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DO COMMUNITY FACTORS INFLUENCE SUICIDE?

AN APPLICATION OF STRUCUTRAL PLURALISM

THEORY ON SUICIDE CASES

By

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DO COMMUNITY FACTORS INFLUENCE SUICIDE? AN APPLICATION OF STRUCTURAL PLURALISM THEORY ON SUICIDE

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Suicide and suicidal behavior affect individuals of all ages, genders, races and religious groups in all countries, representing an important social issue. The major risk factor associated with suicide is depression. However, in some instances, suicide is not preceded by warning signs of mental disorders. Variations in the sociopolitical structures in the communities in U.S. may hold the explanation of variations on suicide rates. The objective of this study is to understand how suicide relates with variations in the community structure. Some specific socio-structural elements of a community have the potential to protect against distress by protecting individuals' socio-psychological health. Specifically, variations in structural pluralism affect a community's welfare because of the potential presence of dense networks of associations that create problem-solving capacity for the community. The problem solving capacity of communities results from pluralistic political structures with dense networks of associations, advocating civic welfare. As one of the consequences of influence on community's welfare, the structural

pluralism theory is tested here as a direct protection again suicide. To address this objective, county-level data are needed. Several data sources will be used to provide information essential for the analysis in this study. The suicide rates will be calculated from the Centers for Disease Control, National Center for Health Statistics' Compressed Mortality File for the years of 1998-2002. To provide information on structural pluralism, data from the 2000 County Business Patterns will be used. The 2000 Census data and the Religious Congregations and Membership Study 2000 will be used to provide information on demographic characteristics.

DEDICATION

This dissertation is dedicated to Mike and Agatha. *Anch'io vi amo!*

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CHAPTER I

INTRODUCTION

The objective of this study is to understand how suicide relates to variations in community structure. Suicide is a very important social issue; suicide and suicidal behavior affect individuals of all ages, genders, races and religious groups. In 2004, the latest year for which national statistics are available, there were 32,439 suicides in the U.S. This translates into 89 suicides nationwide per day or one suicide every 16 minutes, and an annual suicide rate of 11.5 per 100,000. In 2004, suicide was considered the eleventh leading cause of death in the U.S. (American Association of Suicidology, AAS, 2006).

At first glance, it might appear that the behavior of suicide precludes investigation from a sociological perspective. Suicide is, after all, typically a solitary act. Moreover, a major risk factor associated with suicide is depression – an emotion trait associated with individual personality. In fact, about two-thirds of people who complete suicide are diagnosed depressed at the time of their deaths. Not surprisingly, health professionals have concentrated on psychological/psychiatric explanations, as well as treatment.

Despite the emphasis on psychological explanations, suicide as a topic of inquiry has received tremendous attention from sociologists dating back to the seminal work by Emile Durkheim. Durkheim's analysis of suicide from a sociological perspective

was groundbreaking at the time and still continues to inform social explanations of suicide. Durkheim (1951) argued that variations in suicide rates were related to the variation/loss of traditional forms of social organization and integration. Post-Durkhemian sociologists have focused their attention on clarifying Durkheim's identification of types of suicide and agree that causes of voluntary death must be treated as a social problem, representing a measurable loss to society (Douglas, 1967). However, the post-Durkheimian literature has not clearly emphasized the meaning of neither society nor social structure. Consequently it is necessary to specify what specific elements of society are to be considered relevant to understanding suicide.

According to modernization theory (Rostow, 1978, Zhang 1998), social factors such as industrialization, urbanization, and secularization associated with modernization lead to the deterioration of ties between the individual and community. The decline in dependency of the individual to a group increases suicide potential. In general, according with Durkheim, socio-structural changes in Western societies in recent years have been witness to increasing individualism, greater sense of isolation and dissatisfaction with life in terms of opportunities, health services, and social networks, as examples (Katz, Buchanan, and McCoy 1999).

However, other specific structural elements of a community have the potential to protect or provide a buffer against distress and thus protect individual socio-psychological health. Specifically, dense networks of associations, political competition, and political exchange are elements that may affect a community's welfare. Young and Lyson (2001), for example, argue that the association networks create a problem-solving

capacity for the community which improves health outcomes of a community. The problem solving capacity of communities results from pluralistic political structures, which in turn promotes civic welfare. Civic welfare is defined as being composed of high income levels, low poverty levels, retention of residents, and low levels of unemployment (Tolbert, Irvin, Lyson, and Nucci 2002). The presence of structural pluralism in a community has been argued to lower mortality's causal mechanism, based on the fact that participation in collective problem solving tends to create a 'healthy' social environment. As one of the consequences of influence on a community's welfare, the structural pluralism theory is tested here as a direct effect to explain suicide rates. Thus, suicide may be examined as an outcome of varying levels of civic welfare and structural pluralism.

The goal of this dissertation is to examine the effects of structural pluralism and civic welfare on suicide rates. Following Young and Lyson's (2001) work, it is argued here that suicide rates will be lower in communities which exhibit both high levels of structural pluralism and civic welfare. For purposes of measurement, the unit of analysis is counties in the continental United States.

Several data sources will be used to provide information essential for the analysis in this study. The suicide data are from the Centers for Disease Control, National Center for Health Statistics' Compressed Mortality File for the years 2000-2004. In order to provide information on structural pluralism, data from the 2000 County Business Patterns are used. The 2000 Census data and the Religious Congregations and Membership Study 2000 are used to provide information on demographic characteristics. A set of OLS

Regression models are examined to ascertain the effects of the theoretical model. The findings of the statistical analyses are examined, and implications of the theory's viability in understanding suicide are described.

CHAPTER II

LITERATURE REVIEW

Introduction

Though typically an individualistic act, suicide has been linked to a number of social indicators. Moreover, suicide rates have well established correlations between social and community attributes. Several theories of suicide have attempted to account for these correlations. This chapter first examines trends and correlates of suicide, then reviews the extant literature pertaining to the social factors linked to suicide, Next, Durkheimian and Post-Durkheimian social theories of suicide will be examined. Then I examine more recent literature on community structural factors, in particular structural pluralism and civic welfare and their potential impact on health attributes of communities. At the culmination of this review, I argue that there exists a gap in theoretical understanding of local-level community variation in suicide that may be partially filled by including some previously ignored community structural factors. In particular, I discuss the concept of structural pluralism as an explanatory factor of suicide. Finally, drawing from the literature I provide an overview of the conceptual model.

Trends and Correlates of Suicide

Suicide is not a rare phenomenon. Suicide and suicidal behavior affect individuals of all ages, genders, ethnicities and religious groups across the planet. Suicide was the eleventh leading cause of death in the United States in 2004. Approximately 500,000 suicide attempts were made that year and an estimated 31,000 individuals died as a result. Suicide was the third leading cause of death among young people 15 to 24 years of age, behind accidents and homicides. In 2003 and 2004, suicide was the eleventh leading cause of death in the U.S., claiming respectively 31,484 and 32,439 lives for each year, with a rate of 11 suicides per 100,000 and one suicide occurring every 17 minutes (See Table 2.1). When examining how suicide varies across major demographic characteristics, the data shows that males have higher rates than females, whites have higher rates than nonwhites, and the elderly and young have higher rates than individuals in other age categories.

Table 2.1: Suicide by Sex, Race and Age, 2004

	Number	Per day	Rate	Percent of All Deaths
National Total	32,439	88.6	11.1	1.4
Sex				
Male	25,566	69.9	17.7	2.2
Female	6,873	18.8	4.6	0.6
Race				
White	29,251	79.9	12.3	1.4
Nonwhite	3,188	8.7	5.8	0.9
Black	2,019	5.5	5.2	0.7
Age				
Elderly (65 and over)	5,198	14.2	14.3	0.3
Young (15-24)	4,318	11.8	10.4	12.9

Center for Disease Control and Prevention (2006)

In addition, suicide attempts and other acts of self-harm that result in nonfatal injuries affect the health of many persons and families. There are no official national statistics on attempted suicide; however the American Association of Suicidology (AAS) has estimated that there are 25 attempts for each death by suicide. Risk of attempted (nonfatal) suicide is greatest among females and the young. Ratios of attempted to completed suicides for youth are estimated to range between 100 to 1 and 200 to 1 (See table 2.2). In 2004, the most recent year for which final ambulatory hospital data are available, approximately 535,000 visits to U.S. emergency departments were made after attempted suicides or because of other self-inflicted injuries (McCaig, Nawar 2006).

Table 2.2: Suicide Attempts, 2004

Attempts (figures are estimates; no official U.S. national data are compiled):
• 810,975 annual attempts in U.S. (using 25:1 ratio)
• 810,975 attempts translates to one attempt every 39 seconds
• 25 attempts for every death by suicide for nation; 100-200:1 for young; 4:1 for elderly
• 3 female attempts for each male attempt

Center for Disease Control and Prevention (2006)

In terms of geographic settings, in the Unites States rates have varied by region, with the highest rates being found in the West (14.7 suicides per 100000 people), which is followed closely by the South (13.1 per 100000), the Midwest (10.9 per 100000), and the Northeast (8.6 per 100000). In a study examining suicide variation, (McKeown, Cuffe, Shulz 2006) found that this regional variation remained after control for age, race/ethnicity, and gender. In terms of variation across states, New York and New Jersey

were found to have the lowest suicide rate, 6.4 per 100,000. Wyoming had the highest state rate, 21.1percent per 100,000.

As indicated above, suicide is a behavior which disproportionately affects different groups of people. There are well established correlations between suicide and a number of socio-demographic variables. Below, I review the more significant correlates of suicide.

Gender and Suicide

Suicide is strongly related to gender with suicide being much more likely among males. Males complete suicide at a rate four times that of females. However, females attempt suicide three times more often than males (AAS 2006). Males between the ages of 20 and 24 were 5.8 times more likely than females to complete suicide. Males between 15 and 19 were 3.6 times more likely than females to complete suicide (AAS 2006).

There is a distinct gender difference in the manner by which people commit suicide. While firearms remain the most commonly utilized method of completing suicide by essentially all groups (more than half (52 percent) of the individuals who took their own lives in 2004 used this method), males (58 percent firearms; 42 percent other method) used firearms more often than their female counterparts (33 percent firearms; 67 percent other method). The most common method of suicide for all females was poisoning (NCIPC 2004).

Age and Suicide

There is a well established relationship between age and suicide. Suicide tends to be positively related with age. Elderly people have the highest rates of suicide. The higher rate of suicide among the elderly is generally accounted for by higher levels of depression or other problematic health attributes (i.e. chronic or terminal illnesses), social isolation, and lower financial security. However, there are some interesting patterns within age groups. Specifically, suicide rates increase among teens and young adults and then decline before increasing with middle age. Below I examine the research patterns within three distinct age groups – teens, college students, and the elderly.

While suicide is more likely among the elderly, in 2004, suicide ranked as the third leading cause of death for young people (ages 15-19 and 15-24); only accidents and homicides occurred more frequently. Although suicides accounted for 1.4 percent of all deaths in the U.S. in 2004, they comprised 12.9 percent of all deaths among 15-24 year olds. Of the 32,439 people that completed suicide in 2004, 4,316 were completed by people between the ages of 15 and 24. In the past 60 years, the suicide rate has quadrupled for males 15 to 24 years old, and has doubled for females of the same age (AAS 2006).

Youth (ages 15-24) suicide rates increased more than 200 percent from the 1950's to the late 1970's. From the late 1970's to the mid 1990's, suicide rates for youth remained stable and, since 1994 they have declined 28.5 percent (McKeown, Cuffe, Shulz 2006) (See Figure 2.1). Most adolescent suicides occur after school hours and in their home.

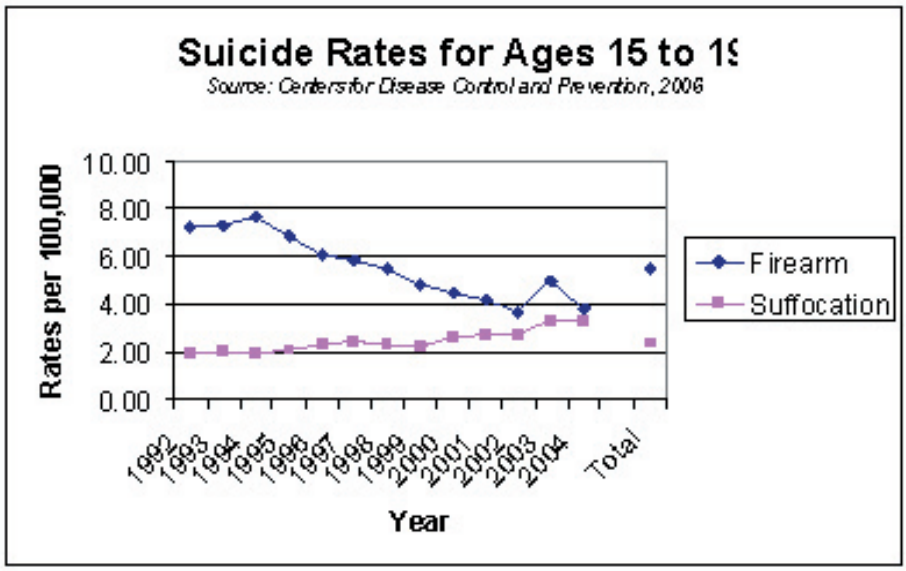

Figure 2.1 Suicide Rates for Ages 15 to 19 (Reproduced from AAS, 2006)

Firearms are the most commonly used suicide method among youth, responsible for 49 percent of all completed suicides. However, in the last decade, for youths aged 15 to 19, this rate decreased, from 7.3 in 1992 to 3.8 in 2004; correspondingly, suicide rates by suffocation increased from 1.9 in 1992 to 3.3 in 2004 (NCIPC 2004).

A special category of youth at high risk of is represented by college students. The rate of completed suicide for college students in 1997, according to the SPRC (1997) was 7.5 per 100,000. It is estimated that there are more than 1,000 suicides on college campuses per year. In 2000, the American College Health Association surveyed 16,000 college students from 28 college campuses. The study showed that 9.5 percent of students had seriously contemplated suicide and 1.5 percent had made a suicide attempt. In the twelve month period prior to the survey, half of the sample reported feeling very

sad, one third reported feeling hopeless and 22 percent reported feeling so depressed as to not be able to function. The survey concluded that two groups of students might be at higher risk for suicide: students with a pre-existing (before college) mental health condition, and students who develop a mental health condition while in college. Within these groups, males, Asians and Hispanics, and students under the age of 21 were more likely to experience suicide ideation and attempts. Reasons attributed to the appearance of disorders were principally the following: new and unfamiliar environment; social pressures; feelings of failure or decreased performance; alienation; and stress. As with the general population, depression is considered to play a large role in suicide among college students. In particular, ten percent of college students have been diagnosed with depression (NMH, 2001).

At the other end of the age spectrum, elderly adults (over the age of 65) have rates of suicide close to 50 percent higher than that of the nation as a (See Figure 2.2). The suicide rate in the U.S. is higher for those over 65 than for any other age group. The elderly make up 12.3 percent of the population, but 17.5 percent of all suicides. The rate of suicide for the elderly for 2004 was 14.3 per 100,000, resulting in 5,198 suicides among those 65 and older. Elderly white men have been found to be at the highest risk with a rate of approximately 31 suicides per 100,000 each year. Approximately 85 percent of elderly suicides were male; the rate of male suicides in late life was 7.7 times greater than for female suicides. The rate of suicide for women typically declines after age 60 (after peaking in middle adulthood, ages 45-49).

The suicide rate for the elderly reached a peak in 1987 at 21.8 per 100,000 people. Since 1987, the rate of elderly suicides has declined 28 percent (down to 14.3 in 2004). This is the largest decline in suicide rates among the elderly since the 1930s (AAS 2006). One of the leading causes of suicide among the elderly is depression, often undiagnosed and/or untreated. In the elderly, common risk factors include: recent death of a loved one; physical illness, perceived poor health; social isolation and loneliness; major changes in social roles (e.g. retirement) (NCIPC 2004).

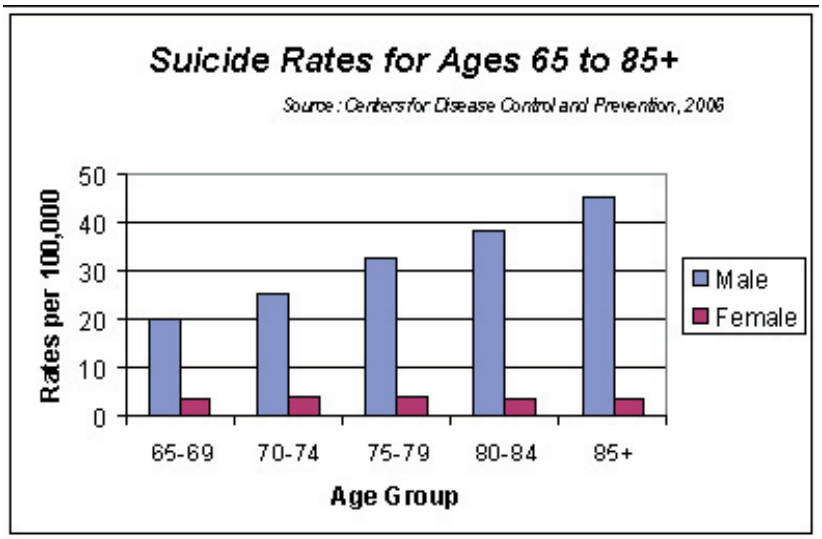

Figure 2.2 Suicide Rates for Ages 65 to 85+ (Reproduced from AAS 2006)

Although older adults attempt suicide less often than those in other age groups, they have a higher completion rate. For all ages combined, there is an estimated one suicide for every 25 attempted suicides. Among the young (15-24 years) there is an estimated 1 suicide for every 100-200 attempts. Over the age of 65, there is one estimated suicide for every 4 attempted suicides.

Firearms were the most common means (72 percent) used for completing suicide among the elderly. Men (92 percent) use firearms 11.5 times more often than women (8 percent). Alcohol or substance abuse plays a diminishing role in later life suicides compared to younger suicides (NCIPC 2004).

Race and Suicide

In terms of race, Whites (12.3 per 100,000) have higher rates of completed suicides than African Americans (5.2 per 100,000). In 2004, 2,019 African Americans completed suicide in the U.S. These account for 6.2 percent of all suicides in 2004. Of these, 1,655 (82 percent) were males (rate of 8.98 per 100,000). The suicide rate for females was 1.8 per 100,000. In 2004, there were only 364 African American female suicides. The ratio of African American male to female was 4.54 to 1. The suicide rate among African American females was the lowest of all racial/gender categories. As with all racial groups, African American females were more likely than males to attempt suicide and African American males were more likely to complete suicide. From 1993 to 2003, the rate of suicide for African Americans (all ages) showed a small but steady decline (from 6.9 in 1993 to 5.1 in 2003). For whites, the rate declined until 1999 (from 13.0 in 1993 to 11.5 in 2000), and then has increased slightly since 2000 (See Figure 2.3 and Table 2.3) (AAS 2006).

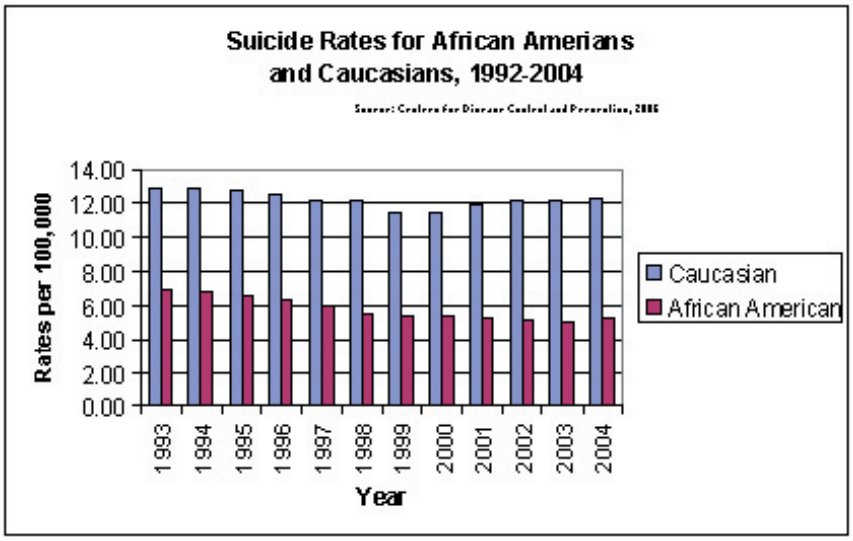

Figure 2.3 Suicide Rates for African Americans and Whites, 1992-2004 (Reproduced from AAS 2006)

Table 2.3: Suicide by Race and Gender, 2004

Group	Number of Suicides	Percent	Rate (per 100,000)
White Male	23,081	71.2	19.6
White Female	6,170	19.0	5.1
Nonwhite Male	2,485	7.7	9.3
Nonwhite Female	703	2.2	2.4
Black Male	1,655	5.1	9.0
Black Female	364	1.1	1.8
Hispanic s	2,207	6.8	5.3
Native Americans	404	1.2	12.9
Asian/Pacific Islanders	765	2.4	5.6

Centers for Disease Control, 2006

Suicide was the third leading cause of death among African American youth, after homicides and accidents. The suicide rate for young African American youth was 7.22 per 100,000. In addition, the rate of male suicide (12.19 per 100,000) was 5.6 times higher than that of females (2.16 per 100,000). African American youth suicide rates

were generally low until the beginning of the 1980s when rates began to increase radically. Between 1981 and 1994, the rate increased by 78 percent. Since then, the rate has decreased 59 percent, from 11.48 in 1994 to 7.22 in 2004.

Although white youth are twice as likely as African American youth to complete suicide, the rate of suicide grew faster in this time period among African American youth than among white youth. Males accounted for 90.5 percent of African American elderly (65 and older) suicides (AAS 2006).

Unfortunately data on gender were not available for Hispanics, Native Americans, and Asians/Pacific Islanders. However, it is clear that, among these three groups, Hispanics have significantly higher rates of suicide.

Firearms were the dominant method of suicide among African Americans regardless of gender and age; among 15 to 24 year olds, 56 percent of all suicides were by firearm, among 25 to 34 year olds, 51 percent of all suicides were by firearm, and among those 65 and older, 79 percent of all suicides were by firearm (NCIPC 2004).

Community Size and Suicide

Mixed results have been found regarding the relationship between suicide and community size. In general, higher levels of urbanization have been identified as a contributing factor to suicide because urbanization increases population heterogeneity and disconnection between people (Canvan 1928, Lester 1983, Stack 1978). Other studies, however, have supported an opposing thesis by arguing that rural areas (areas with less than 2,500 habitants) tend to have higher suicide rates than urban areas. The

rationale for this is that the social and physical isolation of rural areas leads to negative changes in socioeconomic activities. In turn, unemployment and low income are leading consequences to suicide.

Marital Status and Suicide

Marital status is strongly related to suicide, as suicide has been shown to be higher for those that are divorced and widowed than for single people. Specifically, rates of suicide as high 660 per 100,000 population have been reported among widows, which is up to 50 times higher than the average suicide rate for the general population (Platt, Backett, and Kreitman 1988; Smith, Mercy, Conn 1988). The strong association between divorce and suicide can also be observed at the societal level. In particular, U.S. states with higher divorce rates have also been found to have higher suicide rates. (Hassan 1995).

Religious Affiliation and Suicide

In general, religion and religious ties have been found to be associated with suicide. In particular, greater moral objections to suicide and lower aggression level in religiously affiliated subjects (i.e. member in or belonging to a religious church or congregation) have been suggested to function as protective factors against suicide attempts. Similarly, religiously unaffiliated, atheist, and agnostic subjects have in general significantly more suicide attempts. Unaffiliated subjects are profiled as younger, less likely to be married or have children, and have less contact with family members.

Furthermore, subjects with no religious affiliation perceive fewer reasons for living, and in particular fewer moral objections to suicide (Kanita, Oquendo, Grunebaum, Ellis, Burke, and Mann 2004).

Based on Durkheim's classic explanation, traditional Catholicism, as opposed to Protestantism, requires extensive ritual and subordination of the believer to the church hierarchy. As a consequence of this kind of integration, people have less chance of suicide. However, critics of Durkheim have argued that any differences between Protestants and Catholics are small and maybe due to other factors. Halbwachs (1930) and Masaryk (1970) observed that there is great variation in suicide among various Protestant sects, and more recent works have focused on the idea that any apparent differences between Protestants and Catholics in the late 1800s in Europe may have been reflecting only socioeconomic differences between the two religious groups. In particular, Stack (1980, 1981, 1983), Pope (1976) and Stark and Bainbridge (1982) each find strong relationships between modernization and suicide. These more recent analyses of the older data on suicide suggest that modernization could be in fact the key variable in understanding who commits suicide. Religious affiliations are assumed to decrease with modernization, thus causing a rise in suicide. The authors believe their results seriously challenge Durkheim's interpretation, although they also believe that religion may have some independent effect on suicide. Overall, it is perhaps safe to conclude that modern research has seriously challenged the idea that religion plays an independent role in the suppression of suicide in modern times. Religion remains an important factor in terms of

providing a protection effect against suicide; however, research suggests that other significant factors need to be found in socioeconomic development.

Social Theories of Suicide

The consistency of correlations between suicide and a number of socio-demographic factors begs for sociological theory. Even if one assumes that individuals who commit suicide manifest certain pathological emotional or personality attributes, sociological theory is still pertinent in order to understand how some groups are disproportionately affected.

The literature's emphasis on psychological factors in explaining suicide draws attention away from the importance of social factors. In some instances, however, suicide is not preceded by warning signs and more importantly not all people who commit suicide are suffering mental disorders. Conwell and Brent "consistently find diagnosable psychopathology in 90 percent or more of completed suicide victims" (1996:17). However, "diagnosable psychopathology" does not equate to mental disorder: distressing emotions like anger, jealousy, sadness, fear, pain do not automatically prove the presence of mental disorder (Pridmore 1998).

The problem with over-stating the existence of mental illness in suicide cases is that attention is taken away form the importance of social factors. The 'medicalization' of suicide focuses the responsibility for the solution on mental health services rather than on the broader community. In fact, social and community structures and their variations may also be linked to suicide. For example, the higher rate of suicide observed among elderly people might be explained as a result of social and demographic factors, as well as a generational change in social organization. Low density of social relationships of elderly people can be one of the reasons for the growth of suicide among this

demographic group. Conversely, the density of relationships could guarantee a reduction of the suicide rate (Catelli 2002). This study aims to understand how variations in the sociopolitical structures in U.S. communities affect the nature of social relationships and in turn promote or demote the health of their populations. One of the first and most significant investigations of the social dynamics associated with suicide was undertaken by the French Sociologist, Emile Durkheim.

Explaining Suicide Sociologically: The Durkheimian Legacy

Suicide carries a social and moral meaning in all societies. Not surprisingly, suicide was one of the first social phenomena to be study in the history of the discipline of sociology. At both the individual and population levels, suicide has long been understood to correlate with cultural, social, political, and economic forces (Giddens, 1964). As such, understanding suicide and its causes requires an understanding of how it varies and relates to social context.

Emile Durkheim provides the classical contribution to the sociological study of suicide. He uses the term suicide to describe all cases of death resulting directly or indirectly from a positive (e.g. shooting oneself) or negative (e.g. refusing to eat) act of the victim, knowing that it will produce his/her death (Durkheim 1951:43). Durkheim hypothesizes that the volume of suicide reflects the characteristics of social entities independent of the individual victim, indicating suicide as a social fact.

To be able to understand the meaning of the social fact concept, we need to know that the main focus point of Durkheim's doctrine was his insistence of the rejection of

biological and psychological interpretations of social phenomena. He focused his attention on the social-structural determinants of social problems. Social phenomena are 'social facts,' a central concern of sociology. Durkheim defines social facts as things external to, and coercive of, the actor. These are created from collective forces and do not emanate from the individual (Hadden 1997:104). 'While they may not seem to be observable, social facts 'are to be studied empirically, *not* philosophically' (Ritzer 1992:78). They persist over time while individuals die and are replaced by others.

Durkheim distinguishes social facts from psychological, biological, or economic facts by noting that these are social and rooted in group values. At the same time, he distinguishes the study of social facts from philosophy by arguing that the real effects of social facts are "manifested in external indicators of sentiments such as religious doctrines, laws, moral codes" (Hadden 1997:105) and these effects can be observed and studied by sociologist.

Social facts regulate human social action and act as constraints over individual behavior and action. They may be enforced by law or with other penalties associated with violation of the values of the group. Individuals may be unaware of social facts and generally accept them. In this case, individuals may accept the values and codes of society and accept them as their own.

Social facts are delineated by Durkheim in material and non-material terms. Material social facts are features of society such as social structures and institutions. These could be the system of law, the economy, church and many aspects of religion, the state, and educational institutions and structures. Nonmaterial social facts are the ones

that constitute the main subject of study of sociology. They consist of norms, values, and systems of morality. In Durkheim's terminology, some of these nonmaterial social facts are morality, collective consciousness, and social currents. Some examples of modern societies are the norm of the nuclear family stucture, the positive values associated with family structures, and the negative associations connected to aggression and anger. Social facts can also be divided into normal and pathological social facts (Hadden 1997:108-9). Normal social facts are the most widely distributed and useful social facts, assisting in the maintenance of society and social life. Pathological social facts are those that we might associate with social problems and ills of various types, and suicide can be an example of this. As such, Durkheim states that the suicide rate of a population varies inversely with the stability and durability of social relationships within that population and social factors such as modernization and societal pressures (Durkheim 1951).

In the following paragraphs I will describe Durkheim's examination of the extra-social causes which could have a possible effect on suicide. Then, I will discuss the nature of social causes, the effects they produce, and their relations to individual conditions normally associated with the different kinds of suicide. Third, I will explain Durkheim's concept of "suicide aptitude," the relative intensity which can be measured by the proportion of suicides per total population. Finally, I will clarify the means by which, according to Durkheim, this pathological social phenomenon might be neutralized.

Causes of Suicide

In order to understand the real factors that cause suicide, Durkheim utilizes the so called "argument by elimination;" it refers to the rejection of alternative explanations of suicide in order to remain with only one cause able to explain the phenomenon. Durkheim suggests that there are two kinds of general extra-social causes that could have an influence on the suicide rate: (1) the individual psychological constitution, normal or pathological, varying from country to country, and (2) the nature of the external physical environment, referring to factors like climate and temperature.

The first individual psychological factor cited by Durkheim is insanity. Durkheim eliminates this reason by rejecting the concept that suicide is itself a special form of insanity. He states that suicidal insanity is a "monomania," a form of mental illness limited to a single act or object, and very few cases of it have been proved to exist (Tullis 1998). Also, he argues that suicides committed by the insane are based on motives that are only hallucinatory, while many suicides are "doubly identifiable as being deliberate and springing from representations involved in this deliberation which are not purely hallucinatory" (Durkheim, 1951:67). The majority of suicides, Durkheim concludes, are not connected with insanity. In the same way Durkheim rejects alcoholism as an influential cause of suicides on the basis that geographical distributions of alcohol consumption does not correlate with suicide. Concluding, Durkheim argues that a psychopathic state may predispose some individuals to suicide, but it is not the real cause that explains the permanence and variability of suicide rates.

Two other causes of suicide considered by Durkheim are race and climate. At the time of Durkheim's research (i.e. the turn of the 19th century), a common explanation for human behavior was social type. For some, racial groups represented an evolutionary progression. Thus, some believed that certain racial groups were more vulnerable to pathological tendencies because they lacked physiological/genetic attributes. For those, race was perceived as an indication of cultural tendencies. In both of these terms, Durkheim rejected the hypothesis that suicide is the consequence of tendencies featuring specific major social types, referring to individuals recognized as typical example of a social category linked to other individuals with similar values, behavior, style, and habits. He in fact observes very evident variation in social suicide rates within the same social type.

Referring to climate, Durkheim demonstrates that cold, foggy conditions are not related to suicide. In fact, in every country for which statistics were available, the suicide rate is higher in spring and summer than in fall and winter. Durkheim observed that suicide increases in those months, days of the week and hours of the day when social life is most active, and decreases when collective activity declines, anticipating the real cause of suicide being the consequence of the intensity of social life (Jones, 1993).

Finally, Durkheim refuted another psychological theory, Tarde's (1898) hypothesis that social facts, and suicide in particular, are the consequence of imitation. In order to explain the genesis and development of suicide, Tarde focuses on communication, defined as transmission of cultural forms like language and religions. This is the only central and significant fact of social life. The key to understand social

phenomena is merely individual psychology. According to Tarde, social groups are the sources from which news ideas and inventions are transmitted by imitation, representing the social process. “Thus, the unvarying characteristics of every social fact whatsoever is that it is imitative. And this characteristic belongs exclusively to social facts” (Tarde1898:40-41). Durkheim's answer to Tarde’s theory was based on his own definition of imitation: “Imitation exists when the immediate antecedent of an act is the representation of like act, previously performed by someone else; with no explicit or implicit mental operation which bears upon the intrinsic nature of the act reproduced intervening between representation and execution” (Durkheim1951:129). Based on the above definition, imitation is described as a psychological phenomenon; to suggest that the suicide rate might be explained by imitation, therefore, was to suggest that a social fact might be explained by a psychological fact; instead, he continued, no social element is involved when we imitate beliefs and practices. Durkheim acknowledges that suicide can be a very contagious phenomenon, but this type of suicide is rare and necessarily has no social consequences; meaning that it does not affect the social suicide rate. Its consequences might instead be just individual and sporadic. To prove the authenticity of Tarde’s theory, Durkheim insists, we should see first a reflection in the geographical distribution of suicides, that is, the rate typical of one country should be transmitted to its neighbors; and second we should see a model of particularly intense suicidal activity to be imitated. Empirically, he argues, we should be able to expect the geographical distribution of suicides to reveal a pattern of concentration around major cities, less intensive going out from the center of the area. Instead, he finds suicide occurring in

relatively homogeneous masses over large regions with no central nuclei, suggesting the complete absence of any local influence of imitation, and, more important, he found the presence of a link between general causes of the social environment and the suicide rate. In fact, he noticed that a rapid change in that social environment is accompanied by an equally rapid change in the suicide rate.

Durkheim ends his discussion of the organic-psychic and physical environmental factors by concluding that they can not explain "each social group specific tendency to suicide." (Durkheim 1951:145).

Four Types of Suicide

By eliminating other explanations, Durkheim claims that suicide must depend on social factors, with the degrees of integration and regulation into society being either too high or too low. Social integration refers to the level of attachment of people to their groups. The term integration indicates the process of combining a group of persons to integrate into the mainstream of the society, and thus to benefit of the opportunities, rights and services available to the members of the mainstream of the society. According to Durkheim, abnormally high or low levels of social integration may result in increased suicide rates; low levels have this effect because low social integration results in disorganized society, causing people to turn to suicide as a last resort, while high levels cause people to kill themselves to avoid becoming liabilities on society. Also, according to Durkheim, social regulation refers to degrees of normative regulations people have in their communities. When social regulations break down, the controlling influence of

society on individual propensities is no longer effective and individuals are left to their own devices. Such a state Durkheim calls anomie, referring to a condition of relative normlessness in a whole society or in some of its component groups. Anomie characterizes a condition in which individual desires are no longer regulated by common norms and where, as a consequence, individuals are left without moral guidance in the pursuit of their goals.

Durkheim classified suicides into four distinct types or species based on their similarities and differences. More specifically his goal is to "first seek the social conditions responsible for them; then group these conditions in a number of separate classes by their resemblances and differences, and be sure that a specific type of suicide will correspond to each of these classes"(Durkheim 1951:147). In order to determine the causes of suicide, Durkheim studied some specific social environments, religious affiliations, familial and political society, across which the variations in suicide rates occur, and within which their causes might be found.

Egoistic Suicide. This type of suicide occurs where and when the degree of social integration is low, and a sense of meaningless emerges among individuals. In traditional societies this situation is not likely to be, because they are characterized by mechanical solidarity where the strong collective consciousness gives people a wide sense of meaning to their lives. However, Durkheim argues, within modern society, the collective consciousness is weaker, meaning that people may not see the same meaning in their lives. Consequently, uncontrolled search of individual interests may lead to strong dissatisfaction. One of the consequent results of this can be suicide. In fact, he argues,

"the bond attaching man to life relaxes because that attaching him to society is itself slack. The individual yields to the slightest shock of circumstance because the state of society has made him a ready prey to suicide." (Durkheim 1951:214-215). On the other hand, individuals who are strongly integrated into a family structure, a religious group, or some other type of integrative group are less likely to encounter these problems, and that explains the lower suicide rates among them. The factors leading to egoistic suicide can be represented by social currents such as depression and disillusionment, included in Durkheim's concept of social facts. "Actors are *never* free of the force of the collectivity: however individualized a man may be, there is always something collective remaining: the very depression and melancholy resulting from this same exaggerated individualism.' (Durkheim1951:214).

Altruistic Suicide. This is type of suicide occurs when integration is too great, and the collective consciousness too strong. The social currents that go along with this very high degree of integration can lead individuals to "feel it is their duty" to commit suicide (p. 91). Durkheim brings examples from primitive society featured by suicides of those who are old and sick, suicides of women following the death of their husband, and suicides of followers after the death of a chief. According to Durkheim this type of suicide actually 'springs from hope, for it depends on the belief in beautiful perspectives beyond this life." In this case, the altruist individual sacrifices his life for a goal beyond this world, conceiving consequently that this world is an inconvenient obstacle.

Anomic Suicide. The term anomie comes from the Greek meaning lawlessness. Specifically, it refers to the social instability resulting from breakdown of standards and

values. Anomic suicide is related to social consideration where regulation is too low. Durkheim argues that there is a relation between a society's suicide rate and the way it controls and regulates individual's needs. This can occur when the normal form of the division of labor is disrupted, and the collectivity is temporarily incapable of exercising its authority over individuals. Periods associated with economic depression (stock market crash of the 1930s) or extremely rapid economic expansion is the most likely times when this can happen. Usually, society plays a regulatory function, constraining individual needs and aspirations. However, when dramatic social change occurs it can make it difficult for a society to perform its regulative function. New situations where norms have yet to be established weaken the regulative effect of structures, and the individual may feel rootless. In this situation, an individual may be subject to anomic social currents. Happiness, Durkheim argues, exists when individual needs are sufficiently proportionate to the means of achieving them. When needs surpass the capacity to satisfy them, the result is a lack of productivity and can lead to a general weakening for the impulse to live. He concludes that "to pursue a goal which is by definition unattainable, is to condemn oneself to a state of perpetual unhappiness." (Durkheim 1951:247). People that are freed from constraints become 'slaves to their passions, and as a result, according to Durkheim's view, commit a wide range of destructive acts, including killing themselves in greater numbers than they ordinarily would.' (Ritzer 1992:92). In addition to economic anomie, Durkheim also analyzes domestic anomie. The power of marriage, in fact, is very significant in terms of regulation of physical instinct and moral feelings.

Fatalistic Suicide. Durkheim also suggested that a type of suicide can occur when a society over regulates or controls its members. He refers to this form of suicide as fatalistic. Durkheim considers the possibility that "persons with futures pitilessly blocked and passions violently choked by oppressive discipline" may see no way out. In this type of society an individual might see no possible manner in which their lives can be improved, and a state of melancholy sets in. In this way, persons may be subject to social currents of fatalistic suicide.

Finally, Durkheim explains how these types of suicide are not found individually: different causes, in fact, can distress the same individual in the same time, originating "composite modes" of suicidal aptitude. In other words, we can find any combination of suicide causes. Egoism and anomie, for example, can be easily found together: an egoistic individual is often introverted, dispassionate, and lacking in aspirations. Similarly, anomic and altruistic causes can come together: "the exasperated infatuation produced by anomie may coincide with the courageous, dutiful resolution of the altruist" (Jones 1993: 102). Finally, egoism and altruism may be found together in specific situations to be effective causes of suicides: within a society undergoing disintegration, individuals might group together, constructing extreme ideals and devoting themselves to them to the extent that they become isolated from everybody else. In general, the suicide aptitude is defined by Durkheim as 'the rate of mortality through suicide, characteristic of the society under consideration", based on its insufficient or excessive degree of integration or regulation. This rate, Durkheim insists, is both permanent (the rate for any individual society is less variable than that of most other leading demographic data,

including the general mortality rate) and variable (the rate for each society is sufficiently peculiar to that society as to be more characteristic of it than its general mortality rate).

To find a way to reduce what Durkheim calls this 'pathological phenomenon', we need to understand that the root of the problem is actually an exaggeration of acts that are considered normal in any societies. For example, the legal and the educational systems are products of the same currents that cause suicide. The same systems that are supposed to create and maintain the bonds between the individual and the social group, Durkheim notices, now just fail to play this fundamental role. The solution has to be found in the attempts to reestablish these bonds. What is needed is a social group able to exercise this reintegrative function. However, the main social groups, state, religion, and the family, were able to prevent suicides in the past only because they were cohesive, integrated societies in themselves; and, having lost that character, they no longer have that effect. The "occupational group" or corporation is indicated by Durkheim as a social group featuring integrative and preventative potential. "Its influence on individuals is not intermittent, it is always in contact with them by the constant exercise of the function of which it is the organ and in which they collaborate. It follows the workers wherever they go; wherever they are, they find it enveloping them, recalling them to their duties, supporting them at need" (Durkheim 1951: 378). Finally, corporate action makes itself felt in every detail of our occupations, which are thus given a collective orientation" (Durkheim 1951:379). However, in order to prevent the suicide's causes, the occupational groups must become a recognized organ of public life, and be granted social functions like the supervision of insurance, welfare, and pensions. But above all, the

occupational group must exercise a moral function. “Whenever excited appetites tended to exceed all limits,” Durkheim explained, “the corporation would have to decide the share that should equitably revert to each of the cooperative parts. Standing above its own members, it would have all necessary authority to demand indispensable sacrifices and concessions and impose order upon them. Thus, a new sort of moral discipline would be established, without which all the scientific discoveries and economic progress in the world could produce only malcontents. (Durkheim1951:383).

In conclusion, Durkheim’s analysis of suicide shows how social factors can be emphasized as opposed to the psychological and biological, and how it results in some useful ways of analyzing the actions of individuals. Suicide rates as expressions of social currents are social facts that affect societies and individuals within societies. Durkheim does not discharge the use of psychology; it is still useful in determining individual motives and the specific circumstances that can lead to suicide. However, these circumstances should be analyzed by taking in consideration the context of the social currents to which individuals are subject.

Extensions of Durkeimian Theory

Durkheim’s work has played a central role in most past and recent sociological explanations of suicide. He was one of the first scientists to develop a comprehensive sociological theory of suicidal behavior and to introduce a wide selection of statistical data to support his hypotheses with many examples and statistical graphics from ancient (even primitive) and, then, modern societies.

However, Durkheim's work was not exempt from significant criticism. Authors in fact have dedicated many pages to critiquing his work. Several of them even believe that Durkheim's contributions have become outdated because of the limitations and difficulties found in his work. Because of the importance of the critical issues, it is important to summarize a selection of crucial aspects of these critiques, before presenting Post-Durkheimian theories. First, many authors have noted the overlap between egoism and anomie, arguing that there is no sufficient sociological distinction (Gibbs, Martin 1958; Sainsbury 1955). Durkheim himself stressed the identity of egoism and anomie; he observed that egoism and anomie "are usually merely two different aspects of one social state" (Durkheim 1951: 228).

Another important critical issue about Durkheim's work is represented by his "argument by elimination." Considered as a good example of the *Suicide*'s power to both persuade and mislead in his discussion of "extrasocial causes," the argument consists of "the systematic rejection of alternative definitions or explanations of a social fact, in a way to provide credibility to the only remaining reason, Durkheim's own" (Jones, 1993: 11). The argument by elimination leads to specific problems: in fact, other alternatives may exist; and, the conditions and causes they postulate separately might be conjoined to create better adequate explanations other than Durkheim's "sole remaining" candidates (Jones, 1993).

Another often discussed limitation is represented by the "p*etitio principi*," that is the words and phrases used to express the premises of an argument are synonymous with the words and phrases used to express the conclusion. In this case, the conclusion simply

restates the premises, with minor changes. This is a feature of Durkheim's work as a whole. The source of criticism here consists in fact, again, that it does make it impossible to consider alternative causes, and thus to evaluate Durkheim's elaborate statements. “In *The Elementary Forms*, for example, Durkheim first defined religion as a body of beliefs and practices uniting followers in a single community, and later he concluded that this is one of religion's major functions” (Jones, 1993: 17).

Another significant source of critique is Durkheim's use of a language that was both highly metaphorical and confusing, featured by biological metaphors suggesting, for example, that society is like an alive organism; the critique consisted on the fact that in *Suicide* this language made it difficult for Durkheim to explain clearly his interpretation and perception of the suicide phenomena in terms of social conditions (Selkin, 1983).

Post-Durkheimian Theories of Suicide

In view of all of the above limitations, it would be hard to believe that Durkheim successfully demonstrated “what he thought he had and what so many since have believed he did” (Marra and Orru’, 1991:285). In spite of that, Durkheim’s *Suicide* remains the most significant sociological work on suicide, primarily because of its innovating idea of scientific investigation of a social phenomena and because it breaks with the tradition of research on suicide, hostile to the dealing of suicide as actions caused by social meanings. The extensive literature dealing with it in the social sciences testifies to the attention it orders in the field. Since the appearance of *Suicide* in 1897, sociologists have prolifically written to explain patterns in suicide rates both within and

across societies. Most of them have focused their work to clarify Durkheim's identification of types of suicide and agreed with the Suicide that causes of voluntary death must be treated as a social problem independent of personal grief because it represents a measurable loss to society (Douglas, 1967). In the paragraphs that follow I will outline the main positions of the Post-Durkheimian theoretical orientations.

Integration Theory of Suicide

Following Emile Durkheim's principles, Gibbs and Martin (1958) focus on the fact that the volume of suicide reflects the basic characteristics of social units independent of the individual victims. The suicide rate of a population, in particular, varies inversely with the stability and durability of social relationships within that population. The focus of this theory seeks to address the ambiguities in Durkheim's concept of 'social integration.' Durkheim, they argue, does not provide any empirical references or operational definition for the above concept. Consequently his proposition is supported, once again, not by its predictive power but by his forceful argument in its defense. To fill this gap, they operationalize the concept of social integration, referring to it as 'the stability and durability of social relationships' by observing the degree of status integration within a population. According to Gibbs and Martin, 'the stability and durability of social relationships within a population varies directly with the extent to which individuals in that population conform to the patterned and socially sanctioned demands and expectations placed upon them by others'(Gibbs, Martin 1958:141). In a society, in fact, an individual's social identification, his status, determines the demands

and expectations to which he must conform in order to preserve his social relationships and to maintain his 'rights' – the demands and expectations he can make of others. Demands and expectations constitute the roles of that status. 'The extent to which individuals in a population conform to the patterned and socially sanctioned demands and expectations placed upon them by others varies inversely with the extent to which individuals in that population are confronted with role conflicts' (Gibbs, Martin 1958:143). By defining status using social categories such as age, sex, occupation etc, they argue that the more status conflict there is in an individual, the less frequently more roles will be occupied by a given individual. "The extent to which individuals in a population are confronted with role conflicts varies directly with the extent to which individuals occupy incompatible statuses in that population" (Gibbs, Martin, 1958: 143). Given a collection of statuses, the roles of each status tend to conflict more or less with roles of other statuses. The individual is confronted with an incompatibility in statuses if conformity to the roles of one status interferes with his conforming to the roles of another status. Two statuses are incompatible only in the sense that their roles are conflicting as described above. Conformity to the roles of a status would not be difficult if it were not for the fact that each person occupies several statuses simultaneously. Consequently, from the behavioral point of view two statuses with conflicting roles are only incompatible when they are occupied simultaneously. "The extent to which individuals occupy incompatible statuses in a population varies inversely with the degree of status integration in that population." Their basic idea is that the greater the status conflict of a given combination of statuses, which they call status configuration, the more frequently

an individual will change to another status configuration. Thus the relative lack of occupancy of a status configuration shows how much status conflict there is in that configuration. However, when an individual wants to leave a specific status configuration filled of conflict and for some reason he/she can not, that individual leaves life by means of suicide, or he/she does so with more frequency than others with less status conflict. Gibbs and Martin status integration theory of suicide is significant to report because it is one of the few works on suicide that can be considered as a theoretical extension of Durkheim's theory.

Status-Change Theories of Suicide

The relation between suicide and social status has been a field of particular interest in sociology. Powell (1958:132) concluded that "the nature and incidence of suicide varies with social status." More specifically, the basic idea of this theory is that the social validation of the self is a fundamental task and need for each individual. When the individuals can not validate themselves through the normally approved form of status activity, they is more likely to commit suicide.

However, empirical studies reveal contradictory findings about the nature of the above relationship. Durkheim argued that suicide is very frequent in the highest classes of society (1951:165). Moreover, further studies (Cavan, 1928; Henry and Short, 1954) conclude that in general the category with the highest status position is the category with the highest suicide rate.

Other studies, on the other hand, reach opposite conclusions. Sainsburry (1955) analyzed the economic status of people in London at the time of suicide and found that the proportion of suicides in poverty areas was very high. Poverty, in fact, influences those used to a better standard of living; they are unable to tolerate this new condition and consequently they are more predisposed to suicide. An example of this theory was the rise in suicide rate in the upper occupational classes during the economic depression. Also, Breed (1963) discovered an excessively high suicide rate in the lower occupational ranks; Maris (1969) concluded that the social status hierarchy is inversely related to the suicide rate. Gibb and Porterfield (1997) studied the patterns of changes in prestige of occupational position related to suicide. By analyzing statistics on the suicides officially recorded in New Zealand, they found that both upward and downward mobility were associated with significantly more suicide, but downward mobility seemed to be associated with a higher suicide rate than upward mobility.

Finally, Dublin (1963) concluded that suicide is more frequent at the two extremes of the economic scale; suicides of persons in the higher social status might be due to stress associated with work; whereas in the lower social status, suicides could be due to hopelessness or poverty, unemployment and insecurity.

Subculture Theory of Suicide

Halbwachs (1930) proposed a social psychological theory of suicide. His model specifies more clearly the conditions under which lack of social integration may induce

suicide. More specifically, he proposed that changes in consciousness of the individual's self breaks in social relationships and potentially precede the suicidal act.

Halbwachs argues that the sentiment one suddenly has of being alone, that results from social chaos and damaged relationships, forces the individual toward suicide. For Halbwachs, contrary to Durkheim, a break in relationships, which means a loss of social integration, is a necessary but not a sufficient cause of suicide. Rather, as Halbwachs suggests, a change in consciousness is sufficient cause. Detached from one group by a sudden disturbance, the individual believes himself or herself incapable of ever finding support in another, or anything to take the place of what he has lost, thus losing his principle reason for living. Unlike Durkheim, Halbwachs emphasizes the efficacy of internal sentiments, like anguish and terror, which arouse feelings of solitude that seem without remedy. This anguish leads to social isolation, as Halbwachs explains: "When a man is not in accord with the others on what he takes most to heart, and when their representation of beings and things no longer clearly coincides with his own on any point of interest to him, he is clearly isolated in their midst, not so much because he does not understand them at all as because they do not agree with him" (Travis 1990).

Frustration-Aggression Theory

Henry and Short (1954) developed the frustration-aggression theory. The fundamental theoretic purpose of the authors in this work is to combine psychological and sociological variables to explain variations in suicide as well as homicide. According to them, suicide results from individual's frustration in their attempts to achieve their

goals, defined by social standards, and the consequent aggressive feelings can be a primary cause of extreme action directed either at themselves with suicide or at others through homicide. Henry and Short argue that economic improvement leads to a decrease in frustration and thus aggression, stating that there is a relationship between suicide rates and business cycles. They also argue that frustration and aggression occur differentially depending upon the degree of external restraint imposed upon the individual. Since they assume that external restraint is inversely related to status, their theory implies a positive correlation between suicide rates and status.

The social structure, in fact, presents differences in the socialization of aggression; lower class individuals tend to express aggression outward (homicides) more than inward (suicides) while upper-class individuals tend to express aggression inward more than outward. Lower class individuals will show a preference for homicide over suicide and upper –class individuals will show a preference for suicide over homicide (Gold, 1958). On the most general level, Gold's task is to show that sociological variables like social class or status partially determine the choice between homicide and suicide. However, in his argument concerning the relation between social class and the inclination for the expression of aggression outwardly or inwardly, Gold merely distinguishes between upper class and lower class without considering the possibility that the middle-class individuals would show very different tendencies so that there would not be any simple monotonic relation between variables. He justifies this by stating that stratified data are not available to test the prediction that middle-class people are more likely than working class people to commit suicide (Douglas, 1967).

Ecological Theories of Suicide

A different approach on the study to suicide is represented by ecological theories. Ecological analysis examines the impact areas or local environments on behavioral patterns of individuals residing them. More specifically, the ecology of suicide refers to the analysis of how the characteristics of certain areas can influence suicide rates. The first ecological works on suicide after Durkheim (Cavan, 1928; Schmid, 1928) related suicide to physical aspects of the city and to the types of social relations caused by the physical and population factors of the city. Here the emphasis was on the causal importance of the physical environment of the individuals; more specifically, the suicidogenic effect of cites was stronger in the core areas, where suicide rates were higher, and lower in areas further away from the core. Inner city districts had a mixed composition of residents and an increased turnover of population, impeding the development of a constant system of norms and values. As a result, the lack of stable relationships caused individuals becoming isolated and more likely to commit suicide, in particular when certain psychological individual characteristics were also present.

Maris (1969) brought a new character to the ecological study of suicide; he reported a positive relation between suicide rate and residential mobility as well as the proportion of population with higher level education and white-collar occupations. He emphasized certain population characteristics as the dominant causes of social disorganization, assumed in turn to cause suicide. Following Durrkheim's doctrine, Maris argued that higher status persons are less constrained by the society than are those

lower in the social hierarchy and that it is this relative lack of constraints that makes them most vulnerable to suicide.

Another ecological approach is brought by Sainsbury (1955). He argued that the amount of mobility and the degree of isolation in a district are linked to suicide rate; these variables in fact contribute to a community life that is unstable, without any order. More specifically, like described above, he considered relationships between variables as unemployment, poverty, loss of status and suicide rates of a given population area of London.

In general, ecological theories believe that the social-cultural system is of fundamental importance in the causal process of suicide. Suicide is a consequence of a failure of social control over the behavior of the person, and consequently a phenomenon of social disorganization or isolation. Societies have mechanisms to prevent suicide and to reinforce in their members the sense of life; suicide reflects failure in such mechanism. However, in order of social disorganization to be able to be a main factor in explanation of suicide, it must be accompanied by another important factor: personal disorganization: like for the above described theories, "when for any reason there is a break in the reciprocal relation of subjective interests and external world, a crisis of crucial situation exists and old habits and attitudes are not longer adequate to the situation. If an adjustment cannot readily be made the person finds himself dissatisfied, restless, unhappy, and in time unable efficiently to order his life. He is then personally disorganized" (Cavan 1928:144).

Summary

In conclusion, the most significant contribution of the above works on suicide has been the sociological perspective itself: the claim on considering suicide as the result of social factors. In the past there has rarely been any suggestion that the specific interaction processes between individuals in social frameworks might be of fundamental importance in explaining suicide.

Nevertheless, while Durkheim's work was able to correct and refine the prior research featured by outdated statistics, later scholars have not been successful in going beyond him. Among the works that use *Suicide* as a point of departure, it is, in fact, rare to find further theoretical development. Some of the works that used data to assess and extend Durkheim's theory (Gibbs and Martin 1958; Halbwachs; Henry and Short 1954) basically ignored the earlier works or limited themselves to brief summaries. Douglas (1967) argues that *Suicide* itself is in part responsible for this lack of theoretical accumulation. Its limitations, described above, have led more scholars to this interpretation, thus neglecting cumulative theoretical progress. Such works (Gibbs and Martin 1958) typically have assessed and suggested extensions of Durkheim's theory, but precluded the full development of their own theoretical analyses. "If this process has fostered some originality in the interpretation of Durkheim, it also has thwarted accumulation in studies of suicide in the Durkheimian tradition" (Douglas, 1967:158).

As a final point, two main sources of critical discussion can be highlighted. First of all, both Durkheim and his successors' central explanatory hypothesis is based on the fact that "when social conditions fail to provide people with the necessary social goals

and/or rules at the appropriate levels of intensity their socio-psychological health is impaired, and the most vulnerable among them commit suicide" (Douglas, 1967:154). However, this hypothesis does not explain what is meant by socio-psychological health, if it is socially determined, and, specifically, if it is affected by some particular community factors.

Also, and most significantly, there is another element in these various theories that illustrates the need for a new theoretical approach to suicide as a social phenomenon: not enough consideration is given to the problem of defining society or social structure. Since the basic assumption was that the society creates the conditions that potentially generate suicide, it would seem necessary to specify what a society is and what specific elements of it are to be considered a part of it. Sociological analysis has traditionally given attention to the protective functions played by being part of a community or social group. Several studies have followed this position, and the notion that an individual's position in the social structure impacts on his/her physical and mental well being is amply recognized in the literature (Aneshensel 1992; Pearlin 1989). More specifically, a sense of community (social integration) and shared values (social regulation) can influence the behavior and actions of individuals.

Particularly, a study on suicide and religious homogeneity (Ellison, Burr, McCall 1997) revises Durkheim's thesis. Here, religious homogeneity is intended as a structural factor of a community, specifically the extent to which community residents adhere to a single religion or a small number of faiths. This homogeneity is indicated to enhance social interaction, by increasing social bonds among persons from similar religious

backgrounds. Also, as a consequence of sharing faith commitments, individuals have a propensity to share other kinds of values, in terms of morality, family, and community affairs. From this perspective, religion plays an important role in a community's civic life. Specifically, the authors argue that "such sphere coherence may buttress the plausibility structures of many residents, thereby producing lower levels of suicide in these locales" (pg.287). However, this theory seems to be more appropriate to be applied to a 'mechanical solidarity' type of community, where social cohesion is based upon the likeness and similarities among individuals, and largely depends on common rituals and routines. Many of today's societies, instead, follow the 'organic solidarity' type where social cohesion is specifically based upon the dependence individuals have on each other. Because a principal feature of modern societies is a complex division of labor, individuals perform different tasks and often have different values and interests; though, the order and very survival of society depends on their reliance on each other to perform their specific task.

Theorists of suicide have traditionally assumed that cultures across different societies are basically the same or at least that differences are not significant for an explanation of suicide. In this context, variations in social structures of today's communities merit investigation in terms of their impact on people's sense of personal worth and belonging in society (Giddens 1964). Modernization and structural pluralism theories provide a framework to better understand individual ties in a pluralistic society.

Modernization Theory

A way to describe changes in social structures is offered by modernization theory. This theory postulates that modernization is an irreversible process through which all contemporary societies increasingly gravitate to and thus come to resemble one another (Rostow, 1978, Zhang 1998). According to this theory, modernized societies share such characteristics as nuclear family structure, secular ideologies, formal education systems, high economic mobility, and an increasing of secondary group relations. Durkheim (1951) was one of the early advocates of modernization theory attributing suicides basically to the social factors that are the consequences of modernization. In Durkheim's view, egoism and anomie are consequences of modernization's effects via industrialization, urbanization, and secularization. Specifically, the decline in dependency of the individual to the group (i.e., increased egoism) increases suicide potential. Also, the rise of capitalism and its dependency on escalating profits, in turn, leads to certain forms of suicide (Durkheim, 1951; Stack, 1980). Durkheim's notion that modernization is positively correlated with suicide has been examined in many cross-cultural studies (Ellner, 1977; Simpson and Conklin, 1989; Stack 1981). Stack (1978), for example, examined the relationship between economic growth and suicide rates within a sample of 45 nations and found that the higher female participation in the labor force in an industrialized society causes role conflict and, subsequently, more male suicides.

Nevertheless, countries modernized at the same level do not necessarily have the same suicide rates. One criticism of modernization theory is that it neglects the importance of culture and history in a society's economic development. It is not rational

to conclude that better life causes depression that leads to self-destruction (Wallerstein, 1974). Most likely it is not the effect of modernization as a whole but the effect of certain indicators of modernization, such as industrialization and high residential mobility, that coming together with modernization makes people in a modernized society feel hopeless, depressed, or suicidal (Zhang, 1998).

Community Structural Factors

Eckersley and Dear (2002) argue that socio-structural changes in Western societies in recent years have had an adverse impact in terms of increasing individualism, thus contributing to a greater sense of isolation rather than support for individuals to remain more socially connected and to view themselves as interdependent with others. Specifically, greater dissatisfaction with life in terms, for example, of opportunities, health services, and social networks has been identified (Katz, Buchanan, and McCoy 1999). On the other hand, some specific structural elements of a community have the potential to protect against distress by protecting individuals' socio-psychological health.

In these terms, social and economic factors may help us to understand variations in suicide rates. In fact, suicide can be understood as a 'barometer' (Catelli 2003) of the state of pathology of the community, and also as a symptom of the possible changes in collective orientations of the community, to individualize periods of time when the social tension reaches critical levels, and, consequently, to isolate the causes. Here, suicide can be understood as a measure of high social pressure in groups or communities (Catelli 2003).

A way to measure the impact of social and economic structures on socio-psychological health for communities was recently introduced by Young and Lyson's (2001) theory of structural pluralism. Young and Lyson define structural pluralism as the community's capacity for political competition, and political exchange. Here, political competition includes all levels of competition, from legislative debate to grassroots political involvement. Political exchange refers to the degree to which alternative policies are publicly debated and evaluated. Structural pluralism affects community's welfare because of the presence of a greater density of networks of associations that create problem-solving capacity for the community. Pluralism, specifically, is a type of institutionalized problem solving capacity that generates a process for the communities that it can be argued lower mortality. This is based on the fact that participation in collective problem solving tends to create a 'healthy' social environment. While pluralism promotes ideological diversity that sometimes generates conflict, it is argued that more often than not it will generate interest which mobilizes groups to action in order to address community goals. Thus, a vibrant and engaged citizenry is more likely to support public/community institutions and resources. For example, we would expect to find stronger educational institutions in politically plural communities. Likewise, it is hypothesized that these communities would be more likely to promote public health and medical infrastructure. Furthermore, participation in community organizations and involvement in social networks, enhance the likelihood of accessing support which then provides protection against distress, as a protective factor for psychological well being (Berkman and Syme 1979; House, Robbins and Metzner 1982). Young and Lyson

(2001) do find empirical support for their hypothesis. Using presence of membership associations and small business to measure structural pluralism, they find that communities which have higher levels of pluralism tend to have lower mortality.

Tolbert, Irvin, Lyson, and Nucci (2002) argue that the problem solving capacity of communities which results from pluralistic political structures also promote civic welfare. According to Tolbert et al. (2002), civic welfare is the degree of local capitalism and civic engagement (economic and non-economic institutions) present in a community. This approach focuses on the relationships between economic and noneconomic institutions, maintaining that locally oriented capitalism and civic engagement are the foundations of civic institutions that nurture trust and cooperation among citizens (Putnam 2000; Etzioni 1996). In terms of local capitalism, locally oriented production firms are likely to contribute to the civic culture because the owners and managers are socially and financially invested in the community (Mills and Ulmer 1946). Further, owners and managers of small firms frequently are active participants in the community's civic affairs. In the various service and business clubs, organizations, and associations, small business-people establish and maintain networks of local contacts and supporters (Mills and Ulmer 1946). As a result of their strong and enduring community ties, they may be less likely to pull out of the community during an economic downturn, and more likely to support and lead local nonprofit institutions.

In terms of civic engagement, Putnam (1993) suggests that the proliferation of associations is a central dimension of civic institutional structure. Civic welfare should increase where there are more organizations that encourage association and are oriented

toward the public good. Some organizations, like charitable organizations, are formed specifically to enhance some aspect of the public good. Others, such as the VFW or the YMCA, provide a space for community interaction that bonds members to community. Both types increase community cohesion. Also, churches and faith-based organizations provide a basis of association and mobilization for community problem solving. Adherence to church embeds people in communities and increases the proportion of people who stay in a community. Finally, local hangouts and gathering places, called 'third places' can be an important institutional mechanism for linking individuals together in a community. These kinds of establishments have the function to create horizontal linkages in a community, which increase civic engagement (Granovetter 1973). The proliferation of such public gathering places, then, increases the density of network connections throughout the community that tie local business activity to local populations so that locals find employment more easily. Third places, thus, are another key aspect of civic community, which tie together the components of civic engagement and local capitalism.

In conclusion, a climate in which civic community prospers is thought to enhance local residents' well-being. Civic welfare is composed of high income levels, low poverty levels, retention of residents, and low levels of unemployment (Tolbert, Irvin, Lyson, and Nucci 2002) (see Figure 2.4). Like political pluralism, civic welfare should be related to mortality. These characteristics of civic welfare might be specifically linked with suicide rates. Current research demonstrates an inverse relation between income and suicide (Barnes, 1975; Stack 1980). Unemployment has also consistently been

shown to increase suicide (Li 1972; Stillman 1980). Furthermore, Stack's research (1980) shows that weak community ties, as shown by the percent of population change due to migration, increase suicide.

Thus, both structural pluralism and civic welfare may be related to a community's health. In particular, the problem-solving capacity of a community as evidenced by the level of political pluralism and civic engagement may operate to address local health problems and to promote healthy behavior among its population.

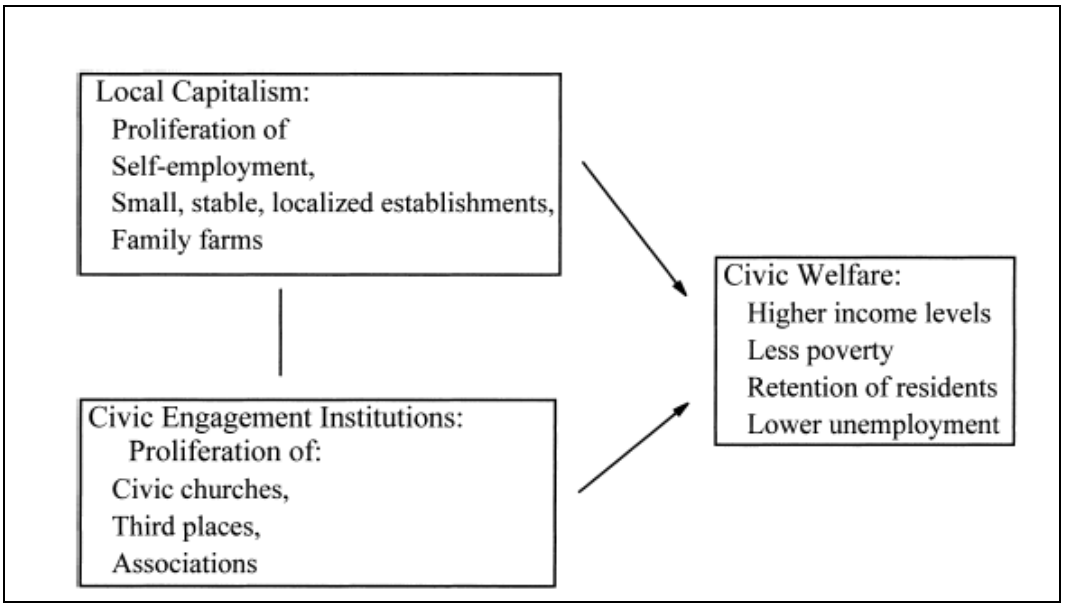

Figure 2.4 Civic Welfare Conceptual Diagram (Tolbert, Irvin, Lyson, and Nucci 2002)

Statement of the Problem

The goal of the above section was to review the extant sociological literature on suicide – particularly the prevailing sociological theories on sociology. This review leads to a conceptual framework to understand how suicide relates with variations in the community structure. Because of the solitary nature of suicide, theoretical explanations in the literature have often accounted for the phenomenon by examining individual and personality characteristics. However, the literature also suggests that social and economic changes in community are factors that are related to suicide. Durkheim, in fact, argued that interactions among individuals toward common goals create a sense of cohesion, creating stability and durability of social relationships in a community. This is an important inhibitor of suicide. Changes in this balance can provoke increases in

suicide. Based on this, it is necessary to examine to the social changes that occur in a community. Today's modernization processes tend to emphasize individualism and dissociation, bringing dissatisfaction to people's lives. Suicide is the extreme result of these outcomes, and, consequently, suicide can be seen as a symptom of these conditions.

Following the concept of structural pluralism, suicide is framed as the outcome of structural changes in the civic welfare of a community. Specifically, Young and Lyson (2001) adopt structuralism pluralism theory to explain all causes of mortality. Here I plan to test if structural pluralism along with civic welfare explain a specific type of mortality – suicide. The conceptual model for the relationship between suicide, structural pluralism, and civic welfare is illustrated below in Figure 2.5.

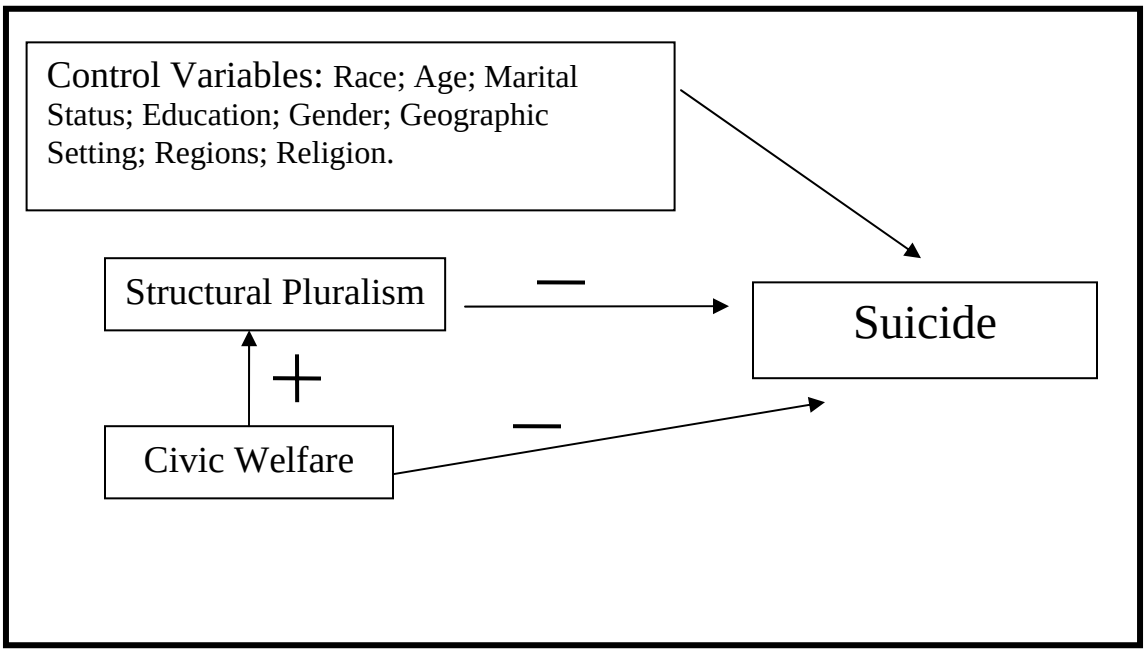

Figure 2.5 Conceptual Model

The model shows the principal relationships between several variables. Clearly, socio-demographic factors can have a direct effect on suicide rates; specifically, socio-demographic community factors such the community's age composition, gender composition, level of marriage, racial composition, religious affiliation composition, level educational attainment, and geographic setting. Structural pluralism should also directly affect suicide rates. Also, civic welfare is hypothesized to have a direct effect on suicide rates. Additionally, civic welfare should positively affect structural pluralism. Thus, civic welfare should also indirectly affect a community's level of suicide. Based on the conceptual model, the hypotheses of this research are as follows:

1. Suicide rates will vary according the socio-demographic characteristics of their communities in the following ways: a) the percentage of married people will be negatively related to suicide rates, b) the percentage of African American population will be inversely related to suicide rates, c) the percentage of college education population will be inversely related to suicide rates, d) the percentage of females will be inversely related to suicide rates, e) percent of population living in urban areas will be positively associated with suicide rates, f) communities in Western and Southern regions will have higher suicide rates than other regions, and g) the percent of Catholic population will have an inverse relation to suicide rates.

2. Structural pluralism has a direct effect on suicide rates, weakening the effects of the socio-demographic variables on suicide. Specifically, structural pluralism will be inversely related to suicide rates.

3. Civic welfare have a direct negative effect on suicide rates; the higher civic welfare of a community the more likely they will have lower rates of suicide.

4. Civic welfare will be positively associated with structural pluralism and is expected to increase the strength of structural pluralism's effect on suicide rates.

In summary, the principal argument is that structural pluralism is expected to lower the suicide rate in communities, after socio-demographic characteristics have been controlled. The following section outlines the research design to operationalize the above variables and to describe the analytical tools used to test the hypotheses.

CHAPTER III

METHODS

Introduction

The objective of this study is to understand how suicide relates to community structure. Suicide and suicidal behavior affect individuals of all ages, genders, races and religious groups. Thus, suicide represents an important social issue worthy of a social explanation. In 2003 and 2004, suicide was the eleventh leading cause of death in the U.S., with one suicide occurring every 17 minutes (American Association of Suicidology, AAS, 2006). This study focuses on the social factors that may explain suicide. In some instances suicide is not preceded by warning signs and more importantly not all those people who commit suicide are suffering mental disorders. More specifically, variations in the sociopolitical structures of communities in the U.S. may hold an explanation for the variability of suicide rates. Emile Durkheim (1951) explained the variation in suicide rates by relating the loss of traditional forms of social organization and integration to suicide. Since the appearance of *Suicide* in 1897, many sociologists have focused their work to clarify Durkheim's identification of types of suicide, and most have agreed that causes of voluntary death must be treated as a social problem that represents a measurable loss to society (Douglas, 1967). However, a common fault of the post-

Durkheimian literature is to not emphasize clearly the meaning of society or social structure.

Since the basic assumption is that the function of society as a whole generates suicide, it is necessary to specify the specific elements of society. Theorists of suicide, however, have assumed that different societies' cultures are basically the same and they do not add any significant difference in explaining suicide. Modernization theory postulates that modernization is an irreversible process whereby all contemporary societies increasingly come to resemble one another (Rostow, 1978, Zhang 1998). According to this theory, social factors such as industrialization, urbanization, and secularization are consequences of modernization. Durkheim views this transition as breaking ties between the individual and community. The decline in dependency of the individual to the group (i.e., increased egoism) increases suicide potential. In general, socio-structural changes in Western societies in recent years have resulted in increasing individualism, greater sense of isolation, heightened dissatisfaction with life (i.e. less access to health services and weaken social networks that promote healthy behaviors (Katz, Buchanan, and McCoy 1999). However, structural elements of a community may also have the potential to protect against distress by protecting individuals' socio-psychological health. Specifically, variations in structural pluralism affect community's welfare because of the potential presence of dense networks of associations that create problem-solving capacity for the community. The problem solving capacity of communities results from pluralistic political structures with dense networks of associations which support greater civic welfare (Tolbert, Irvin, Lyson, and Nucci 2002).

As one of the consequences of influence on community's welfare, structural pluralism and civic welfare effects are examined with regard to explaining suicide.

To address the objective of this study, community-level data are needed. For this study, communities are operationalized using county boundaries. Counties are the primary divisions of states and the largest unit of local government, including all other local polities within them. Following Young and Lyson (2001), the definition that covers the county unit used in this study refers to 'an organized community defined as a group that encompasses a broad range of activities and interests, and to the extent that participation implicates whole persons rather than segmental interests or activities' (Young, Lyson 2001:136). The use of counties greatly increases the number of units of analysis. Counties also make fair estimates of communities because they tend to be more homogeneous with respect to the variables included in the analysis (Berkeley, Fox 1978). The use of the county unit also decreases the problem of misclassifying the place of residence of the deceased (Wilkinson 1984).

Several data sources are used to provide information essential for the analysis in this study. The suicide data is taken from the Centers for Disease Control, National Center for Health Statistics' Compressed Mortality File for the years of 2000-2004. In order to provide information on the structural pluralism, data from the 2000 County Business Patterns is used. The 2000 Census data and the Religious Congregations Memberships Study 2000 is used to provide information on demographic characteristics and civic welfare variables (see Table 3.1 for a description of the variables).

Data

Compressed Mortality File

The Compressed Mortality File (CMF) is a county-level national mortality and population database spanning the years 1968-2004. This database provides information on the number of deaths, crude death rates and age/sex/race-adjusted death rates by place of residence (total U.S., state, and county), age group, race, gender, year of death, and underlying cause-of-death. The mortality data in the Compressed Mortality File are based on records for all deaths occurring in the fifty states and the District of Columbia. Cause of death in the CMF is defined as "the disease or injury which initiated the chain of events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury" (World Health Organization (WHO)). Underlying cause of death is classified in accordance with the International Classification of Disease. Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10).

The population estimates on the Compressed Mortality File are U.S. Census Bureau estimates of U.S. national, state, and county resident populations. The 1980, 1990, and 2000 population estimates are April 1 modified census counts. The 2000 population counts have bridged-race categories (see http://wonder.cdc.gov/mortSQL.html).

County Business Patterns Data

County Business Patterns Data File is an annual data series providing subnational economic data by industry type. The series is used for several purposes including: (1) studying the economic activity of small areas; (2) analyzing economic changes over time; (3) as a benchmark for statistical series; and (4) surveys, as a source of information between economic censuses. County Business Patterns covers most of the country's economic activity with the exclusion of self-employed individuals, employees of private households, railroad employees, agricultural production employees, and most government employees. The County Business Patterns program has been tabulated using the North American Industry Classification System (NAICS) basis since 1998. Data for 1997 and earlier years are based on the Standard Industrial Classification (SIC) System. The data file was first collected in 1946 and published irregularly until 1964. Since 1964 it has been released on an annual basis.

County Business Patterns basic data items are extracted from the Business Register, a file of all known single and multi-establishment employer companies maintained and updated by the U.S. Census Bureau. The annual Company Organization Survey provides individual establishment data for multiestablishment companies. Data for single-establishment companies are obtained from various Census Bureau programs, such as the Annual Survey of Manufactures and Current Business Surveys, as well as from administrative records of the Internal Revenue Service, the Social Security Administration, and the Bureau of Labor Statistics.

In terms of geographic classification, most geographic codes are derived from the physical location address reported in Census Bureau programs. The Internal Revenue Service and the Bureau of Labor Statistics provide supplemental address information. Employers without a fixed location within a state (or of unknown county location) are included under a "statewide" classification at the end of the county tables. This incomplete detail causes a slight undercount of county employment.

Census Data

The 2000 decennial Census long form from Summary File 3 data is used to generate the socio-demographic variables for this study. In 2000, two versions of the census were implemented: (1) short form (100 percent count), and (2) long form (100-percent and sample questions). For Census 2000, the short form questionnaire asked population questions related to household relationship, sex, race, age and Hispanic or Latino origin and housing questions related to tenure, occupancy, and vacancy status. The questions contained on the short form also are asked on the long form, along with additional questions.

The long form questionnaire includes the same six population questions and one housing question that are on the Census 2000 short form, plus 26 additional population questions and 20 additional housing questions. On average, about 1 in every 6 households received the long form. The content of the forms resulted from reviewing the 1990 census data, consulting with federal and non-federal data users, and conducting tests.

Religious Congregations and Membership Study, 2000

This study was conducted by the Association of Statisticians of American Religious Bodies (ASARB) and reports data for 149 religious bodies on the number of congregations within each county of the United States. Participants included 149 Christian denominations, associations, or communions; two groups of independent Christian churches; Jewish and Islamic totals; and counts of temples for six Eastern religions.

In terms of sampling procedures, all religious bodies that could be identified as having congregations in the United States, based on the Yearbook of American and Canadian Churches, were invited to participate. The written invitation was followed by two general mailings, and, where needed, by special letters, personal contacts, and phone calls. As a final result 285 groups were invited, 149 actually participated, 22 expressed the intention to participate but were unable to do so, 12 declined to participate, and 102 did not respond. In terms of collection procedures, the religious bodies were asked to appoint a contact person. Then, two forms were sent to the contact person: instructions for reporting data; and a transmittal sheet to be signed and sent with the data collected.

Measurement of Variables

Dependent Variable: Suicide

The dependent variable examined in this study is county suicide rate. The CDC compiles data on suicide at multiple level of analysis, and for this study county-level

rates of suicide were obtained from the National Center for Health Statistics' Compressed Mortality File, using the International Classification of Diseases-9 codes E950-957. Because suicide is a rare event, at the local level it is necessary to compile multiple years to produce more reliable data. Thus, for this study county-level suicide over a five year period was combined, from 2000-2004. Here, suicide was measured as the rate of suicide per 100,000 county population (based on the 2000 Census of Population and Housing).

Independent Variables: Structural Pluralism

Two indicators will be used to measure a community's level of structural pluralism. Specifically, I follow Young and Lyson's (2001) strategy by using a set of variables considered representative of the organizational and institutional foundations of pluralism. The variables are described as a count (standardized by population) of all voluntary associations and membership organizations (example: trade unions and professional organizations) in the county; and small businesses (business enterprises with no more than 5 employees) considered to provide interaction opportunities.[1] The data for the structural pluralism measure are derived from the 2000 County Business Patterns[2].

[1] Electoral activity (percentage of all voters who took part in the 2000 presidential election) is another factor included in Young and Lyson's analysis. However, this variable is not considered by Young and Lyson as a structural indicator, but it only has the function to validate the other measures. This variable is not included in the present study.

[2] The count of establishments from NAICS code, 813, was used to operationalize the variables 'voluntary associations' and 'membership association', in order to best approximate what Young and Lyson did in their work. The membership/voluntary association data they used, in fact, was obtained by keying the data in by hand. In subsequent work, researchers started to use the information from County Business Patterns because it was collected by a much more reliable source. I will follow this last approach for the present study.

Independent Variables: Civic Welfare

In order to examine the effect of civic welfare, I employ the variables used by Tolbert, Irvin, Lyson and Nucci (2002). The variables that are used are median income; poverty rate; retention of residents; and unemployment.

Several studies (Breed 1963; Hamermesh 1983; Powell 1958) have pointed to income as determining the likelihood of suicide. Specifically, research suggests a negative relationship between level of income and suicide. Conversely, poverty rate, the percentage of people with a monetary income below the poverty level, is indicated as inversely related to suicide rates (Tolbert, Irvin, Lyson and Nucci 2002, Eckersley & Dear, 2002). Because of the high level of multicollinearity caused by the use of both variables, the 2000 median family income will be used in the present study.

The retention of individuals over time at the county level is a measure of population stability previously showed to be positively associated with other civic indicators (Tolbert, Lyson, Irwin 1998). Communities that have stable memberships are more highly integrated than those that are made up of newcomers and transient residents. In addition, high rates of population change are related to the weakening of many kinds of voluntary organizations, including churches (Stark, Doyle, and Rushing 1983). To this extent, population change is expected to be related to suicide. Individuals perceive themselves as deviant when they are quite different from the community's characteristics, experiencing, as result, more suicidal behaviors (Breault 1986, Lester 1983). In this study the variable includes the 'non-movers', those who did not change housing units

between 1990 and 2000 or who relocated within the same county, and it is identified as the percentage of county residents.

Unemployment has been used in a large number of studies of suicide (Boor 1980; Henry, Short 1954; Stack 1983). Diekstra (1989) and Cantor and Neulinger (2000) reported that for countries where suicide rates are found to increase, one of the most important predictors was the unemployment rate. Local unemployment levels will be operationalized as the percentage of the county civilian population in the labor force that was unemployed using 2000 Census data.

Socio-Demographic Control Variables

Several socio-demographic variables are controlled for in this study: (1) age, (2) gender, (3) marital status, (4) race, (5) religious affiliation, (6) level of education, and (7) geographic setting. Each of these variables has been found to be consistently correlated with suicide and may represent larger social dynamics which may help explain variations in suicide rates.

First, the age of individuals has been linked with suicide, as the likelihood of suicide tends to increase with age (Linden and Breed 1976) and is higher among those elderly who have minimal or weak relations with others (Bock 1972). Second, studies examining gender differences in suicidal behavior have found that, while women have a higher incidence of suicide attempts, men have higher rates of completions (Lester 1983). As is discussed below, it was necessary to incorporate these two factors into the dependent variable, which was adjusted by age and sex.

Conclusions about the effects of education show that there is an inverse relation between suicide rates and level of education (Li 1972). Beautrais, Joyce and Mulder (1998) reported that youths who attempted suicide were more likely than the non-suicidal control group to possess no educational qualifications. Blau (1977) suggests that educational diversity may be an indicator of status insulation. That is, those with similar educational levels tend to interact more frequently with one another, creating insulation across education levels. In this study, education is operationalized as the percentage of the county population with a college education.

The relationship between suicide rates and race has been mixed. Because suicide rates are higher among whites than African Americans, research on suicide risk factors has primarily been focused on whites (Moscicki 1997, Goldsmith, Pellmar, Kleinman, Bunney 2002). Representing a persistent racial gap, annualized official crude and age-adjusted suicide rates for whites for the period 1999–2002 were double those of African Americans. These rates were respectively 11.8 and 11.6 per 100,000 population for whites, and 5.3 and 5.5 per 100,000 for blacks (US Centers for Disease Control and Prevention, 2005).However, suicide among African Americans is a predominant problem and has been observed to have a higher effect than for whites (Kowalski, Faupel, and Starr 1987, Gibbs and Potterfield 1997). The African American population in the United States is characterized by social, political, and economic disadvantages (Jones, 1993; Moynihan, 1965; Myrdal, 1969; Shei and Stevens, 2005). Consequently, research shows African Americans experience much higher rates of morbidity, disability, and mortality than whites (Arias, Anderson, Kung, Murphy, and Kochanek, 2003; Ferraro and Farmer,

1996). Thus, the suicide rate among African Americans is a significant exception to these racial and health comparisons. In this study race is operationalized as the percentage of the county population that is African American and the percentage that is comprised of other non-whites.

Marital status has also been found to be an important correlate of suicide. Divorce, in fact, is used to measure poor integration into family life; specifically, divorce or breakdown of the family unit leads to a disruption in the union and support the family provides, leaving individuals vulnerable and alone (Hassan 1995). Consequently, concentration of high divorce rates (Stark 1980) and high percentages living alone tend to increase suicide rates, while concentration of parental responsibilities reduce it (Gould, Shaffer, Fisher, and Garfinkel 1998). Marital status in this study is operationalized as the percentage of the county population 15 years or older that is married.

Another important factor in explaining suicide is religious affiliation. Beginning with Durkheim's study many have analyzed differences in suicide rates between Protestants and Catholics. In Western Europe around 1800, Protestant suicide rates were higher than Catholics'; this fact was justified by Durkheim because of the fact that Protestantism concedes greater freedom of thought to the individual because it has fewer commonly accepted beliefs and practices, and makes one less connected to their community. Catholicism, on the other hand, is characterized by a collective credo that creates stronger connections between individuals. Some of these studies confirm Durkheim's 'one law' that Catholics have a lower rate (Dublin 1963; Kramer, Pollack, and Redick 1972) while others have failed to do so (Pope and Danigelis 1981; Stack

1981). Religious affiliation is operationalized as the number of Catholic, Protestant, Muslim and other religious adherents per 1000 population.

Also, higher levels of rurality/urbanity have been identified as a contributing factor to suicide (Cavan 1928). An important component of the process of modernization is urbanization which leads to a decrease in population homogeneity (Lester, 1983 and Masaryk 1970). Thus, urbanization creates a disconnection between people and causes a reduction in the insulating effects of socially integrating mechanisms such as community and family (Masaryk 1970, Stack 1981, Breault and Kposowa, 1987). Although different studies (Stack 1983 and Quinney 1965) found a strong positive relationship between urbanization and suicide rates as the result of diminished social networks of community and kinship that traditionally exist in rural settings, the literature that addresses the ecological connection between suicide and level of urbanization does not indicate a definitive direction to the empirical relationship between suicide and urbanization. Also, living in the western and southern regions of United States has been associated with higher rates in suicide (Monk M. 1987, Moscicki EK. 1997). In this study rurality is operationalized as the percentage of the county population living in rural areas.

Analytical Strategy

To investigate the relationship between suicide rates and structural indicators in US counties, a set of OLS Regression models will be estimated. These models will be based on the following equation:

$$Y = \alpha + B_1 X_1 + B_2 X_2 + B_k X_k + e$$

The equation presents the dependent variable (Y) is a linear function of the independent variable (X) with slope (B) and Y-intercept (α). OLS Regression is the most appropriate statistical tool to apply to this study because the dependent variable is measured on a ratio scale and the independent variables are measured on nominal, and ratio scales. Also, the use of OLS is based on the following assumptions: (1) The normal distribution of Y, (2) homoscedasticity, where the constant standard deviation distribution of Y across values of the independent variables, and (3) observations on the dependent variable are statistically independent. To test my hypotheses (see conceptual model, Figure 2.5), I first estimate a model with only the socio-demographic variables. Next, structural pluralism indicators will be introduced, followed by the civic welfare variables.

Table 3.1: Variable Descriptions

Variable Name	Measure	Source
Dependent Variable		
Suicide	Age/Sex Adjusted Rate per county per 100,000 population	Compressed Mortality File 2000-2004
Control variables		
Race	Percent African American Percent Other	2000 Census
Marital Status	Percent Married;	2000 Census
Rurality	Percent Rural	2000 Census
Religion	Catholics per 1000 pop. Protestants per 1000 pop. Muslims per 1000 pop. Other per 1000 pop.	2000 Census
Geographic Area	Set of Dummy Variables for: (1) South, (2) Northeast, (3) Midwest, and (4) West	2000 Census
Education	Percentage with College Education	2000 Census
Structural Pluralism		
Voluntary and Membership Associations	Percentage of Associations per County	2000 County Business Patterns
Small Businesses	Percentage of Small Businesses per County	2000 County Business Patterns
Civic Welfare		
Income	Median Family Income	2000 Census
Retention of residents	Rate of Non-movers 1990-2000	2000 Census
Unemployment	Unemployment Rate	2000 Census

CHAPTER IV

ANALYSIS

Introduction

This chapter presents the results of an analysis to address the main objective of this study - namely to examine how suicide rates in the U.S. are related to variations in community structural elements and civic welfare. To this end, this chapter is organized to address four hypotheses. First, the extent to which suicide rates change is contingent upon demographic conditions. Specifically, counties with higher percentages of married people are expected to have lower suicide rate; counties with higher percentages of African Americans are expected to lead to lower levels of suicide rates; counties with higher percentages of college educated persons is expected to be related to lower suicide rates; counties with higher percentages of females are expected to be related to lower levels of suicide; counties with higher presence of Catholics is expected to be related to lower suicide rates; counties with higher level of education is expected to be related to lower suicide rates; and living in the western and southern regions of United States are expected to be associated with higher levels of suicide . Finally, greater levels of rurality are expected to be associated with lower suicide rates.

Second, it is hypothesized that structural pluralism is expected to have a direct effect on suicide rates, and also weaken the effects of the socio-demographic community variables on suicide. Specifically, a higher level of structural pluralism is expected to

lower the rate of suicide. Third, civic welfare is expected to have a direct effect on suicide rates. Here, higher levels of civic welfare area expected to correspond to lower levels of suicide. Finally, higher levels of civic welfare are expected to increase the strength of structural pluralism, decreasing levels of suicide.

This chapter presents first presents the descriptive statistics and bivariate correlations of all variables included in the analysis. Next, the results of a series of linear regression models are presented. The first model reports the effects of socio-demographic characteristics and suicide rates. In the second model the structural pluralism measures were added. In the third model the civic welfare variables were added to determine the impact of structural pluralism and civic welfare on suicide when controlling for all factors.

Descriptive Statistics

The descriptive statistics for demographics are reported in Table 4.1. On average, between 2000 and 2004 there were 12.66 suicides per county per 100,000 population. Average age is between 25 and 65, and slightly over 50 percent of the sample is female. For religion, on average there were 136 Catholic, 142 protestant, three Jewish, and one Muslim adherents per 1000 population, respectively. Also, on average, the counties were comprised primarily of whites, 84 percent on average, and African Americans, nine percent on average. Fifty-seven percent of the county population was married, and almost fifty-nine percent of the county population lived in rural areas. In terms of regions, on average, 34 percent live in the midwest, seven percent in the

northeast, 47 percent live in South and 12 percent in the west. For level of education, almost 43 percent on average at least some college education.

Table 4.1: Descriptive Statistics Socio-Demographic Variables

Variable	**Mean**	**SD**	**Min.**	**Max.**
Age/ Sex Adjusted Suicide rate	12.66	5.025	0.00	51
Percent Age Less than 1 to 5	7.63	1.25	0	1
Percent Age 6 to 24	26.77	3.7	0	1
Percent Age 25 to 65	50.90	3.57	0	1
Percent Age 65 and over	14.70	4.11	0	1
Percent Female	50.50	2.00	0	1
Religion, Rates of adherence per 1000 population				
Catholic	135.77	146.17	0	947.00
Jewish	2.84	13.32	0	314.00
Protestant	142.12	111.95	0	844.55
Muslim	.86	3.54	0	77.75
Percent White	84.43	16.20	5.01	100.00
Percent African American	9.04	14.70	0	86.13
Percent Other	6.53	9.13	0	94.90
Percent Married	57.55	5.53	29,80	73.90
Midwest	34	.47	0	1
Northeast	7.1	.26	0	1
South	46.5	.50	0	1
West	11.58	.32	0	1
Percent in Rural Areas	58.90	30.72	0	100.00
Percent with college education	42.60	11.26	16.91	85.40

Table 4.2 reports the descriptive statistics for the structural pluralism and civic welfare variables. Regarding structural pluralism characteristics, on average, 5.79 percent of businesses are classified as voluntary and membership associations. Regarding small business, 57 percent of all businesses have on average 1 to 4 employees. In terms of civic welfare, on average, 5.8 percent were unemployed. Also, 51 percent of county populations did not change housing units between 1990 and 2000 or relocate within the same county. Finally, the average county median family income is $35,553.

Table 4.2: Descriptive Statistics, Structural Pluralism and Civic Welfare Variables

Variable	Mean	SD	Min.	Max.
Structural Pluralism				
Percent Membership Associations	5.79	2.17	.19	33.33
Percent Small Business	57.20	6.39	38.37	93.75
Civic Welfare				
Percent Unemployed	5.79	2.75	.21	41.67
County Resident Retention	50.67	11.36	1.93	83.56
Median Family Income	35,553	8,918	16,271	82,929

Measures of Association between variables

The below tables (4.3, 4.4, and 4.5) describes the strength and direction of the bivariate relationships of the variables used for this study. To measure the strength of the linear association between two variables, the Pearson correlation coefficients are used. For the control variables, most results were as expected although a couple of measures were in the opposite direction in their bivariate effect on suicide. For race, there is a significant and negative relationship between percent of African Americans and suicide, suggesting that greater concentration of African Americans leads to lower rates of

suicide. However, this relationship is significant and positive between percent of other non-white races and suicide. The relationship between percent married and suicide was also surprising: it was positive and significant, indicating that greater concentration of married individuals is associated with higher suicide rates. Contrary to expectations, there is a positive and significant association between percent residing in rural areas and suicide. As expected, all the religious affiliations show a strong and negative relationship with suicide rates. In terms of geographic areas, all the regions considered but the west have a negative and significant relationship with suicide. As expected, education and suicide share a negative and significant association.

In terms of structural pluralism measures adopted in this study, percent of membership associations has a negative and significant relationship with suicide rates, as expected. Surprisingly, percent of small businesses was found to share a positive and significant relationship with suicide. Finally in terms of civic welfare, the measures percent unemployed and median family income show a negative and significant relationship with suicide as expected. In addition, resident retention shows a negative and significant association with suicide.

In terms of race, percent African Americans present a strong and negative relationship with mainly all other variables; exceptions are the relationships with Jewish and Muslim adherences per 1000 population, southern region, number of membership associations and residential retention. The other race variable reflects the same results with exception of Catholic adherence per 1000 population, western region, percent

college education, and median family income with which it shares significant and positive association.

The variable percent married people was found to be significantly and positively correlated to percent in rural areas, Protestant adherents, living in Midwest region, percent of membership associations, percent of small business, and median family income. The same variable was found to be negatively and significantly related to Catholic, Muslim and Jewish adherents, living in the northeast, west and south regions, percent of college education, percent of unemployed and residential retention.

Percent of people living in rural areas shows a negative and significantly relationship with Catholic, Muslim and Jewish adherents, living in the northeast and west regions, percent of college education, percent of unemployment, residential retention, and median family income.

In terms of religious affiliations: Protestants are found to be negatively related with living in the northeast, west and south regions, and percent of unemployed at a significant level. Protestants were also found to share a positive relationship with living in the western region, percent college education, percent of membership associations, percent of small business, residential retention, and median family income. Catholic adherence was found to be negatively and significantly related to living in southern region, percent of membership associations, percent of small business, and percent of unemployed. The same variable was found to be positively related to living in northeast, Midwest and western regions, to percent of college education, residential retention and median family income. Jewish adherence was found negatively related to living in

Midwest and southern regions, percent of membership associations, percent of small business and percent of unemployed. It was found to share a positive association with northeast and western regions, percent of college education, residential retention and median family income. Finally, Muslim adherence shows a positive relation with living in northeast region, percent of college education, percent of unemployed, residential retention and median family income.

Regarding geographic region, northeast, Midwest and western regions share a positive and significant relationship with percent of college education, while the southern region has a negative association. In terms of membership associations, northeast and western regions have a positive association and Midwestern and southern regions share a negative association, all at significant levels. Regarding small business, northeastern and southern regions have a negative and significant relationship, while Midwest and western regions share a positive relationship. In terms of percent of unemployment, northeast and Midwest share a negative relationship; west and south have a positive relationship. Northeastern and Midwestern regions show a positive association with residential retention, while west and south show a negative one. Finally, in terms of income, all the regions but the south show a positive and significant relationship.

In terms of percent college education, the relationship with the structural pluralism and civic welfare variables is shown to be negative and significant for all the variables but median family income.

Regarding the correlations between structural pluralism and civic welfare, percent membership associations shows a strong positive and significant relationship with

percent small business; however, there is a negative and not significant relation with the civic welfare measures: as expected, percent unemployed has a negative relationship, although it is not significant. Resident retention and median family income show a negative association with percent of membership associations, although the correlations are not significant. Also, percent of small business has negative and significant relationship with percent of unemployed, resident retention, and median income family. Percent unemployed has a positive and significant association with resident retention and a negative and significant relationship with median family income. Finally, resident retention and median family income share a negative and significant association.

Table 4.3: Measures of Association for Socio-Demographic Variables

	Suicide	African Americans	Other	%Married	% Rural	Protestants	Catholics	Jewish	Muslim	Northeast	Midwest	West	South	College Education
Suicide Rate	1													
African Americans	-.144 [a]	1												
Others	.059	-.138 [a]	1											
% Married	.089 [a]	-.589 [a]	-.209 [a]	1										
% Rural	.082 [a]	-.075 [a]	-.217 [a]	.388 [a]	1									
Protestants	-.148 [a]	-.213 [a]	-.214	.223 [a]	.195 [a]	1								
Catholics	-.171 [a]	-.268 [a]	.241 [a]	-.037 [b]	-.259 [a]	.109 [a]	1							
Jewish	-.130 [a]	.064 [a]	.131 [a]	-.215 [a]	-.325 [a]	-.081 [a]	.249 [a]	1						
Muslim	-.145 [a]	.131 [a]	.139 [a]	-.276 [a]	-.346 [a]	-.103	.134 [a]	.402 [a]	1					
Northeast	-.147 [a]	-.087 [a]	-.043 [b]	-.129 [a]	-.133 [a]	-.020 [a]	.308 [a]	.320 [a]	.178 [a]	1				
Midwest	-.143 [a]	-.343 [a]	-.176 [a]	.209 [a]	.095 [a]	.511 [a]	.204 [a]	-.105 [a]	-.065 [a]	-.200 [a]	1			
West	.239 [a]	-.191 [a]	.326 [a]	-.001	-.124 [a]	-.246 [a]	.090 [a]	.018	-.001	-.101 [a]	-.260 [a]	1		
South	.049 [a]	.502 [a]	-.075 [a]	-.119 [a]	.060 [a]	-.305 [a]	-.408 [a]	-.077 [a]	-.027	-.259 [a]	-.669 [a]	-.337 [a]	1	
College Education	-.060 [a]	-.213 [a]	.175	-.066	-.486 [a]	.085 [a]	.256 [a]	.277 [a]	.249 [a]	.089 [a]	.094 [a]	.346 [a]	-.373 [a]	1

a Correlation is significant at the .01 level; b Correlation is significant at the .05 level

Table 4.3 (Continued)

	Suicide	African Americans	Other	%Married	% Rural	Protestants	Catholics	Jewish	Muslim	Northeast	Midwest	West	South	College Education
Membership	-.067	.048 [a]	-.122 [a]	.093 [a]	.349 [a]	.304 [a]	-.179 [a]	-.199 [a]	-.170 [a]	-.115 [a]	.176 [a]	-.307 [a]	.097 [a]	-.345 [a]
Small Business	.050 [a]	-.222 [a]	-.041 [b]	.383 [a]	.575 [a]	.166 [a]	-.032	-.053 [a]	-.184 [a]	-.030	.052 [a]	.133 [a]	-.129 [a]	-.047 [b]
Unemployment	.107 [a]	.309 [a]	.348 [a]	-.476 [a]	-.034	-.326 [a]	-.060 [a]	-.023	.010	-.013	-.270 [a]	.132 [a]	.152 [a]	-.248 [a]
County Resident Ret.	-.036 [a]	.106 [a]	.031	-.176 [a]	-.217 [a]	.011	.156 [a]	.074 [a]	.051 [a]	.152 [a]	.034 [a]	-.098 [a]	-.047 [a]	-.272 [a]
Income	-.145 [a]	-.237 [a]	.038 [b]	.175 [a]	-.437 [a]	.020	.243 [a]	.299 [a]	.253 [a]	.198 [a]	.129 [a]	.087 [a]	-.302 [a]	.662 [a]

Table 4.4: Measures of Association: Structural Pluralism Variables

	Membership Associations	**Small Businesses**
Suicide Rate	-.067	.050 [a]
African Americans	.048 [a]	-.222 [a]
Others	-.122 [a]	-.041 [b]
% Married	.093 [a]	.383 [a]
% Rural	.349 [a]	.575 [a]
Protestants	.304 [a]	.166 [a]
Catholics	-.179 [a]	-.032
Jewish	-.199 [a]	-.053 [a]
Muslim	-.170 [a]	-.184 [a]
Northeast	-.115 [a]	-.030
Midwest	.176 [a]	.052 [a]
West	-.307 [a]	.133 [a]
South	.097 [a]	-.129 [a]
College Education	-.345 [a]	-.047 [b]
Membership	-	.182 [a]
Small Business	.182 [a]	-
Unemployment	-.035	-.111 [a]
County Resident Ret.	-.010	-.362 [a]
Income	-.306 [a]	-.165 [a]

Table 4.5: Measures of Association: Civic Welfare Variables

	Unemployment	County Resident Ret.	Income
Suicide Rate	.107 [a]	-.036 [a]	-.145 [a]
African Americans	.309 [a]	.106 [a]	-.237 [a]
Others	.348 [a]	.031	.038 [b]
% Married	-.476 [a]	-.176 [a]	.175 [a]
% Rural	-.034	-.217 [a]	-.437 [a]
Protestants	-.326 [a]	.011	.020
Catholics	-.060 [a]	.156 [a]	.243 [a]
Jewish	-.023	.074 [a]	.299 [a]
Muslim	.010	.051 [a]	.253 [a]
Northeast	-.013	.152 [a]	.198 [a]
Midwest	-.270 [a]	.034 [a]	.129 [a]
West	.132 [a]	-.098 [a]	.087 [a]
South	.152 [a]	-.047 [a]	-.302 [a]
College Education	-.248 [a]	-.272 [a]	.662 [a]
Membership	-.035	-.010	-.306 [a]
Small Business	-.111 [a]	-.362 [a]	-.165 [a]
Unemployment	-	.192 [a]	-.449 [a]
County Resident Ret.	-.362 [a]	-	-.200 [a]
Income	-.165 [a]	-.449 [a]	-

Multivariate Analysis

As stated in Chapter III, an OLS regression analysis is the most appropriate method to address the objective of this study. However, given the nature of the dependent variable and multicollinearity issues that arose during the analysis, several sets of analyses were run to ensure that the OLS regression analysis produced the most reliable results. The following paragraphs provide a summary of this process.

After an examination of variance inflation factors generated in the initial OLS regression analysis, multicollinearity problems were found, primarily among demographic control variables. To address this problem, the same models were weighted and re-run using a Weighted Least Square (WLS) regression analysis. McLaughlin and Stokes (2002) indicate that weighting a regression analysis based on the inverse of the variance of the dependent variable is especially important for county-level mortality data, because counties with smaller populations tend to have greater variation in mortality rates than counties with larger populations. However, the WLS procedure did not solve the multicollinearity issues. Therefore, to further address the collinearity problem, a series of adjusted dependent variables were used; in particular, age adjusted suicide rate, age-sex adjusted suicide rate and age-sex-race adjusted suicide rate were obtained from CDC to see if they might produce more consistent results (James and Cossman, 2005). Age-sex adjusted suicide rates, in fact, worked better than the other combinations, decreasing the collinearity values substantially. However, another issue emerged: the coefficients of key independent variables generated in the WLS analysis reversed their direction from negative to positive from previous models. In the final model, both structural pluralism variables and some civic welfare variables reversed their direction. In an attempt to address this problem, I used the strategy of centering all independent variables in the WLS model. This did not have a substantive effect on the results. An additional strategy was then undertaken to: running an iterative WLS procedure. Here, I saved the WLS residuals and re-computed the weight by repeating what I did previously. However, the

WLS coefficients remained opposite to what was hypothesized for several of the variables.

A final strategy was implemented to address the above data issues. A Robust Standard Error regression was run, using the statistical package Stata. The Stata results should be somewhat different from those produced from the SPSS OLS regression analysis because it better addresses the unequal variance problems. After correcting the variance, the results of this analysis largely reflected the results of the OLS regression analysis. Below, both sets of OLS and RSE regression coefficients are shown. Initially, the total number of counties studied was 3,141. After removing the extreme outliers and all the counties with missing data for the dependent and/or independent variables, a total of 3,006 counties were left. Finally, it is important to remember that analysis of the residuals for the OLS regression indicated that 17 cases were outliers, so the final number of counties included in this research is 2,989.

The below tables show the results of two sets of models. The first set includes the outliers and the second set excludes the outliers. Within each set there are three models: Model 1 is the baseline model, containing the regression of suicide on socio-demographic variables; Model 2 adds two key independent variables measuring structural pluralism; and Model 3 adds three additional key independent variables measuring civic welfare. Tables 4.6 through 4.11 report the parameter estimates for two sets of Ordinary Least Squares (OLS) Regression and Robust Standard Error (RSE) regression Models; one set of regression excluding outliers (tables 4.6, 4.7 and 4.8) and the other set of regressions including all the cases (tables 4.9, 4.10 and 4.11). Because no substantial differences

were found between the two analyses, only the regression model excluding the outlier cases will be described in this section.

Model 1: Socio-Demographic Characteristics and Suicide

The results of the models reported in Table 4.6, 4.7, and 4.8 are based on 2,989 counties. The parameter estimates from this model indicate that almost all the socio-demographic characteristics are significantly related to suicide, and largely reflect previous findings in the suicide literature. The adjusted R^2 value indicates that the variables in this model explained 18.5 percent of the variance in suicide rate.

For race, greater concentration of African Americans and other minorities leads to lower suicide rates. Specifically, a one percent increase in African Americans leads to a corresponding .105 persons per 100,000 decrease in suicide rates. Also, a one percent increase in other minorities leads to .035 persons per 100,000 decrease in suicide. Moreover, a significant relationship was found between marital status and suicide; as underlined by the literature, greater concentration of married people leads to lower levels of suicide. Specifically, a one unit increase in percent married corresponds to a .098 persons per 100,000 decrease in suicide rates. When religious affiliation is examined, counties with greater concentration of adherents to all other religious affiliations except the Jewish faith have on average lower levels of suicide rates. These findings are somewhat consistent with the literature on the relationship between suicide and religious affiliation. Although both Protestant and Catholic affiliations per 1000 population appear to be inversely related to suicide rates, the Catholic coefficient shows slightly more

strength. In fact, while a one unit increase in Protestant affiliation corresponds to a .003 persons per 100,000 decrease in suicide rates; in terms of Catholics, a one unit increase corresponds to a .005 persons per 100,000 decrease in suicide rates. The relationship between Muslim affiliation and suicide is stronger: for a one unit increase in Muslim affiliation there is a corresponding decrease in suicide of .095 persons per 100,000.

In terms of geographic setting, northeast and midwest counties have on average lower suicide rates than counties falling in the south, while western counties have higher rates compared to the south. Specifically, northeast counties were found to have suicide rates that are 2.70 persons per 100,000 lower than counties falling in the southern region. Also, midwest counties have suicide rates that are on average 1.75 persons per 100,000 population lower than counties in the southern region. Finally, it is interesting to notice that western counties have a higher suicide rate compared to the south; on average, in fact, the western region has suicide rates that are 2.80 persons per 100,000 population higher than the southern region.

The effect of education was also in the expected direction. Greater concentration of people with higher education leads to lower suicide rates. A one percent increase in college educated corresponds, in fact, to a .038 persons per 100,000 population decrease in suicide rates. The percent of county residents in rural areas was not found to be significant. Overall, the demographic findings of this study reflect findings in the literature.

Table 4.6: OLS/RSE Demographic Characteristics and Suicide Rates, All Cases without Outliers

	OLS			RSE	
Variable	**B**	**SE**	**Beta**	**B**	**RSE**
Intercept	22.55***	1.39	-	22.55***	1.41
Percent African American	-.105***	.009	-.319	-.105***	.009
Percent other Races	-.035**	.011	-.065	-.035*	.015
Percent Married	-.098***	.022	-.111	-.098***	.024
Percent in Rural Areas	.003	.004	.019	.003	.004
Protestant	-.003***	.001	-.075	-.003**	.001
Catholic	-.005***	.001	-.137	-.005***	.001
Jewish	-.007	.007	-.019	-.007*	.004
Muslim	-.095***	.026	-.070	-.095***	.015
Northeast	-2.70***	.390	-.144	-2.70***	.309
Midwest	-1.75***	.241	-.170	-1.75***	.242
West	2.80***	.320	.184	2.80***	.350
College Education	-.038***	.010	-.088	-.038***	.009
R^2=18.5				R^2=18.49	

Model 2: Socio-Demographic Characteristics, Structural Pluralism, and Suicide

Model 2 in table 4.7 adds the structural pluralism variables: concentration of membership associations and small businesses. The parameter estimates indicate that the effects of structural pluralism on suicide rates are mixed. The adjusted R^2 value indicates that the variables in this model still explained 18.8 percent of the variance in suicide rate.

First, although both variables indicate negative relationship with suicide, only membership associations is significant. Specifically, a one percent increase in

membership associations in counties corresponds to a .120 persons per 100,000 population decrease in suicide rate. The small business variable, although not significant, shows that a one percent increase corresponds to a decrease of .021 persons per 100,000.

Second, the effects of structural pluralism on the previous demographic variables are mixed as well. While some coefficients reflect the effect of structural pluralism variables, others remain constant. In fact, the variables other race, marital status, and Midwest and west regions show their coefficient as slightly decreasing. The variables percent African Americans and Protestant and Catholic adherents per 1000 stay constant in their effect on suicide.

Table 4.7: OLS/RSE Demographic variables, Structural Pluralism, and Suicide rates, All cases without outliers

	OLS			RSE	
Variable	**B**	**SE**	**Beta**	**B**	**RSE**
Intercept	24.08***	1.39	-	24.07***	1.74
Percent African American	-.105***	.009	-.317	-.105***	.009
Percent other Races	-.031**	.011	-.059	-.031*	.015
Percent Married	-.095***	.022	-.108	-.095***	.024
Percent in Rural Areas	.007[a]	.004	.045	.007	.005
Protestant	-.003**	.001	-.059	-.003**	.001
Catholic	-.005***	.001	-.142	-.005***	.001
Jewish	-.006	.007	-.017	-.006	.004
Muslim	-.098***	.026	-.072	-.098***	.016
Northeast	-2.71***	.389	-.144	-2.71***	.307
Midwest	-1.73***	.241	-.169	-1.73***	.242
West	2.73***	.328	.179	2.73***	.360
College Education	-.040***	.010	-.094	-.040***	.010
Membership assoc.	-.120**	.044	-.053	-.120**	.057
Small Business	-.021	.017	-.027	-.021	.022
R^2=18.8				R^2=18.75	

Model 3: Socio-Demographic Characteristics, Structural Pluralism, Civic Welfare, and Suicide

Model 3 adds the civic welfare variables to the previous model. Specifically, the variables added are percent of unemployment, residential retention, and median family income. Table 4.8 reports the parameter estimates for this model. The adjusted R^2 value

indicates that the variables in this model explained 19.5 percent of the variance in suicide rate.

The variable percent unemployed has a positive relationship with suicide rate: a 1 unit increase in percent unemployed corresponds to a .110 persons per 100,000 population increase in suicide. Also, the relationship between income and suicide rates is significant: for a 1 unit increase in median family income there is 2.07 persons per 100,000 population decrease in suicide rates. Finally, county resident retention is not statistically significant in the present model.

In this final model, a consistent pattern of effects brought from the civic welfare variables can be identified. In terms of strength of coefficients for the control variables, the majority of the variables appear to have a somewhat smaller impact on suicide rate. In particular, the percent of African Americans coefficient goes from -.105 to -.102, still significant; percent married becomes non-significant. In terms of religious affiliations, the variable Muslim adherents per 1000 loses strength, while Protestant and Catholic adherents per 1000 remain unaffected. All the regional effects lose strength; and finally, percent college education becomes insignificant.

In terms of structural pluralism, the opposite effect is documented: Membership associations in fact gains strength in its coefficient going from -.120 in the previous model to -.122 in the last model. Finally, the variable small business gains in strength and significance: it goes from not significant -.021 to -.032 significant at the .1 level.

Table 4.8: OLS/RSE Demographic variables, Structural Pluralism, Civic Welfare and Suicide rates, All cases without outliers

	OLS			RSE	
Variable	**B**	**SE**	**Beta**	**B**	**RSE**
Intercept	40.26***	6.22	-	40.26***	6.99
Percent African American	-.102***	.009	-.308	-.102***	.009
Percent other Races	-.040***	.011	-.074	-.040**	.015
Percent Married	-.031	.026	-.035	-.031	.030
Percent in Rural Areas	.005	.004	.034	.005	.005
Protestant	-.003**	.001	-.065	-.003*	.001
Catholic	-.005***	.001	-.140	-.005***	.001
Jewish	-.002	.007	-.006	-.002	.004
Muslim	-.084**	.026	-.062	-.084***	.015
Northeast	-2.50***	.408	-.132	-2.47***	.342
Midwest	-1.62***	.247	-.158	-1.62***	.256
West	2.45***	.333	.160	2.44***	.362
College Education	-.003	.013	-.007	-.003	.013
Membership assoc.	-.122**	.044	-.054	-.122**	.057
Small Business	-.032*	.018	-.042	-.032[3]	.023
Percent Unemployed	.110*	.041	.062	.110*	.046
Retention	.005	.009	.012	.005	.010
Income	-2.07***	.603	-.104	-2.07**	.706
R^2=19.5				R^2=19.5	

[3] The significant level of the variable "small business" increased from .344 in the previous model to .164 in this model.

Table 4.9: OLS/RSE Demographic variables and Suicide rates, All cases

	OLS			RSE	
Variable	**B**	**SE**	**Beta**	**B**	**RSE**
Intercept	22.472***	1.446	-		
Percent African American	-.103***	.009	-.302	-.103***	.009
Percent other Races	-.023**	.011	-.042	-.023	.016
Percent Married	-.097***	.023	-.107	-.097***	.024
Percent in Rural Areas	.002	.004	.014	.002	.004
Protestant	-.003***	.001	-.071	-.003***	.001
Catholic	-.005***	.001	-.144	-.005***	.001
Jewish	-.007	.007	-.018	-.007*	.004
Muslim	-.099***	.027	-.070	-.099***	.015
Northeast	-2.54***	.406	-.130	-2.54***	.318
Midwest	-1.57***	.251	-.148	-1.57***	.256
West	2.67***	.332	.170	2.67***	.382
College Education	-.038***	.010	-.085	-.038***	1.56
R^2=17.0				R^2= 17.0	

Table 4.10: OLS/RSE Demographic variables, Structural Pluralism, and Suicide rates, All cases

	OLS			RSE	
Variable	**B**	**SE**	**Beta**	**B**	**RSE**
Intercept	23.906***	1.572	-	23.906***	1.90
Percent African American	-.103***	.009	-.301	-.103***	.009
Percent other Races	-.020*	.011	-.037	-.020	.016
Percent Married	-.096***	.023	-.105	-.096***	.025
Percent in Rural Areas	.006	.004	.038	.006	.005
Protestant	-.003**	.001	-.056	-.003*	.001
Catholic	-.005***	.001	-.148	-.005***	.001
Jewish	-.007	.008	-.017	-.007	.004
Muslim	-.102***	.027	-.072	-.102***	.016
Northeast	-2.55***	.406	-.131	-2.55***	.317
Midwest	-1.55***	.251	-.147	-1.55***	.255
West	2.60***	.339	.166	2.60***	.390
College Education	-.041***	.010	-.092	-.041***	.011
Membership assoc.	-.119**	.046	-.052	-.120**	.059
Small Business	-.018	.018	-.023	-.018	.024
R^2=17.0				R^2= 17.0	

Table 4.11: OLS/RSE Demographic variables, Structural Pluralism, Civic Welfare and Suicide rates, All cases

	OLS			RSE	
Variable	**B**	**SE**	**Beta**	**B**	**RSE**
Intercept	41.627***	6.44	-	41.62***	7.50
Percent African American	-.100***	.009	-.291	-.100***	.009
Percent other Races	-.029*	.012	-.052	-.029	.016
Percent Married	-.029	.027	-.031	-.029	.030
Percent in Rural Areas	.004	.005	.025	.004	.005
Protestant	-.003**	.001	-.063	-.003*	.001
Catholic	-.005***	.001	-.147	-.005***	.001
Jewish	-.002	.008	-.006	-.002	.004
Muslim	-.088**	.027	-.062	-.088***	.015
Northeast	-2.30***	.425	-.118	-2.30***	.360
Midwest	-1.44***	.257	-.136	-1.44***	.272
West	2.30***	.344	.147	2.30***	.395
College Education	-.002	.013	-.003	-.002	.015
Membership assoc.	-.122**	.046	-.053	-.122**	.059
Small Business	-.030[4]	.019	-.038	-.030[5]	.026
Percent Unemployed	.108*	.043	.059	.108*	.048
Retention	.006	.009	.013	.006	.010
Income	-2.23***	.624	-.104	-2.23**	.753
R^2=18.0				R^2=18.0	

[4] The significant level of the variable "small business" increased from .311 in the previous model to .110 in this model.
[5] The significant level of the variable "small business" increased from .459 in the previous model to .251 in this model.

CHAPTER V

SUMMARY, DISCUSSION, AND CONCLUSION

Summary and Discussion

The objective of this study was to understand how suicide is impacted by community structure. More specifically, the research focused on the social factors capable of explaining suicide. I hypothesized that variations in the sociopolitical structures in communities in the U.S. may help to explain variation in community suicide rates.

A major risk factor associated with suicide is depression, with about two-thirds of people who complete suicide diagnosed as depressed at the time of their deaths (Peebles-Wilkins 2006). The emphasis on the existence of mental illness in those who commit suicide, however, draws attention away from the importance of social factors. In some instances, in fact, suicide is not preceded by warning signs and more importantly not all people who commit suicide are suffering from clinical mental disorders.

Social and community factors may, instead, account for variations in suicide. Low density of social relationships can be one of the reasons for high suicide rates. Contrarily, the density of natural relationships could result in a reduction of the suicide rate (Catelli 2002).

Emile Durkheim (1951) argued that an increase in suicide rates was related to a decrease of traditional forms of social organization and integration. Post-Durkhemian sociologists have focused their work to clarify Durkheim's identification of types of suicide and agreed that causes of voluntary death must be treated as a social problem because they represent a measurable loss to society. However, the post-Durkheimian literature lacks enough emphasis on the meaning and function of society's structure, and does not give enough consideration to the problem of defining society or social structure. Theorists of suicide have often assumed that a society's populations are basically the same, or at least that any differences are not significant for an explanation of suicide. In this context, this study becomes particularly relevant because of its attention on what specific elements, in the variations in social structures, need to be considered fundamental.

Socio-structural changes in Western societies in recent years have had an adverse affect in terms of increasing individualism. Thus they have contributed to a greater sense of isolation rather than support for individuals to remain more socially connected and to view the self as interdependent with others. On the other hand, some specific structural elements of community have the potential to protect against distress by protecting individuals' socio-psychological health.

In these terms, social variations may help us to understand the variations in suicide rates. In fact, suicide can be understood as a 'barometer' (Catelli 2003) of the state of pathology of the community and as a symptom of the possible changes in collective orientations of the community. It can allow for the identification of periods of

time when the social tension reaches critical levels, and, consequently, to isolate the causes.

A way to measure how variations in social structures affect the socio-psychological health of communities has been introduced by Young and Lyson' s (2001) theory of structural pluralism. Young and Lyson define structural pluralism as the community's capacity for political competition, and political exchange, or the degree to which alternative policies are publicly compared and evaluated. Their research suggests that this problem solving capacity lowers mortality's causal mechanisms, based on the fact that participation in collective problem solving. They further content that even the conflictual activity that pluralism often produces, can tend to optimize the biological functioning of the participants. Moreover, participation in community organizations and involvement in social networks enhances the likelihood of accessing support which then provides a protective function against distress, and acts as a protective factor for psychological well being (Berkman and Syme 1979; House, Robbins and Metzner 1982). The problem solving capacity of communities results from pluralistic political structures with dense networks of associations. These structures are enhanced by civic welfare, and result from the degree of local capitalism and civic engagement (economic and non-economic institutions) present in a community (Tolbert et al. 2002). Civic welfare focuses on the relationships between economic and non-economic institutions, maintaining that locally oriented capitalism and civic engagement are the foundations of civic institutions that nurture trust and cooperation among citizens. This contributes to a

vital capacity to solve problems and resolve local issues enhancing the local residents' well-being.

As one of the consequences of community's welfare, the structural pluralism theory here is tested as a direct protection against suicide. Following the concept of structural pluralism suicide rates may be related to both the level of a community's pluralism and civic welfare.

Based on the previously described literature, a conceptual model was created to outline several hypothesized factors thought to have a direct effect on suicide. Specifically, socio-demographic factors considered in this study were a community's age, gender, marital status, race, religious affiliation, education composition, as well as the level of population density and region. Moreover, structural pluralism was expected to play a direct role in rate of suicide and affect the strength of the effects of demographic factors on suicide rates. Also, civic welfare was expected to have an effect on suicide rates. Additionally, variations in civic welfare were hypothesized to affect the intensity of the structural pluralism effects on suicide. Based on the conceptual model, the hypotheses of this research are as follows:

1. Suicide rates will vary according the socio-demographic characteristics of their communities in the following ways: a) the percentage of married people will be negatively related to suicide rates, b) the percentage of African American population will be inversely related to suicide rates, c) the percentage of college education population will be inversely related to suicide rates, d) the percentage of females will be inversely related to suicide rates, e) percent of population living

in urban areas will be positively associated with suicide rates, f) communities in Western and Southern regions will have higher suicide rates than other regions, and g) the percent of Catholic population will have an inverse relation to suicide rates.

2. Structural pluralism have a direct effect on suicide rates, weakening the effects of the socio-demographic variables on suicide. Specifically, structural pluralism will be inversely related to suicide rates.

3. Civic welfare have a direct negative effect on suicide rates; the higher civic welfare of a community the more likely they will have lower rates of suicide.

4. Civic welfare will be positively associated with structural pluralism and is expected to increase the strength of structural pluralism's effect on suicide rates.

To address the objective of the study, county-level data were used. Several sources of data were compiled in order to examine the relationships between key variables. The suicide data were provided by the Centers for Disease Control, National Center for Health Statistics' Compressed Mortality File for the years of 2000-2004. In order to provide information on structural pluralism, data from the 2000 County Business Patterns were used. The 2000 Census data was used to provide information on demographic characteristics and civic welfare variables, and data on religious adherence came from the Associations of Statisticians of American Religious Bodies (ASARB)

In order to investigate the relationship between suicide rates and structural indicators in U.S. counties, a set of OLS Regression models were estimated. However, because of multicollinearity issues that arose during the analysis, several sets of analyses were run, and a Robust Standard Error regression analysis was conducted. The RSE-produced better addressed the problem of unequal variance in the OLS analysis, although substantive results were comparable.

From the OLS and RSE regressions, most factors analyzed in this study were significant predictors of suicide rates, and the hypotheses tested were largely supported. When examining socio-demographic community factors percent of African American was significantly and negatively related to suicide rates.

Also, both regressions indicate a strong negative relationship between suicide rates and the percent of those married. This finding matches previous findings that argue that divorce and widowed rates are positively associated with suicide rates. Here communities which are characterized by high levels of those married suggest a social structure which promotes the stability of social relationships that may buffer elements conducive to suicide.

The findings on religious affiliation do not completely conform to the first hypothesis of this study. Although a slight difference in coefficients is shown between Catholics and Protestants, it is straightforward to state that there are not substantive variations between the two main religious affiliations. However, the results show that greater levels of religious adherence across faiths lead to lower levels of suicide. In terms of geographic regions, the hypothesis is fully confirmed. Coefficients in fact

show a stronger concentration of suicide cases in western and southern regions compared to the northeast and midwest. Finally, a strong negative relationship was found between education and suicide, confirming the hypothesis that communities with greater concentration of highly educated individuals have lower levels of suicide.

With the addition of structural pluralism variables mixed findings were obtained, partially confirming the second hypothesis of this study. First, although both membership associations and small business variables indicated an inverse relationship with suicide, only the former was found to have a significant effect. In terms of decreasing the strength of demographic factors on suicide, structural pluralism obtained mixed results too. The effects of percent married and percent rural were slightly decreased with the addition of structural pluralism. Other variables like percent African American and religion affiliation retained their effects on suicide.

Finally, when civic welfare measures (unemployment, median family income, and residential retention) were added to the model and all but residential retention were found to be significant in explaining suicide. Concentration of unemployment was found to be positively linked to higher suicide rates and median family income was found to be negatively related to suicide rates. It is interesting to note how this final model presents a more consistent pattern of impacts brought from the civic welfare variables compared to the previous models. Most of the control variables were less substantively related to suicide rates, partially confirming the third hypothesis of this study. Some of the stronger predictors of suicide, such as percent married and percent college educated, became non significant. Moreover, an opposite result was obtained in

terms of structural pluralism. In fact, the effects of civic welfare measures accentuated the effect of membership association and small business, which increase in significance.

The analyses presented in this study show that both concentration of socio-demographic characteristics and the combined effects of structural pluralism and civic welfare were found to be significant in explaining suicide rates. The first central finding of this study was that socio-demographic characteristics were confirmed to be important predictors of suicide. Although this study used an age/sex adjusted suicide rates, and thus left out these major characteristics, it seems clear that the main socio-demographic variables identified in previous literature are here conformed as such.

Also, the second central finding was that structural pluralism, in combination with civic welfare, was shown to have a significant affect on the rate of suicide. Structural pluralism is the community's capacity for political exchanges and competition, enabling the creation of a dense network of associations and making possible the creation of problem-solving capacity for the community. The achievement of this capacity may generate a biological optimizing process for the communities, increasing the physical signs associated with health, like abundant energy, mental alertness and rapid recovery from trauma (Young and Lyson 2001). In this way, better physical and physiological conditions create a strong deterrent for suicide. Also, civic welfare creates strong ties between the individual and the larger community where the individual lives: strong local economic ties may be less likely to pull out of the community during an economic downturn, and more likely to support local nonprofit institutions, improving support and encouragement at the individual level. Young and Lyson tested the hypothesis that

structural pluralism reduces age-standardized mortality rates. Using U.S. counties as the units of analysis and multiple regression techniques, they found that structural pluralism is a stronger determinant of lower mortality than any of the other variables examined, specifically variables like income and education.

It needs to be acknowledged, that despite that fact that both Structural Pluralism and Civic Welfare was shown to have statistically significant effects on suicide in the predicted direction, the overall contribution of the theoretical variables in explaining the variation of suicide was very modest. Both Structural Pluralism and Civic Welfare combined contributed less than two percent of explained variance above the socio-demographic variables examined. Clearly, racial composition and religious composition of communities continues to be major factors in accounting for suicide rates. The interpretation of the study's findings may suggest that Structural Pluralism's theoretical efficacy is minimal. However, given that this study represents the first attempt at applying Structural Pluralism to the phenomenon of suicide, it may be the case that the theoretical effect is diminished due to various limitations of the study. These are discussed below.

Limitations

As with any research endeavor, there are limitations. This study is no different. First, the data sources provide some source of limitation. It is well understood that data on suicide contains some difficulties. Though reporting of suicides from local jurisdictions have improved tremendously over time, suicide still remains a form of

mortality that is subject misreporting and is sometimes under-reported. The social stigma of having a family member commit suicide is still real among some communities. Thus, suicide may not be reported as readily as other forms of death. There is also a particular problem within the African American community regarding suicide reporting.

While a higher concentration of African Americans have been shown to be linked to lower suicide rates, some authors (Rockett, Samora and Coben 2006) describe this phenomenon as a 'paradoxical racial gap in official suicide rates, raising the specter of a social disparity in data quality, arguing that African Americans appear more suicide-prone than whites, given common risk factors' (pg.2167). Use of alcohol (Cherpitel, Borges, and Wilcox, 2004; Conner 2004), use of illicit drugs (Istavan and Matarazzo, 1984; Rich, Young, and Fowler, 1986), and, moreover, socioeconomic risk factors for suicide (like low level of education, and unemployment (Kellerman, Rivara, Somes, Reay, Francisco, and Banton 1992, Cubbin, LeClere, and Smith, 2000) provide important evidence, according the authors, in support of a suggestion that suicide data are more deficient for African Americans than for whites. Skepticism about the quality of African Americans' suicide certification dates back to the late 1960s (Blake, 1971, Warshauer and Monk, 1978, Peck, 1983). Suicidologists approach consensus that suicide among African Americans is undercounted (Hlady and Middaugh, 1998; Phillips and Ruth, 1993; Rockett and Thomas, 1999; Rosenberg, Davidson, Smith, and Berman 1988).

Beyond the issue of suicide data, it should be noted that the data source used for religious affiliation has some unique and potentially limiting features. The Religious Congregation and Membership Study: 2000 did not collect its data using traditional

techniques such as a survey based on a random sample. Instead the data was gathered by asking individual churches to provide membership data on their congregations.

The most critical methodological problem with this study has to do with the definition of church membership. Churches were presented with two categories of membership: “members” and “total adherents.” Members were defined as “all individuals with full membership status.” Total adherents were defined as “all members, including full members, their children and the estimated number of other participants who are not considered members. Thus, some of the data is based on differing criteria of affiliation used by different churches.

Also, this study reports 39 counties with more adherents than total population. The reasons reported for this discrepancy include U.S. Census undercount, church membership over count, and county of residence differing from county of membership.

Regarding Eastern Christian or “Orthodox” Churches in United States, a major problem is reported: the absence of adequate information on the number of “adherents”. This problem was related to the approach of many Orthodox churches to consider as their members all people of corresponding ethnicities living in the country. As a consequence, the data on adherents of Orthodox Churches included in the Religious Congregations and Membership Study represent the estimated number of persons of all age who are known to the local parish and who visit church at least during the largest religious festivals. Therefore, in the case of Orthodox Churches in U.S. it is difficult to make a clear separation between categories of “attendees” and “adherents”.

Despite the problems with data sources, perhaps the most significant limitation of this study as to do with how Structural Pluralism was measured. Though, this study used virtually identical measures as had Young and Lyson (2001) in their study, the concept of Structural Pluralism may be partially misspecified. As stated previously, the concept of Structural Pluralism is an indicator of a community's capacity to solve problems, as well as civic engagement. The number of voluntary and membership organizations and number of small businesses is argued to promote and support a community's problem solving capacity. The findings produced from this study does suggest that number of organizations inversely impact suicide rates, but number of small businesses has no tangible effect on suicide rates.

It is likely that other measures need to be examined to assess acommunity's processes of problem solving and its effect on community well being. I suggest future research examine political participation of various forms. Voter turn-out in local elections or community referendum actions may be pertinent in examining engagement to solve problems. Also other structural factors should be examined with regard to their impact on community well being in general and suicide specifically. Community health and education infrastructure are examples of such community factors.

Conclusion

Despite the limitations of this study, this research may provide the basis for future research using Structural Pluralism to explain variations in suicide patterns. Structural

Pluralism is consistent with the Durkheimian model of integration in so far as it taps the dimension of a problem solving capacity. This is particularly salient when one considers that Durkheim suggests that organic solidarity is dependent on diversity and heterogeneity. Thus, the notion pluralism is consistent these ideas and should be related with a community's level of social pathology.

The results of my dissertation also provide the framework for a comparative study to be conducted in other countries. This study was originally intended to be an addendum to recent work on suicide in Italy conducted by Giampaolo Catelli. The main focus of his research was to verify the presence of the deprivation/erosion factor (the D factor) of the latent structure of collective components. The D factor identifies a specific state of the process of relations, which brings to the erosion and progressive destruction of relations, damaging the solidarity component of social aggregates, and producing anxiety and reducing the strength of social ties and their possibility of expression (Catelli 2005). The initial goal of this present study was to examine the differences between Italy and the United States in suicide. However, because of the differences between the two countries in terms of databases available, and of time restrictions, it was not the case. Nevertheless, the findings from this study provide a platform for future cross-comparative research. Another potential of this study is the opportunity to conduct a series of longitudinal studies to examine, for example, if increasing modernization factors will affect on suicide more than deterrent structural factors.

Above all these points, the main contribution of this study to research on suicide is the prospect of a new approach to understand suicide, by applying for the first time a

model related to all mortality types. It is at this point established that the general agreement around suicide issues is that most persons who commit suicide have a diagnosed psychiatric disorder. However, as it shown in this study, social isolation and lack of local ties dramatically increases risk. In 1999, in response to alarming statistics about suicide, the U.S. Surgeon General issued a call to action, stating that "the nation must address suicide as a significant public health problem and put into place national strategies to prevent the loss of life and the suffering suicide causes" (U.S. Public Health Service 1999). This goal is massive, as predicting suicide is difficult and inexact because suicide is a rare event. Although not all suicides are preventable, a methodical approach to suicide risk assessment would enable physicians and community leaders to decrease the morbidity and mortality rates among those who make serious suicide attempts. As of today, comprehensive risk assessment tools are available to help reduce physician liability, in terms of errors of judgment (i.e., failure to accurately assess suicide potential) and errors of omission (i.e., failure to adequately assess suicide potential) (Patterson and Haley 1983). At the current time there is no definitive measure to predict suicide or suicidal behavior at the community level. Not much research has identified factors that place individuals at higher risk for suicide in the contest of the structural elements where they live. This study has suggested that suicide rates increase where there is a social structural conditions which weaken of ties that bind individuals to each other, as well as to their communities. Hopefully, the concept of Structural Pluralism in tandem with Civic Welfare can be used to further shed light on the relationship between community structure and suicide.

REFERENCES

American Association of Suicidology. 2006. "Suicide Fact Sheets." Available online at: http://www.suicidology.org/displaycommon.cfm?an=1&subarticlenbr=185.

Aneshensel, Carol. 1992. "Social Stress: Theory and Research." *Annual Review of Sociology* 18:15-38.

Arias, E., R.N. Anderson, H.C. Kung, S.L. Murphy and K.D. Kochanek. 2003. "Deaths: Final data for 2001." *National Vital Statistics Reports* 52.

Barnes, Carl B. 1975. "The Partial Effect of Income on Suicide is Always Negative." *American Journal of Sociology* 80:1454-1460.

Beautrais, Annette.L., Peter.R. Joyce, and Roger T. Mulder. 1998. "Youth Suicide Attempts: a Social and Demographic Profile." *Innovations and Research* 2:3-9.

Berkamn, Lisa and Leonard Syme. 1979. "Social Network, Host Resistance, and Mortality: A Nine-year Follow-up Study of Alameda County Residents." *American Journal of Epidemiology* 109:186-204.

Berkeley, George E. and Douglas M. Fox. 1978. *80,000 Governments: The Politics of Subnational America*. Boston: Allyn & Bacon.

Blake Clark. 1971. "Suicide among Black Americans." Pp. 25-28 in *Identifying suicide potential*, edited by D.B Anderson and L.J. McClean. Boston: Human Sciences Press.

Blau, Peter. 1977. *Inequality and Heterogeneity*. New York: Free Press.

Bock Wilbur. 1972. "Aging and Suicide: The Significance of Marital, Kinship and Alternative Relations." *Family Coordinator* 21:71-79.

Boor, Myron. 1980. "Relationships between Unemployment Rates and Suicide Rates in Eight Countries, 1962-76." *Psychological Reports* 47:1095-1101.

Breed, Warren. 1963. "Occupational Mobility and Suicide." *American Sociological Review* 28:179-188.

Breault, K. D. 1986. "Suicide in America: A Test of Durkheim's Theory of Religious and Family Integration, 1933-1980." *American Journal of Sociology* 92:628-656.

Kposowa, Augustine J. and Kevin D Breault.1998. "Temporal factors and homicide in the United States." Journal of Interpersonal Violence, Vol. 13 Issue 5, p590,

Cantor, Chris and Kerryn Neulinger. 2000. "The Epidemiology of Suicide and Attempted Suicide among Young Australians." *Australian and New Zealand Journal of Psychiatry* 34: 370-387.

Canvan, Ruth. 1928. *Suicide*. Chicago: University of Chicago Press.

Catelli, Giampaolo. 2002. *Struttura e Codici delle Societa'*. Milan, IT: F. Angeli.

Catelli, Giampaolo. 2003. *Suicidio: Barometro delle Patologie della Societa'*. Invited Lecture, Science Research Center, Mississippi State University.

Cherpitel Cheryl, C.J. Cherpitel, G. Borges and H.C. Wilcox. 2004. "Acute Alcohol Use and Suicidal Behavior: A Review of the Literature." *Alcoholism, Clinical and Experimental Research* 28:18S–28S.

Colman, Warren. 1990. *Teen Suicide*. Chicago, IL: Childrens Press,

Conner, Kenneth. 2004. "Predisposing and Precipitating Factors for Suicide Among Alcoholics: An Empirical Review and Conceptual Integration." *Alcoholism, Clinical and Experimental Research* 28:65–175.

Conwell, Yeates and David Brent. 1996. "Suicide and Aging I: Patterns of Psychiatric Diagnosis." Pp. 15-30 in *Suicide and Aging*, edited by J. Pearson and Y. Conwell. New York: Springer Publishing Company.

Cooper, P.N. and C.M. Milroy. 1995. "The Coroner's System and Under-Reporting Suicide." *Medical Science and Law* 35:319–326.

Cubbin Catherine, Felicia B. LeClere and Gordon S. Smith. 2000. "Socioeconomic Status and the Occurrence of Fatal and Nonfatal Injury in the United States." *American Journal of Public Health* 90:70–77.

Diekstra, R. F. 1989. "Towards a Comprehensive Strategy for the Prevention of Suicidal Behavior." *Acta Psychiatrica Scandinavica* 80:19-23.

Douglas Jack. 1967. *The Social Meanings of Suicide*. Princeton: Princeton University Press.

Dublin, Louis. 1963. *Suicide: A Sociological and Statistical Study*. New York: The Ronald Press Company.

Durkheim, Emile. 1951. *Suicide: A Study in Sociology*, Translated by John A. Spaulding and George Simpson. New York: The Free Press.

Eckersley R and K. Dear. 2002. "Cultural Correlates of Youth Suicide." *Social Science and Medicine* 55:1891-1904.

Ellison, Christopher G., Jeffrey A. Burr, and Patricia L. McCall. 1997. "Religious Homogeneity and Metropolitan Suicide Rates." *Social Forces* 76:

Ellner, Melvyn. 1977. "Research on International Suicide." *International Journal of Social Psychiatry* 23:187-194.

Etzioni Amitai. 1996. *The New Golden Rule: Community and Mortality in a Democratic Society*. New York. BasicBooks

Ferraro K.F. and M.M. Farmer. 1996. "Double Jeopardy, Aging as Leveler, or Persistent Health Inequality? A Longitudinal Analysis of White and Black Americans." *Journal of Gerontology* 51B:S319–S328.

Gibbs, Jack P. and Walter T. Martin. 1958. "A Theory of Status Integration and Its Relationship to Suicide." *American Sociological Review* 23:140-147.

Gibbs, Jack and A. L. Porterfield. 1997 "Occupational Prestige and Social Mobility of Suicides in New Zealand." *American Journal of Sociology* 66:147-152.

Giddens A. 1964. "Suicide: Attempted Suicide and the Suicidal Threat." *Man* 64: 115-116.

Gold, Martin. 1958. "Suicide, Homicide, and the Socialization of Aggression." *American Journal of Sociology* 63:651-661.

Goldsmith SK, Pellmar TC, Kleinman AM, Bunney. 2002. *Reducing Suicide: A National Imperative*. Washington (DC): National Academy Press

Gotlib, Ian H. and Constance L Hammen, eds. 2002. *Handbook of Depression.* New York: Guilford Press.

Gould, M. S., D. Shaffer, P. Fisher, and R. Garfinkel. 1998. "Separation/Divorce and Child and Adolescent Completed Suicide." *Medical Journal of the American Academy of Child & Adolescent Psychiatry* 98:155-162.

Granovetter Mark. 1974. *Getting a Job; a Study of Contacts and Careers*. Cambrige. Harvard University Press

Hadden, Richard W. 1997. *Sociological Theory: An Introduction to the Classical Tradition*. Orchard Park, NY: Broadview Press.

Halbwachs, Matrice. 1930. *Les Causes du Suicide*. Paris: Felix Alcan.

Hamermesh, Daniel S.; Hamermesh, Frances. 1983. "Does Perception of Life Expectancy Reflect Health Knowledge." American Journal of Public Health, Aug83, Vol. 73 Issue 8, p911-914

Hlady, Vladimir and John P. Middaugh. 1998. "Alaska 1983–1984." *Suicide and Life-Threatening Behavior* 18: 237–244.

Hassan, Riaz. 1995. *Suicide Explained: The Australian Experience*. Carlton: Melbourne University Press.

Henry, Andrew and James F. Short. 1954. *Suicide and Homicide*. Glencoe. The Free Press.

House, James, Cynthtia Robbins, and Helen Metzner. 1982. "The Association of Social Relationships and Activities with Mortality: Prospective Evidence from the Tecumseh Community Health Study." *American Journal of Epidemiology* 116:123-40.

Istavan Ori and Jay Matarazzo. 1984. "Tobacco, Alcohol, and Caffeine Use: A Review of their Interrelationships." *Psychology Bulletin* 16:244–273.

James, Wesley and Jeralynn Cossman. 2006. "Does Regional Variation Affect Ecological Mortality Research? An Examination of Mortality, Income Inequality and Health Infrastructure in the Mississippi Delta." *Population Research & Policy Review* 25:175-195.

Jones, Robert. 1993. *Emile Durkheim: An Introduction to Four Major Work*s. Beverly Hills: Sage Publications.

Kanita Dervic; Oquendo, Maria A.; Grunebaum, Michael F.; Ellis, Steve; Burke, Ainsley K.; Mann, J. 2004. Religious Affiliation and Suicide Attempt. American Journal of Psychiatry, Vol. 161 Issue 12, p2303-2308.

Katz, A., A. Buchanan, and A. McCoy. 1999. *Young Men Speak Out: Views about Depression, Suicidal Thoughts and Attempted Suicide*. Oxford: University of Oxford Press.

Kellerman Aharon, Mirko Rivara, G. Somes, D.T. Reay, J. Francisco and J.G. Banton. 1972. "Suicide in the Home in Relation to Gun Ownership. *New England Journal of Medicine* 327:467–472.

Kowalski, Gregory, Charles Faupel, and Paul Starr. 1987. "Urbanism and Suicide: A Study of American Counties." *Social Forces* 66:85-101.

Kramer, Morton, Earl S. Pollack, Richard W. Redick, and Ben Z. Locke. 1972. *Mental Disorders/Suicide*. Cambridge: Harvard University Press.
Lester David. 1983. *Why People Kill Themselves*. Springfield: Charles C. Thomas.

Li, Wen L. 1972. "Suicide and Emotional Attainment in a Transitional Society." *Sociological Quarterly* 13:253-58.

Linden, Leonard, and Warren Breed. 1976. "The Demographic Epidemiology of Suicide." *Sociological Quarterly* 13:253-58.

Maris, Ronald W. 1969. *Social Forces in Urban Suicide*. Homewood, IL: Dorsey Press.

Marra, Realino and M. Orru'. 1991. "Social Images of Suicide." *British Journal of Sociology* 42:273-288.

Masaryk, T.G. 1970. *Suicide and the Meaning of Civilization*. Chicago. University of Chicago Press.

McCaig Linda F. and Eric W. Nawar. 2006. "National Hospital Ambulatory Medical Care Survey: 2004 Emergency Department Summary." *Advance Data* 372:1-29.

McLaughlin, Diane K. and C. Shannon Stokes. 2002. "Income Inequality and Mortality in U.S. Counties: Does Minority Racial Concentration Matter?" *American Journal of Public Health* 92:99-104.

McKeown, Robert, Steven Cuffe, and Richard Schulz. 2006. "U.S. Suicide Rates by Age Group, 1970-2002: An Examination of Recent Trends." *American Journal of Public Health* 96:1744-1751.

Mills, C. Wright, and Melville Ulmer. (1946). Small Business and Civic Welfare: Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business. Document 135. U.S. Senate, 79th Congress, 2nd Session, February 13. Washington, DC: U.S. Government Printing Office.

Monk, Mary. 1987. "Epidemiology of Suicide." *Epidemiologic Reviews* 9:51-69.

Moscicki, Eve. 1997. "Identification of Suicide Risk Factors Using Epidemiologic Studies." *Psychiatric Clinics of North America* 20:499-517.

Moynihan, Daniel P. 1965. *The Negro Family: The Case for National Action.* Washington, DC: U.S. Department of Labor,.

Myrdal, George. 1969. *An American Dilemma: The Negro Problem and Modern Democracy*. New York: Harper & Row.

National Center for Injury Prevention and Control (NCIPC). 2004. www.cdc.gov/ncipc/wisqars/default.htm.
National Mental Health Association (NMHA) and the Jed Foundation. 2002. *Safeguarding your Students against Suicide - Expanding the Safety Net.* Proceedings from an Expert Panel on Vulnerability, Depressive Symptoms, and Suicidal Behavior on College Campuses.

Patterson, Walter and Don Haley 1983. "Evaluation of Suicidal Patients: The SAD PERSONS Scale." *Psychosomatics* 24:343-9

Pearlin, Leonard. 1989. "The Sociological Study of Stress." *Journal of Health and Social Behavior* 30:241-56.

Peebles-Wilkins, Wilma. 2006. "Evidence-Based Suicide Prevention." *Children and Schools* 28:195-196.

Peck, Robert. 1983. "'Official' Documentation of the Black Suicide Experience" *Omega* 14 21-31.

Phillips, Gary and Theodore E. Ruth. 1993. "Adequacy of Official Suicide Statistics for Scientific Research and Public Policy." *Suicide and Life-Threatening Behavior* 23:307–319.

Platt, S., Backett, S. and Kreitman, N. 1988, "Social construction or causal ascription: distinguishing suicide from undetermined deaths". *Social Psychiatry and Psychiatric Epidemiology*, vol. 23, pp. 217-21.

Pope, Whitney. 1975. "Durkheim as a Functionalist". *Sociological Quarterly* Vol. 16 Issue 3, p361-379,

Pope, Whitney, and Nick Danigelis. 1981. "Sociology's One Law." *Social Forces* 60:495-516.

Portner, Jessica. 1998. "Increased Suicide Rates For Blacks Puts Prevention In Doubt." Educational Week on the Web.

Powell, Elwin. 1958. "Occupation, Status, and Suicide: Toward a Redefinition of Anomie." *American Sociological Review* 23:131-139.

Pridmore, Saxby. 1998. "Do Warning Signs Precede Suicide? Lessons from the Lay Press." *Australasian Psychiatry* 6:133-135.

Putnam Robert. 2000. *Bowling Alone; the Collapse and Revival of American Community*. New York Simon & Schuster

Quinney, Richard.1965. "Suicide, Homicide, and Economic Development". *Social Forces* 43(3): 401–6.

Rich Charles, Deborah Young and Richard Fowler. 1986. "San Diego Suicide Study." *Archives of General Psychiatry* 43:577-582.

Ritzer, George. 1992. *Sociological Theory*, 3rd *Edition*. New York: McGraw-Hill.

Rockett, Ian R.H., Julie B. Samora and Jeffrey H. Coben. 2006. "The Black–White Suicide Paradox: Possible Effects of Misclassification." *Social Science & Medicine* 63:2165-2175.

Rockett, Ian R.H. and Thomas Carmody. 1999. "Reliability and Sensitivity of Suicide Certification in Higher-Income Countries. *Suicide and Life-Threatening Behavior* 29:141–149.

Rosenberg Michael, Larry Davidson, John. Smith, and Al. Berman. 1988. "Operational Criteria for the Determination of Suicide." *Forensic Science* 33:1445-1456.

Rostow, Walter W. 1978. *The World-Economy: History and Prospect*. Austin: University of Texas Press.

Sainsbury. Peter. 1955. *Suicide in London: An Ecological Study*. London: Chapman and Hall.

Schmid, Calvin F. 1928. *Suicides in Seattle, 1914 to 1925*. Seattle: University of Washington Publications in the Social Sciences.

Selkin, James. 1983. "The Legacy of Emile Durkheim." *Suicide and Life-Threatening Behavior* 13:3-14.

Shei L.and G.D. Stevens. 2005. *Vulnerable populations in the United States*, Jossey-Bass, San Francisco.

Simpson, Miles E. and George H. Conklin. 1989. "Socio-economic Development, Suicide, and Religion: A Test of Durkheim's Theory of Religion and Suicide." *Social Forces* 67: 945-964.

Smith, Jack C.; Mercy, James A.; Conn, Judith M.. 1988. "Marital Status and the Risk of Suicide." American Journal of Public Health, Vol. 78 Issue 1, p78-80.

Stack, Steven. 1980. "The Effect of Marital Dissolution on Suicide." *Journal of Marriage and the Family* 42:83-92.

Stack, Steven. 1981. "Suicide and Religion: A Comparative Analysis." *Sociological Focus* 14:207-220.

Stack, Steven. 1978. "Suicide: A Comparative Analysis." *Social Forces* 57:644-653.

Stack, Steven. 1983. "The Effect of the Decline in Institutionalized Religion on Suicide." *Journal for the Scientific Study of Religion* 22:239-252.

Stark, Rodney, Daniel F. Doyle, and Jesse Rushing. 1983. "Beyond Durkheim: Religion and Suicide." *Journal for the Scientific Study of Religion* 22:120-31.

Stark, Rodney; Bainbridge, William Sims. 1980. "Towards a Theory of Religion: Religious Commitment". *Journal for the Scientific Study of Religion*, Jun80, Vol. 19 Issue 2, p114,

Stillman, Donald. 1980. "The Devastating Effect of Plant Closures." Pp. 72-88 in *The Big Business Reader*, edited by Michael Green and Robert Massie. New York: Pilgrim Press.

Suicide Prevention Resource Center (SPRC). 2004. *Promoting Mental Health and Preventing Suicide in College and University Settings*. Newton, MA: Education Development Center, Inc.

Tarde, Gabriel. 1898. *La Logique Social, 2nd Edition*. Paris: F. Alcan.

Tolbert, Charles, Michael Irvin, Thomas Lyson, and Afred Nucci. 2002. "Civic Community in Small-town America: How Civic Welfare is Influenced by Local Capitalism and Civic Engagement." *Rural Sociology* 67:90-113.

Travis, Robert. 1990. "Halbwachs and Durkheim: A Test of Two Theories of Suicide." *The British Journal of Sociology* 41:225-243.

Tullis, Ken. 1998. "A Theory of Suicide Addiction." *Sexual Addiction & Compulsivity* 5: 311-317.

U.S. Centers for Disease Control and Prevention. 2005. Web-based Injury Statistics Query and Reporting System. Available online at: http://cdc.gov/ncipc/wisqars.

U.S. Public Health Service 1999. "The Surgeon General's Call to Action to Prevent Suicide." Washington, DC: US Public Health Service. Available online at: http://www.surgeongeneral.gov/library/calltoaction/calltoaction.htm..

Zhang Jie. 1998. "Suicide in the World: Toward a Population Increase Theory of Suicide." *Death Studies* 22:525-539.

Young, Frank, and Thomas Lyson. 2001. "Structural Pluralism and All-Cause Mortality." *American Journal of Public Health* 91:136-138.

Wallerstein, Immanuel. 1974. *The Modern World*. New York Academic Press.

Warshauer, Mark and Martin Monk. 1978. "Problems in Suicide Statistics for Whites and Blacks." *American Journal of Public Health* 68:383–388.

Wilkinson, Kenneth P. 1984. "A Research Note on Homicide and Rurality." *Social Forces* 63:445-52.