IMPLEMENTING SOCIAL NORM PEDAGOGY TO IMPACT STUDENTS' PERSONAL HEALTH BEHAVIOR

By

MARY M. KRAMER * SHERI STOVER **

* Assistant Professor, Department of Kinesiology & Health, Wright State University, Ohio, USA.
** Associate Professor, Department of Leadership Studies in Education and Organizations, Wright State University, Ohio. USA.

ABSTRACT

This quantitative exploratory research study describes the incorporation of Social Norms as a unique pedagogical method in an undergraduate Health Behaviors course (N = 32). With the use of an audience response system (clickers), students anonymously answered health-behavior related questions. Aggregate data from the class was compared to state and national data from readily available databases to encourage student engagement, bring relevance to theoretical concepts, and launch meaningful discussion. The results from the data show that, the incorporation of the Social Norms teaching methodology had a strong impact on students adopting more positive attitudes (88%) toward their own health-related behaviors, and also resulted in changes to their own behaviors (72%). Fifty-six percent of students made suggestions to family and/or friends regarding health-related behavior change. Students gave a strong recommendation to both the use of clickers (87%) and Social Norms pedagogy (84%). Students reported having high levels of truthfulness (94%) in their responses and the majority (85%) felt comfortable with their clicker responses being anonymous. Among the small percentage (15%) of students who reported feeling uncomfortable discussing personal health-behaviors in class, no relationship was found between students' comfort level and gender, religious beliefs, or political beliefs.

Keywords: Clickers, Social Norms, Health Education, Educational Technology.

INTRODUCTION

"Given today's rapid pace of change and health challenges, we are called to identify, adapt, and improve key elements that make teaching and learning about health and health promotion successful" (Auld & Bishop, 2015, p.5). This research study examine the efforts to combine some of the latest instructional technology with Social Norms as a participatory teaching method in an undergraduate health behaviors class in an effort to have students take a more reflective approach to their own personal health-related behaviors while learning to apply health behavior theories.

Background of Health Education

The early years of the twenty-first century have brought several exciting changes that increase options for University health education programs. The Council on Education for Public Health (CEPH) has expanded their accreditation process to include baccalaureate public health programs (CEPH, 2014), and for those preparing health education specialists, the 2015 Health Education Specialist Practice Analysis has released updated competencies from the National Commission for Health Education Credentialing (NCHEC), (NCHEC, 2015).

Both these national entities have called upon University programs to address health behaviors and behavior change in their curriculum. CEPH accreditation criteria require standalone baccalaureate programs to include instruction in "the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities" (CEPH Accreditation Criteria, 2014, p.6). The NCHEC's (2015) newly revised sub-competencies specify that health education specialists should be able to:

- Identify and analyze factors that influence health behaviors.
- Identify and analyze factors that influence

attitudes and beliefs.

- Use theories and/or models to guide the delivery plan.

For faculty planning the curriculum for a typical course that includes health behavior theories and behavior change, it can be a challenge to bring theories to life. Most of us would be hard pressed to find an undergraduate student who enjoys reading about theoretical concepts, constructs, and variables. Most health behavior theory texts summarize the constructs of the most commonly used health behavior theories (e.g. Health Belief Model, Socio-ecological model, Transtheoretical Model) and attempt to demonstrate how the constructs of the theories have been successfully applied using peer-reviewed research articles to facilitate behavior change in targeted populations. In a recent Health Behaviors course re-design, the goal was to reach beyond the traditional assigned text readings and lecture, and engage students to learn about health behaviors and behavior change theories in an interactive way. The course was an undergraduate class at a medium-sized University designed to address the theories of health behavior and health behavior change, and is currently a required course for Public Health Education, Health and Physical Education, Athletic Training, and Sports Science students.

On the first day of the three credit, fourteen-week semester long course, students were asked to respond to questions taken directly from the Youth Risk Behavior Surveillance System (YRBSS), which monitors six types of health-risk behavior that contribute to the leading causes of death and disability among youth and adults, including:

1) Behaviors that contribute to unintentional injuries and violence;
2) Sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases, including HIV infection;
3) Alcohol and other drug use;
4) Tobacco use;
5) Unhealthy dietary behaviors; and
6) Inadequate physical activity (Centers for Disease Control and Prevention [CDC], 2015a).

The YRBSS questionnaire is typically administered in pencil/paper format to middle and high school students. In this case, the questions were shown on PowerPoint slides, and students completed selected health-behavior related questions anonymously by using hand-held audience response systems (clickers). The students were not shown the clicker results at that time.

Throughout the semester, each class meeting focused on a different health behavior theory, and a selected health-related behavior reported in the YRBSS, such as binge drinking, cigarette smoking, marijuana or heroin use, sexual behavior, distracted or impaired driving, and sedentary lifestyle. Results of survey questions answered on the first day of class were then presented during subsequent classes in aggregate form, and then compared to state and national YRBSS or Behavior Risk Factor Surveillance System (BRFSS) data (CDC, 2015b).

This teaching methodology allowed students to examine how their own health-related behaviors compared to the social norms of the class and also to the state and national social norms. After the health behavior was internalized in this way, consequences and outcomes related to the health behavior theory for the day were then reviewed, an example of application of the health behavior theory using the health behavior was presented, and students were then asked to work in groups to practice applying the theory constructs to different scenarios. The aggregate health-related behavior data was used to help solicit audience participation, bring relevance and personalization to the content, and launch meaningful in-class discussion.

Literature Review

Human beings are born with a set of basic reflexes and must learn their social behaviors (Colledge, 2002, p. 216). Skinner (1957) has proposed an operant conditioning model that suggests that humans learn behavior when responses to their behavior are reinforced with a positive or negative response. Bandura (1976) challenged Skinner's operant conditioning model and argued that the theory did not take into consideration the important influence of social variables on human learning behaviors and subsequently developed the social learning theory. "Bandura's theory is mainly concerned with how children

and adults operate cognitively on their social experiences and how these cognitive operations then come to influence their behavior and development" (Grusec, 1992, p. 781). As Bandura continued to emphasize the important role of a human's cognition in learning behaviors, the social learning theory became known as the social cognitive theory (Grusec, 1992). Bandura (1986) argued that humans are not passive recipients of information, but that environment and cognition have a bidirectional influence on a person's behavior. This concept is known as reciprocal determinism.

The social cognitive theory posits that people do not act like weathervanes when adopting personal behaviors by constantly shifting behaviors to conform. Humans adopt standards of behavior and regulate their own personal behaviors through self-evaluation and consequences that they generate for themselves (Bandura, 1994). These consequences are influenced through the two regulatory systems of social sanctions and self-sanctions (Bandura, 1986). Human behavior that "violates prevailing Social Norms brings social censure or other punishing consequences, whereas behavior that fulfills socially-valued norms is approved and regarded" (Bandura, 1994, p. 13). Social Norms are defined as "socially shared and enforced attitudes specifying what to do and what not to do in a given situation" (Prentice, 2012, p. 23). People will refrain from engaging in behaviors that violate Social Norms to avoid social or self-censure (Bandura, 1994). Social Norms can have an impact to constrain behaviors due to the tendency of group members to seek guidance and approval from their group (Turner, 1991).

The Social Norms Theory aims to explain the influences of the environment and interpersonal impacts on how people change their behaviors (Perkins & Berkowitz, 1986). A misperception occurs when there is a gap between a person's perceived norm (i.e. what a person thinks is the truth about an attitude or behavior) and the actual Social Norms attitude or behavior. Pluralistic ignorance is when an individual incorrectly judges the correct social norm and assumes they are outside the norm. An example of this would be if a person engages in healthy personal health-related behaviors, but assumes they are in the minority. In contrast, a false consensus is when an individual tends to overestimate the extent that the group approves a social norm that is in consensus with their personal beliefs. An example of this would be when an individual has unhealthy personal health-related behaviors and incorrectly assumes they are in the majority. A false consensus misperception allows an individual to deny that his or her unhealthy personal health-related behavior is a problem or issue because they misperceive their negative behaviors as being the social norm. False consensus is also known as self-serving bias as it is used to justify a person's behaviors (Berkowitz, 2004).

Toch and Klofas (1984) found that individuals with false consensus will frequently be the strongest and most vocal as they have the biggest stake in justifying their behaviors and speak out loudly against any enforcement of policy or intervention strategies. An example would be a heavy drinker that has a loud voice in curbing the silent majority who might want policies or intervention strategies.

Social Norms interventions are designed to educate individuals and correct their misperceptions of the norms of the community in an attempt to encourage healthier behaviors (Berkowitz, 2005). Social Norms interventions have been successfully used in many situations such as significantly increasing the number of students who abstain from alcohol (Haines & Barker, 2003), reducing and/or delaying cigarette use (Christensen & Haines, 2004), reducing gambling (Larimer & Neighbors, 2003), and encouraging students to confront homophobic remarks (Berkowitz, 2002).

There are three types of Social Norms intervention that have been researched. The first example is Social Norms marketing campaigns, where an advertising campaign is developed to help communicate accurate Social Norms about specific health behaviors in an effort to counter misperceptions and reduce individuals from engaging in the unhealthy personal health-related behaviors (Keller & Bauerle, 2009). A second example of where Social Norms have been successfully used is a Small Group Norms Model (SGNM) to provide intervention workshops toward small groups to clarify Social Norms misperceptions to improve personal health-related behaviors (Far & Miller, 2003).

Examples of small groups include sororities, fraternities, athletic teams, first-year students, and students in academic classes (Berkowitz, 2005). A third example of using Social Norms in interventions is providing feedback to single individuals. Dimeff, Baerk, Kvilahan, and Marlatt (1999) has developed an Alcohol Skills Training Program (ASTP) to provide personal feedback to individuals provided from trained clinicians or interactive computer programs that has shown to be effective.

The Social Norms theory suggests that people tend to adopt unhealthy personal health-related behaviors if they believe this is the norm for their environment. Social norm interventions are used to communicate valid Social Norms that are taken from research studies to correct misperceptions by showing the "actual, healthier norm of the majority" (Ott & Doyle, 2005, p. 46). Most college student are significantly overestimating the alcohol consumption of their peers (Perkins, Haines, & Rice, 2005) and Social Norms marketing campaigns are currently widely used on college campuses in an attempt to reduce risky drinking behaviors (Turner, Perkins, & Bauerle, 2008).

Social Desirability Bias (SDB) is a tendency of survey respondents to respond to survey questions that may be viewed favorably by others in an effort to fit the Social Norms. Topics where Socially Desirable Responding (SDR) are more of a concern are sensitive personal health-related issues such as sexual behavior, drug use, and others. Durant, Carey, and Schroder (2002) found that data quality on personal health-related topics such as substance use and sexual behaviors is strongly impacted by gender where women were much more likely not to respond. Designing Social Norms interventions where participants will be responding with their personal behaviors need to be developed so that each person is confident of maintaining their anonymity. Being assured of confidentiality will increase the truthfulness in participants' responses (Ganster, Hennesey, & Luthans, 1983).

Some Social Norm interventions incorporate computerized handheld devices audience response systems or clickers that can be used to have students response to a series of alcohol-related behavior questions and then immediately show the discrepancies between their perceived norms to the actual behavior group norms. One research study showed the effectiveness of incorporating clickers with Social Norms intervention by finding that students receiving this intervention reported they had reduced their alcohol consumption at 1-month and 2-month follow-ups (LaBrie, Hummer, Neighbors, & Pedersen, 2008). Being able to see group data in real-time enhances the credibility of the Social Norms data to the students. Presenters can also compare the statistics of the social norm group and the current group responding (Killos, Hancock, McGann, & Keller, 2010).

The use of clickers allow students to have anonymity while reporting their personal health related-behaviors and then receive immediate feedback about their misconceptions of the social norm. The anonymity afforded by the clicker devices will allow students to give honest and accurate answers in a non-threatening way without worry of compromised anonymity. Virginia Commonwealth University used clickers with Small Group Social Norming interventions where students were asked perception questions and immediately followed by actual behavioral or attitudinal questions. Students in these groups reported being surprised by the healthy norms in their groups and also have reported feeling secure using the clickers and did not need to lie to protect their anonymity (Hancock, 2006).

Instructors in higher education have an unique opportunity to apply Bandura's (1976) concepts of social learning theory and social cognitive theory using Social Norms pedagogy when designing their classes (Deaton, 2015). The instructor teaching this undergraduate Health Behaviors class implemented the Social Norms pedagogy to encourage her students to take a more reflective approach to their own personal health-related behaviors. Instead of the traditional "lecture" teaching methodology, students in this class were asked to compare their own personal health-related behaviors to the social norms of other groups. The instructor wanted to implement this innovative teaching methodology to engage her students to take a more collaborative approach to their learning. This exploratory research study attempts to measure the new teaching methodologies impact on the students' personal health-related behaviors. The purpose of this

article is to present the findings from testing the combination of the use of the clicker instructional technology with the Social Norm teaching strategy when used to teach about health-related behaviors and behavior change theories.

Research Questions

This study attempts to measure the impact of incorporating Social Norms as a teaching pedagogy into an undergraduate Health Behaviors class where students used hand-held clicker devices to report their personal health-related behaviors. The research questions for this study are:

1. What impact does the Social Norms teaching methodology have on students own personal health behaviors?
2. What impact does the Social Norms teaching methodology have on students recommending person health behavior changes to their family and/or friends?
3. What are students' reactions to the Social Norms teaching methodology?
4. Do students' gender, religious beliefs, political beliefs have any impact on their comfort level when talking about personal health behaviors?

Methodology, Samples and Tools Used

This exploratory quantitative research study was conducted at a public mid-sized University located in the Midwest. Permission was granted from the University Institutional Research Board (IRB) to conduct this study. A survey was developed by the course instructor and researcher that was designed to measure students' perceptions about the incorporation of the Social Norms teaching methodology in an undergraduate Health Behaviors class in the Kinesiology and Health Department. Students were asked to complete a hard-copy survey at the start of their last class during the semester. The survey was given by a researcher that was different than their instructor and no identifying information was included to ensure students' anonymity. The survey responses were coded and analyzed using Statistical Package for Social Sciences (SPSS). Exploratory research was selected for this study to conduct an initial study on the incorporation of social norms pedagogy to help determine research design and data collections in the future (Singh, 2007).

There were slightly more females (n = 17) compared to males (n=15) in the class. One person identified as "other gender status", and the data for this student was deleted to ensure their anonymity. The majority of students in the class (88%) were from 18-24 years of age (n= 28). All students were at an undergraduate status and ranged from sophomore (n = 7; 22%), junior (n= 16; 50%), and seniors (n = 9; 28%).

Results

Question #1

The first research question asked if the Social Norms teaching methodology had an impact on students own personal heath behaviors.

Student Attitudes

On the survey, students were asked if the class activities caused them to have a different attitude on the way they viewed certain personal health-related behaviors (Table 1). Students had three options for response: (a) Yes, I had significant changes in the way I viewed certain personal health-related behaviors (n= 5); (b) Yes, I had some changes in the way I viewed certain personal health-related behaviors (n= 23); or (c) No, I did not change the way I viewed any personal health-related behaviors (n= 4). After combining the first two affirmative attitude-change choices, 88% of students (n= 28) reported that the Social Norms class activities changed the way they viewed some of their personal health-related behaviors.

To test the hypothesis that gender was associated with statistically significant differences on student adoption of

Survey Question: Did the class activities of comparing your own personal health-related behaviors to the "norms" of other groups cause you to have a different attitude on the way you viewed certain personal behaviors?

Survey Responses	Male	Female	n
1. Yes, I had significant changes in the way I viewed certain personal health-related behaviors.	4 (27%)	1 (6%)	5 (16%)
2. Yes, I had some change in the way I viewed certain personal health-related behaviors	9 (60%)	14 (82%)	23 (72%)
3. No, I did not change the way I viewed any personal health-related behaviors	2 (13%)	2 (12%)	4 (13%)

Table 1. Student Attitudes toward making Personal Health-related Changes

different attitudes toward their personal health-related behaviors, an independent samples t-test was performed. There were 88% female students (n= 15) that reported having an attitudinal change (M = 2.06; SD = .43) and there were 87% male students (n= 13) that reported having an attitudinal change (M = 1.87; SD = .64). The responses were sufficiently normal for the purposes of conducting a t-test (skewness = -.035, SE = .414; kurtosis = .862; SE = .809) (Schmider, Ziegler, Danay, Beyer, & Buhner, 2010). Additionally, the assumption of homogeneity of variances was tested and satisfied via Levene's F test, F(30) = 2.989, p = .094. The independent samples t-test was not associated with a statistically significant effectt (30) = -1.009, p = .321. Thus, gender cannot be associated with a statistically significant change in students' attitude toward personal health-related behaviors.

Personal Health-Related Behavior Actions:

On the survey, students were also given a list and asked to circle the activities they personally implemented (Table 2). The top five activities that students identified they had implemented after taking part in the Social Norms teaching methodology included: (1) Started implementing more positive behaviors (n = 23); (2) Read more about the topic (n= 17); (3) Reached out to peers for support (n = 8); (4) Reached out to parents/family or trusted adult for help (n= 4); and (5) Reached out to a health professional (n= 5). Statistical analysis (two-sided Fischer's exact test) confirmed that there was no significant impact from gender on students' impetus to take actions in these areas. The

Survey Activity	Male	Female	n	P
1. Started implementing more positive personal health-related behaviors.	12 (80%)	11 (65%)	23 (72%)	.444
2. Read more about any of the topics from the course to improve my positive personal health-related behaviors	9 (60%)	8 (47%)	17 (53%)	.502
3. Reached out to get support from my peers to improve my personal health -related behaviors	4 (27%)	4 (24%)	8 (25%)	1.000
4. Reached out to get support from my parents/family or other trusted adults to improve my personal health-related behaviors	3 (20%)	1 (6%)	4 (13%)	.253
5. Reached out for support from a health professional to improve my personal health-related behaviors	4 (27%)	1 (6%)	5 (16%)	.130

Table 2. Student Options to make Personal Health-Related Changes

Survey Activity	Male	Female	n	P
1. Realize I need to develop better personal health-related behaviors, but cannot get started.	2 (13%)	2 (12%)	4 (13%)	1.000
2. I did not feel I needed to change any of my personal health-related behaviors.	3 (20%)	3 (18%)	6 (19%)	1.000
3. I did not choose to take action to change any of my personal health-related behaviors.	3 (20%)	1 (6%)	4 (13%)	.319

Table 3. Student Options to make no Personal Health-Related Changes

Fischer's exact test was employed to measure statistical significance due to the expected frequency of less than five responses in some of the cells.

There were some students that did not report making any health-related changes (Table 3) for reasons such as not being able to get started (n= 4), feeling as if they do not need to make any changes (n= 6), and not choosing to make any changes (n= 4). Statistical analysis (two-sided Fischer's exact test) confirmed that there was no significant impact from gender on students' options not to take action in these health-related changes. The Fischer's exact test was employed to measure statistical significance due to the expected frequency of less than five responses in some of the cells.

Summary

With 88% of students reporting a change in attitude how they viewed their personal health related-behaviors and 72% of students indicating they have started implementing more positive health-related behaviors, this suggests the Social Norm teaching methodology did have a positive impact on students own personal heath behaviors.

Question #2

The second research question asked if the Social Norms teaching methodology had an impact on students recommending person health behavior changes to their family and/or friends.

Suggested to Others

Students were asked how taking part in the Social Norms teaching methodology had an impact on them suggesting to family and/or friends to get help and/or support from a counselor, health professional or support services organization (Table 4). Options for student

Survey Question: Please rank how taking part in this activity to compare our own personal health-related behaviors to the "norm" of other groups had an Impact on you suggesting to others that you know that they may need help and/or support from a counselor, health professional or support services organization.

Survey Responses	Male	Female	n
1. I suggested to someone that they need help and/or support to develop better positive personal health-related behaviors, and it caused them to reach out and get help from counselor, health professional or support services organization.	1 (7%)	1 (6%)	2 (6%)
2. I suggested to someone that they need help and/or support to develop better positive personal health-related behaviors, and I think they will get help from a support services organization.	5 (33%)	5 (29%)	10 (31%)
3. I suggested to someone that they need help and/or support to develop better positive personal health-related behaviors, but I do not think they will get help from a counselor, health professional or support services organization in the future.	3 (20%)	3 (18%)	6 (19%)
4. I did not suggest to anyone they need help and/or support from a counselor, health professional or support services to develop more positive personal health-related behaviors.	4 (27%)	5 (29%)	9 (28%)
5. I do not know of anyone who needs help and/or support from a counselor, health professional or support services to develop more positive personal health-related behaviors.	2 (13%)	3 (18%)	5 (16%)

Table 4. Student Ation to suggest Personal Health-Related Changes to Friends and/or Family

responses included: (a) I suggested and it caused them to reach out and get help (n= 2); (b) I suggested and I think they will get help (n= 10); (c) I suggested, but I do not think they will get help (n= 6); (d) I did not suggest (n= 9); and (e) I do not know of anyone who needs help and/or support (n= 5). After combining the first three affirmative choices that indicated the student had suggested to someone they need help and/or support, there were 56% of the students (n= 18) that had suggested to someone they need help to develop better positive personal health-related behaviors. Statistical analysis (Mann-Whitney U test) confirmed that there was no significant impact (U = 117.5, p = .697) from gender on students' impetus to suggest to others that they get help and/or support. The Mann-Whitney U nonparametric test was used due to the non-normal distribution of students' responses (skewness = .023, SE = .414; kurtosis = -1.139, SE = .809) (Schmider, Ziegler, Danay, Beyer, & Buhner, 2010).

Survey Activity	Male	Female	n	P
1. Reached out to my family to suggest they develop better personal health-related behaviors.	8 (53%)	13 (77%)	21 (66%)	.266
2. Reached out to my friends and/or peers to suggest they develop better personal health-related behaviors.	5 (33%)	10 (59%)	15 (47%)	.178
3. Reached out to my family or friends to suggest they get help or support from a counselor, health professional or support services organization to get help developing better personal health-related behaviors.	4 (27%)	2 (12%)	6 (19%)	.383

Table 5. Actions students took with family and/or friends

Health-Related Behavior Actions Toward Family and/or Peers:

On the survey, students were also given a list and asked to circle the specific health-related-behaviors they personally implemented with family and/or peers after participating in the Social Norms teaching methodology (Table 5). The top three activities that students identified included:

(1) Reaching out to family to suggest they develop better personal health-related behaviors (n = 21);

(2) Reaching out to friends and/or peers to suggest they develop better personal health-related behaviors (n= 15); and

(3) Reaching out to family or friends to suggest they get help or support from counselor, health professional or support services organization (n= 6).

Statistical analysis (two-sided Fischer's exact test) confirmed that there was no significant impact from gender on students' impetus to take actions in these areas (Table 5). The Fischer's exact test was employed to measure statistical significance due to the expected frequency of less than five responses in some of the cells.

Summary:

With 56% of students reporting they had suggested to someone to get help and/or support and 66% of student reaching out to family, this suggests the Social Norm teaching methodology did have an impact on students recommending personal health behavior changes to their family and/or friends.

Question #3

The third research question asked about students' reactions to the Social Norms teaching methodology. Students were asked to give their opinions about the effectiveness of this as a teaching methodology, beliefs about truthfulness of clicker responses, and confidence of anonymity when responding to questions using clickers.

Teaching Methodology

The students gave a strong recommendation to continue the Social Norms teaching methodology with most students giving it a Strong Recommendation (n= 17) and many students giving it an Above Average Recommendation (n= 11). After combining the first two positive survey response recommendations, 87% of the students (n= 28) recommended continuing the use of clickers to have students compare their personal health-related behaviors to the norms of other groups.

The majority of students ranked the incorporation of using clickers to have students compare their personal health-related behaviors to the norms other people as an effective teaching strategy with 56% (n = 18) rating it as Excellent and 28% (n= 9) rating it as Above Average. After combining the first two positive response rankings, 84% of the students (n= 27) ranked the Social Norms teaching methodology as an effective teaching strategy.

Almost all the students also indicated they felt the Social Norms teaching methodology had a positive impact on class discussion with 44% rating it as a Significant Impact (n= 14) and 47% rating it as an Above Average Impact (n = 15). After combining the first two positive response rankings, 90% of the students (n= 29) ranked the Social Norms teaching methodology as having a positive impact on class discussion.

Truthfulness:

Students reported their clicker responses to the personal health-related clicker questions as being truthful with 94% saying they were Completely Truthful (n = 30) and 6% saying they were Somewhat Truthful (n= 2). Students were not quite as confident of truthfulness of the other students clicker response with only 9% ranking they believed their answers were Completely Truthful (n= 3), 81% ranking other students answers as Somewhat Truthful (n= 26), and 9% feeling their answers were Somewhat Untruthful (n= 3).

Anonymity:

The majority of students had confidence with the clickers providing them anonymity when responding to polling questions about their personal health-related behaviors with 63% saying they were Highly Confident (n= 20) having anonymity, 28% of the students saying they had Above Average (n= 9) levels of confidence, and 9% of them giving Average (n= 3) levels of confidence.

Summary:

Students gave the Social Norms teaching methodology a strong endorsement with 87% giving it a positive recommendation, 84% ranking it as an effective teaching strategy, and 90% indicating it had a positive impact on class discussion. All of the students reported being truthful when responding to the personal health related behavior clicker questions and over 90% of the students (n = 29) were confident and their anonymity was maintained.

Question #4

The fourth research question asked if students' gender, religious beliefs, or political beliefs had any impact on their comfort level for students talking about personal health behaviors. Students were asked to rate their level of comfort while discussing issues about their personal health-related behaviors in class. Students ranked their level of comfortableness as: Highly Uncomfortable (n= 3, 9%): Somewhat Uncomfortable (n = 2, 6%); Neither Uncomfortable nor Comfortable (n= 4, 13%); Somewhat Comfortable (n= 9, 28%); and Completely Comfortable (n = 14, 44%). While the majority of students reported feeling comfortable, 15% of the students reported some degree of discomfort. Students' comfort level responses had a sufficiently normal distribution for the purpose of conducting a t-test to see if there is any impact from students' gender, religious beliefs, or political beliefs (skewness = -1.119, SE = .414; kurtosis = .249, SE = .809) (Schmider, Ziegler, Danay, Beyer, & Buher, 2010).

Gender and Comfort Level:

To test the hypothesis that gender was associated with statistically significant differences in students comfort level

in talking about personal health behaviors, an independent samples t-test was performed. The independent samples t-test showed there was not an association (30) = -.159, p = .875. Additionally, the assumption of variances was tested and satisfied via Levene's F test, F(30) = .97, p = .334. Thus, gender was not associated with students' reported levels of comfort.

Religious Belief Level and Comfort Level: Students were asked to rate their religious beliefs from Highly Religious to No Religious Beliefs. Students' answers were recoded into two categories of Religious (Highly Religious and Somewhat Religious) and Not Religious (Neutral, Not Very Religious, and No Religious Beliefs). Fifty-six percent of the students identified as Religious (n= 18) and forty-four percent identified as Not Religious (n= 14).

To test the hypothesis that religious beliefs were associated with significant differences in students comfort level in talking about personal health behaviors, an independent samples t-test was performed. An independent samples t-test showed there was not an association (30) = -1.186, p = .245. Thus, students' reported level of religious beliefs were not associated with students' reported levels of comfort. The assumption of variances was tested and satisfied via Levene's F test, F(30) = 2.295, p = .140.

Political Beliefs and Comfort Level:

Students were asked to rate their political beliefs from Highly Conservative to Highly Liberal. Students' answers were recoded into two categories of Conservative (Highly Conservative and Somewhat Conservative) and Not Conservative (Neither Conservative or Liberal, Somewhat Liberal, and Highly Liberal). There were 38% of students that identified themselves as Conservative (n= 12) and 63% that identified as Not Conservative (n= 20).

To test the hypothesis that political beliefs were associated with significant differences in students comfort level in talking about personal health behaviors, an independent samples t-test was performed. The independent samples t-test showed there was not an association, t (30) = -.241, p = .811 Thus, students' reported political beliefs were not associated with students' reported levels of comfort. Additionally, the assumption of variances was tested and satisfied via Levene's F test, F(30) = .147, p = .705.

Summary:

While most students reported feeling comfortable with the personal discussions about health-behaviors in class, 15% of the students (n= 5) reported some level of discomfort. The researchers could not find any relationship between comfort-level and gender, religious beliefs, or political beliefs.

Discussion

The use of Social Norming in health education is certainly not new; it has been traditionally been used to point out discrepancies between what is perceived and what is real within certain topical health behavior areas such as alcohol abuse education (Killos, Hancock, McMann & Keller, 2010), sexual health behaviors (Scholly, Katz, Gascoigne & Holck, 2005), and cigarette and marijuana use (Ott & Doyle, 2005). Dorothy Nyswander, a respected early pioneer of health education, explored the power of using group dynamics for self-reflection and behavior change in the mid-twentieth century, and strongly encouraged the use of group dynamics to encourage people to solve their own problems (McBroom, 1994).

Today's leaders of health promotion call upon us to continually adapt and improve pedagogy in creative ways (Auld & Bishop, 2015). This article contributes to the literature by presenting a unique use of Social Norms in a commonly offered University course. Combined with an audience response system and relevant health-behavior data, this teaching method may have utility in a wide variety of standard courses that cover personal health, health program planning, epidemiology, research methods, etc., at various University levels. The aim of the class re-design was to encourage student participation, bring relevance to theoretical concepts, and launch meaningful discussion about a myriad of health-related behaviors and theory application in a University classroom. The data from this analysis show an even higher-level outcome, in that this methodology was influential in initiating positive behavior change at an individual level as well as inspiring students to reach out to friends and family. Overall, the Social Norms methodology combined with clicker polling was very well received with a majority of students recommending the continued use of clickers, and a majority felt it was a positive teaching strategy.

Using the Social Norms teaching methodology will allow instructors to model the usage and access a plethora of online national, state level (i.e., YRBSS, BRFSS), or county level data (such as the County Health Rankings, available at www.countyhealthrankings.org) readily available at our fingertips. The comparison of class aggregate health-related behavioral data to well-established data sets is also an excellent introduction to several of NCHEC's (2015) sub-competencies, such as:

- To identify sources of secondary data related to health.
- To identify data collection instruments.
- To select, adapt, and/or create instruments to collect data.

The present findings align with those of previous researchers who reported Social Norms approaches were effective with educational messaging (Killos, Hancock, Wattenmaker, McGann & Keller, 2010) and positive behavior change (LaBrie, Hummer, Neighbors, & Pedersen, 2008). This sample of students felt clicker use helped them give honest answers and remain anonymous, which is similar to Hancock's data (2006) with Virginia Commonwealth University students.

Study Limitations and Recommendations

This study has several limitations. This study took place in one class with a small sample size (N=32), so findings cannot be generalized to all teaching environments. Sixteen percent of the students (n= 5) that identified as Highly Uncomfortable or Somewhat Uncomfortable discussing personal health-related topics in the class, so this brings questions about any teaching methodologies where students discuss personal health-related issues during class. There were also 9% of the students (n= 3) that reported only having an Average level of confidence in the clickers providing anonymity, bringing questions of truthfulness in self-reporting personal behaviors with the clicker devices. Students were also not followed beyond the semester class, so long-term behavior change cannot be determined.

Additional studies that include Social Norm methodology in health education instruction may generate new insights. Although the majority of this student sample felt their anonymity was secure and reported that they were truthful in their health-related behavior responses using clickers, future investigations that use the present teaching methodology might assess what factors may increase comfort with discussing personal health behaviors in a classroom setting.

Conclusion

This article explained the use of a novel participatory pedagogical strategy where student responses to health-behavior related questions are part of the instruction, and where the aggregate health behaviors of their class are compared to other students and adults at a local, state, or national level. Data show that the incorporation of the Social Norms teaching methodology had a strong impact on students adopting more positive attitudes toward their own health-related behaviors, and also resulted in changes to their own behaviors. Over half of the students sample made suggestions to family and/or friends regarding health-related behavior change. The use of the Social Norms pedagogy was well received and students reported having high levels of truthfulness and confidence with their anonymity. Overall, the use of audience response technology combined with the Social Norm comparison shows promise as an effective tool for positive behavior change adoption for college students learning about health-related behaviors and behavior change theories in a college-level Health Behaviors course.

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ABOUT THE AUTHORS

Dr. Mary Kramer is an Assistant Professor and Program Director for Public Health Education in the Department of Kinesiology and Health at Wright State University.

Dr. Sheri Stover is an Associate Professor in Instructional Design in Leadership Studies of the Department of Education and Organizations at Wright State University. She is the Program Director for the Instructional Design for Digital Learning (IDDL) Graduate program at Wright State University.