้างนอก
- G. วิธีอื่นบางอย่าง
- H. ไม่แน่ใจ

ข้อ 107. ท่านเคยตั้งครรภ์หรือทำให้ผู้อื่นตั้งครรภ์กี่ครั้ง

- A. ข้าพเจ้าไม่เคยมีเพศสัมพันธ์
- B. 0 ครั้ง
- C. 1 ครั้ง
- D. 2 ครั้ง หรือมากกว่า
- E. ไม่แน่ใจ

7 คำถามต่อไปนี้ถามเกี่ยวกับน้ำหนักตัวของท่าน

ข้อ 108. ท่านจะอธิบายน้ำหนักตัวของท่านอย่างไร

- A. น้ำหนักต่ำกว่าเกณฑ์มาก
- B. น้ำหนักต่ำกว่าเกณฑ์เล็กน้อย
- C. น้ำหนักพอดี
- D. น้ำหนักสูงกว่าเกณฑ์เล็กน้อย
- E. น้ำหนักสูงกว่าเกณฑ์มาก

ข้อ 109. ข้อมูลข้อใดต่อไปนีที่ท่านพยายามปฏิบัติ  
กับน้ำหนักของท่าน

- A. ลดน้ำหนัก
- B. เพิ่มน้ำหนัก
- C. ควบคุมน้ำหนักให้เท่าเดิม
- D. เข้าใจว่าไม่พยายามปฏิบัติใดๆกับน้ำหนัก  
ของข้าพเจ้า

ข้อ 110. ในระยะ 30 วันที่ผ่านมาท่านออกกำลังกายเพื่อ  
ลดน้ำหนัก หรือ รักษาน้ำหนักไม่ให้เพิ่มขึ้นหรือไม่

- A. ใช่
- B. ไม่ใช่

ข้อ 111. ในระยะ 30 วันที่ผ่านมา ท่านทานอาหารน้อยลง  
ทานอาหารแคลอรีต่ำ หรืออาหารไขมันต่ำเพื่อลดน้ำหนัก  
หรือรักษาน้ำหนักไม่ให้เพิ่มขึ้นหรือไม่

- A. ใช่
- B. ไม่ใช่

ข้อ 112. ในระยะ 30 วันที่ผ่านมา ท่านงดอาหาร  
ตลอด 24 ชั่วโมง หรือมากกว่า(ที่เรียกว่า  
Fasting) เพื่อลดน้ำหนักหรือรักษาน้ำหนัก  
ไม่ให้เพิ่มขึ้นหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 113. ในระยะ 30 วันที่ผ่านมา ท่านเคยใช้ยาเม็ด  
ผงหรือสารน้ำลดความอ้วนโดยไม่ได้รับ  
คำแนะนำจากแพทย์ เพื่อลดน้ำหนักหรือ  
รักษาน้ำหนักไม่ให้เพิ่มขึ้นหรือไม่

- A. เคย
- B. ไม่เคย

ข้อ 114. ในระยะ 30 วันที่ผ่านมา ท่านอาเจียนหรือ  
รับประทานยาถ่ายเพื่อลดน้ำหนัก หรือรักษาน้ำหนัก  
ไม่ให้เพิ่มขึ้นหรือไม่

- A. เคย
- B. ไม่เคย

6 คำถามต่อไปนี้ถามเกี่ยวกับ อาหารที่ท่าน  
รับประทานหรือดื่มในระยะ 7 วันที่ผ่านมา

ทบทวนเกี่ยวกับอาหารทุกมื้อและขนมที่  
รับประทานตั้งแต่ตื่นนอนถึงเข้านอน ให้แน่ใจว่า  
ได้รวมถึงอาหารที่รับประทาน ที่บ้าน โรงเรียน  
ร้านอาหาร และที่อื่น ๆ

ข้อ 115. ในระยะ 7 วันที่ผ่านมา ท่านรับประทาน  
ผลไม้กี่ครั้ง (ไม่รวมถึงน้ำผลไม้คั้น)

- A. เข้าใจว่าไม่รับประทานผลไม้ในระยะ 7  
วันที่ผ่านมา
- B. 1 ถึง 3 ครั้ง ในระยะ 7 วัน ที่ผ่านมา
- C. 4 ถึง 6 ครั้ง ในระยะ 7 วัน ที่ผ่านมา
- D. 1 ครั้ง ต่อวัน
- E. 2 ครั้ง ต่อวัน
- F. 3 ครั้ง ต่อวัน
- G. 4 ครั้ง หรือมากกว่า ต่อวัน

ข้อ 116. ในระยะ 7 วันที่ผ่านมาท่านรับประทานผัก  
กี่ครั้ง

- A. เข้าใจว่าไม่ได้ รับประทานผัก  
ในระยะ 7 วันที่ผ่านมา
- B. 1 ถึง 3 ครั้ง ในระยะ 7 วัน ที่ผ่านมา
- C. 4 ถึง 6 ครั้ง ในระยะ 7 วัน ที่ผ่านมา
- D. 1 ครั้ง ต่อวัน
- E. 2 ครั้ง ต่อวัน
- F. 3 ครั้ง ต่อวัน
- G. 4 ครั้ง หรือมากกว่า ต่อวัน

ข้อ 117. ในระยะ 7 วันที่ผ่านมา ท่านรับประทานอาหารจากร้านแผงลอยข้างถนนกี่ครั้ง

- A. ข้าพเจ้าไม่ได้รับประทานอาหารจากร้านแผงลอยข้างถนนในระยะ 7 วันที่ผ่านมา
- B. 1 ถึง 3 ครั้ง ในระยะ 7 วันที่ผ่านมา
- C. 4 ถึง 6 ครั้ง ในระยะ 7 วันที่ผ่านมา
- D. 1 ครั้ง ต่อวัน
- E. 2 ครั้ง ต่อวัน
- F. 3 ครั้ง ต่อวัน
- G. 4 ครั้ง หรือมากกว่า ต่อวัน

ข้อ 118. ในระยะ 7 วันที่ผ่านมา ท่านรับประทานอาหารหรือดื่มเครื่องดื่มโดยใช้ภาชนะเดียวกับผู้อื่นกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ถึง 3 ครั้ง ในระยะ 7 วันที่ผ่านมา
- C. 4 ถึง 6 ครั้ง ในระยะ 7 วันที่ผ่านมา
- D. 1 ครั้ง ต่อวัน
- E. 2 ครั้ง ต่อวัน
- F. 3 ครั้ง ต่อวัน
- G. 4 ครั้ง หรือมากกว่าต่อวัน

ข้อ 119. ในระยะ 7 วันที่ผ่านมา ท่านรับประทานอาหารร่วมกับผู้อื่นโดยปราศจากช้อนกลางกี่ครั้ง

- A. 0 ครั้ง
- B. 1 ถึง 3 ครั้ง ในระยะ 7 วันที่ผ่านมา
- C. 4 ถึง 6 ครั้ง ในระยะ 7 วันที่ผ่านมา
- D. 1 ครั้ง ต่อวัน
- E. 2 ครั้ง ต่อวัน
- F. 3 ครั้ง ต่อวัน
- G. 4 ครั้ง หรือมากกว่าต่อวัน

ข้อ 120. ในระยะ 7 วันที่ผ่านมา ท่านดื่มนม (250 มล.) ที่แแก้ว (ทั้งนี้รวมทั้งนมที่ดื่มจากแก้ว ด้วยกาแฟหรือกล่องนม)

- A. ข้าพเจ้าไม่ได้ดื่มนมในระยะ 7 วันที่ผ่านมา
- B. 1 ถึง 3 แก้ว ในระยะ 7 วันที่ผ่านมา
- C. 4 ถึง 6 แก้ว ในระยะ 7 วันที่ผ่านมา
- D. 1 แก้ว ต่อวัน
- E. 2 แก้ว ต่อวัน
- F. 3 แก้ว ต่อวัน
- G. 4 แก้ว หรือมากกว่า ต่อวัน

### 7 คำถามต่อไปนี้ถามเกี่ยวกับการออกกำลังกาย

ข้อ 121. ในระยะ 7 วัน ท่านออกกำลังกายหรือเข้าร่วมกิจกรรมออกกำลังกายเป็นเวลาอย่างน้อย 20 นาที ซึ่งทำให้เกิดเหงื่อและหายใจแรง เช่น บาสเกตบอล, ฟุตบอล, วิ่ง, ว่ายน้ำ, ปั่นจักรยาน, เดินแอโรบิก กี่วัน

- A. 0 วัน
- B. 1 วัน
- C. 2 วัน
- D. 3 วัน
- E. 4 วัน
- F. 5 วัน
- G. 6 วัน
- H. 7 วัน

**ข้อ 122.** ในระยะ 7 วัน ท่านเข้าร่วมกิจกรรมออกกำลังกายเป็นเวลาอย่างน้อย 30 นาที ซึ่งทำให้เหงื่อออกและหายใจแรง เช่น การเดินเร็ว, ขี่จักรยานช้า ๆ, สเก็ตหรือทำความสะอาดพื้น กี่วัน

- A. 0 วัน
- B. 1 วัน
- C. 2 วัน
- D. 3 วัน
- E. 4 วัน
- F. 5 วัน
- G. 6 วัน
- H. 7 วัน

**ข้อ 123.** ในระยะ 7 วัน ท่านออกกำลังกายเพื่อความแข็งแรง หรือ เพิ่มกล้ามเนื้อ เช่น วิดพื้น, ซิทอัพ หรือน้ำหนัก กี่วัน

- A. 0 วัน
- B. 1 วัน
- C. 2 วัน
- D. 3 วัน
- E. 4 วัน
- F. 5 วัน
- G. 6 วัน
- H. 7 วัน

**ข้อ 124.** ในวันที่ต้องไปโรงเรียน ท่านดูทีวีกี่ชั่วโมง

- A. ข้าพเจ้าไม่ดูทีวีในวันที่ต้องไปโรงเรียน
- B. น้อยกว่า 1 ชั่วโมง ต่อวัน
- C. 1 ชั่วโมงต่อวัน
- D. 2 ชั่วโมงต่อวัน
- E. 3 ชั่วโมงต่อวัน
- F. 4 ชั่วโมงต่อวัน
- G. 5 ชั่วโมงหรือมากกว่า ต่อวัน

**ข้อ 125.** ในวันที่ต้องไปโรงเรียน ท่านใช้ Computer เพื่อการบันเทิง เช่น อินเทอร์เน็ต (Internet) เล่นเกมส์ หรือ คุยกับเพื่อน กี่ชั่วโมง

- A. ข้าพเจ้าไม่ท่านใช้ Computer ในวันที่ต้องไปโรงเรียน
- B. น้อยกว่า 1 ชั่วโมง ต่อวัน
- C. 1 ชั่วโมงต่อวัน
- D. 2 ชั่วโมงต่อวัน
- E. 3 ชั่วโมงต่อวัน
- F. 4 ชั่วโมงต่อวัน
- G. 5 ชั่วโมงหรือมากกว่า ต่อวัน

**ข้อ 126.** ในสัปดาห์ที่ท่านอยู่ที่โรงเรียน ท่านไปเรียนพลศึกษากี่วัน

- A. 0 วัน
- B. 1 วัน
- C. 2 วัน
- D. 3 วัน
- E. 4 วัน
- F. 5 วัน

**ข้อ 127.** โดยเฉลี่ยในชั่วโมงพลศึกษา ท่านใช้เวลาออกกำลังกายหรือเล่นกีฬาเกินนาที

- A. ข้าพเจ้าไม่เคยเรียนพลศึกษา
- B. น้อยกว่า 10 นาที
- C. 10 ถึง 20 นาที
- D. 21 ถึง 30 นาที
- E. 31 ถึง 40 นาที
- F. 41 ถึง 50 นาที
- G. 51 ถึง 60 นาที
- H. มากกว่า 60 นาที

- ข้อ 128. ในระยะ 12 เดือนที่ผ่านมา ท่านเล่นกีฬาประเภททีมกี่ชนิด (รวมถึงทีมที่จัดโดยโรงเรียนของท่านหรือ กลุ่มชุมชน)
- A. 0 ชนิด
  - B. 1 ชนิด
  - C. 2 ชนิด
  - D. 3 ชนิด หรือมากกว่า

**คำถามต่อไปนี้อาจเกี่ยวกับการศึกษาเรื่องเอดส์**

- ข้อ 129. ท่านเคยได้รับการสอนเรื่องโรคเอดส์หรือการติดเชื้อ HIV ในโรงเรียนหรือไม่
- A. เคย
  - B. ไม่เคย
  - C. ไม่แน่ใจ

**จบแบบสอบถาม ขอขอบคุณที่กรุณาตอบแบบสอบถาม**

## Vitae

Name: Patcharin Nintachan

Birth: November 04, 1964

### **Education**

<b>Institution and Location</b>	<b>Degree</b>	<b>Year(s)</b>	<b>Field of Study</b>
- Mahidol University, Bangkok, Thailand	B.Sc.	1987	Nursing & Midwifery
- Chiang Mai University, Chiang Mai, Thailand	MNS	1995	Mental Health and Psychiatric Nursing

### **Positions and Employment**

1987 – 1992	Registered Nurse, Intensive Care Unit & Cardiac Care Unit, Ramathibodi Hospital, Bangkok, Thailand
1994	Registered Nurse, Psychiatric Unit, Ramathibodi Hospital, Bangkok, Thailand
1992-1995	Instructor, Psychiatric and Mental Health Nursing Division, Ramathibodi School of Nursing, Department of Nursing, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
2000-2001	Assistant Professor, Psychiatric and Mental Health Nursing Division, Ramathibodi School of Nursing, Department of Nursing, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
2001-2007	Doctoral Student, School of Nursing, Virginia Commonwealth University, Virginia, USA

### **Other professional activities**

1998-2001	A temporary clinical Instructor at Sukhothai Thammathirat Open University, Bangkok, Thailand
1995-2001	A counselor at Ramathibodi School of Nursing. The clients included staff nurses, nursing students, and psychiatric patients.



### **Professional Memberships**

2001-present	Member, Sigma Theta Tau International, Gamma Omega Chapter
2003-2004	Member, SNRS
2000- present	Member, Ramathibodi Honor Society of Nursing, Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
1987-present	Member, Ramathibodi Nurses' Alumni Association
1987- present	Member, Thai Nurses' Association

### **Awards**

1984-1987	Academic Award of Excellence - Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
1987	Achievement and Good Behavior Award - Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand
1987	Achievement and Good Behavior Award from Thai the Nurses' Association
1987	Achievement and Good Behavior Award from the Ramathibodi Nurses' Alumni Association

### **Publications**

1. Nintachan, P., & Sompongse, P. (2000). The sense of coherence and trait-anxiety of nursing students at Ramathibodi School of Nursing: A four-year follow-up study during academic year 1994–1997. *Ramathibodi Nursing Journal*, 6(2), 119-132. (This study was supported by the Ramathibodi Research Grant)
2. Nintachan, P., Namjuntra, R., & Hanucharurnkul, S. (2000). An analysis of the structure and properties of Antonovsky's sense of coherence questionnaire, Thai version. *Thai Journal of Nursing Research*, 4(3), 314 – 330.
3. Nintachan, P., & Moon, M. W. (2007). Modification and Translation of the Thai Version of the Youth Risk Behavior Survey. *J Transcult Nurs*, 18(2), 127-134.

**Presentation**

1. Nintachan, P., & Moon, M. W. (2004, February). Resilience and risk-taking behavior among Thai adolescents. Poster presentation at the Southern Nursing Research Society Conference, Louisville, KY, USA.
2. Nintachan, P., & Moon, M.W. (2004, April). Resilience and risk-taking behavior among Thai adolescents. Poster presentation at the VCU Graduate Student Research Symposium, Richmond, VA, USA.

