Alaskan Native Suicide

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ALASKAN NATIVE SUICIDE

A dissertation submitted in partial fulfillment of the requirements for the degree
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ALASKAN NATIVE SUICIDE

This dissertation is approved as a creditable and independent investigation by a candidate for the degree, Doctor of Philosophy, and is acceptable for meeting the dissertation requirements for this degree. Acceptance of this dissertation does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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ALASKAN NATIVE SUICIDE

Abstract

KARL T. PFEIFFER

A Marxian conflict model of structural analysis is utilized to examine suicide in the State of Alaska between 1977-1990 (n=1175), and to compare and contrast empirical and theoretical strengths and weaknesses of a Marxian socio-economic model of suicide with a Durkheimian socio-cultural model of suicide. Records from the Alaska Bureau of Vital Statistics are used in conjunction with demographic data from the 1980 and 1990 Censuses and subsistence resource utilization data from the Alaska Department of Fish and Game - Subsistence Resources Division.

Following a review of the relevant literature on suicide, historical ethnographies of Native communities, and visits to high suicide areas, a typology of Alaskan Native Villages (N=100) was developed to distinguish communities' relative use of subsistence resources and per capita income. The typology characterizes Alaskan Native villages as Traditional, Dependent, Assimilated, or Pluralistic communities. This typology was then used to

Findings support the potential utility of Native community analysis using the developed typology. While some mortality rates occurred in predicted directions, these findings were not statistically significant. However, a negative correlation between per capita resource use and suicide rate in Alaskan Native villages (r = -0.312, p<.05) was found that contradicts theoretical assumptions of both socio-economic and socio-cultural models. This contradiction suggests that the theorized relationships between traditional activities, alienation or social integration, and consequent influences on suicide rates should be re-examined in future research.
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Suicide generally recognized by the social and health sciences as a major problem merits engineering efforts for at least the following reasons. First, suicide retains a sense of mystery. Secondly, the study of suicide often spurs action against the causes of mortality. Finally, the study of suicide often clears a way for research on suicide prevention and control.

In Alaska, Native males in the 15-24 age cohort had a suicide rate of 9.15 per 100,000 in 1986. This is over four times the rate (19.8) for Alaskans in this age cohort generally, which is already nearly four times the national rate (13.1) for this age cohort (Bureau of Vital Statistics) Annual Report 1986-1987, pp. 30-971.
CHAPTER I
RESEARCH PROBLEM

Introduction

Suicide, generally recognized by the social and health sciences as a serious problem, merits ongoing study for at least the following reasons. First, suicide retains a place in global statistics within the top ten leading causes of mortality. Secondly, the study of suicide often crosses disciplinary boundaries, and consequently offers opportunities for theoretical synthesis between disciplines. Thirdly, it continues to be a "moral" issue from both legal and religious perspectives. And finally, suicide is becoming a political issue as the question of euthanasia is entertained as a form of personal liberty.

Suicide should be of particular interest to sociologists because the statistics recording this behavior suggest, as Durkheim (1897) and others note, that different categories of people are more or less likely to be victims of suicide.

In Alaska, Native males in the 15-24 age cohort had a suicide rate of 215 per 100,000 in 1986. This is over four times the rate (49.5) for Alaskans in this age cohort generally, which is already nearly four times the national rate (13.1) for this age cohort (Bureau of Vital Statistics: Annual Report 1986-1987, Pp. 20-97).
My personal introduction to the Alaskan Native suicide problem occurred in an Eskimo community of 550. The brother of a friend was one of eight (8) suicides between 3/21/85 and 6/25/86. This would be a suicide rate of approximately 1454 per 100,000 (Dougherty, 1988:1-2).

The suicide rate for Alaskan Natives is not only the highest in the state. It also is generally increasing. Suicide is the fourth leading cause of death for all Alaskans, and the problem is magnified when factors of sex, age, and race are considered. According to the Alaska Bureau of Vital Statistics, "Suicide is the number one health problem and presents a far greater threat to life for Natives than for the state as a whole (Bureau of Vital Statistics: Annual Report 1986-1987: 124)." Additionally, homicide and accidental death rates are also higher than in the white population, and both are increasing. The data clearly distinguish Alaskans from the overall population of the United States. Additionally, Native Alaskans are distinguished among other Native Americans, as a particularly high-risk group for suicide (McIntosh,1983:216-217).

Concern for this problem has been widespread (Marshall 1992, AFN 1992, 1989, Dougherty 1988, May 1987). Leaders of Native Communities, the Alaska Department of Health and Human Services, and a variety of human service providers
are engaged in prevention efforts. However, crisis "hotlines," counseling programs, and in-patient psychiatric service, do not appear to have had the desired impact, given the continued high rates of suicide in Alaskan Native communities. These factors suggest that a new understanding of the problem may be prerequisite to reducing it. A review of the literature suggests that conflict theory has not been used in the study of suicide and may offer an alternate explanation to Durkheim's socio-cultural approach. This may help explain an Alaskan Native suicide rate more similar to the exploited indigenous people of Brazil or Micronesia, than to the rest of the United States. A resulting conflict theory of suicide will partially address this gap in the literature.

Problem Statement

An assumption of this research is that a history of economic exploitation produces a high level of alienation. Applebaum (1989:72) suggests that Marx defines alienation in terms of detachment from 1) "the products of one's labor, 2) from the labor process, 3) from one's fellow, 4) and, ultimately, from human nature itself." It may be suggested that high levels of alienation have been at least partially causal of the host of social problems now confronting Alaskan Natives. With this in mind, this research will examine the following general question.
To what extent are social, cultural, economic, demographic, and organizational factors related to suicide rates in Alaskan native villages?

Discussion of the Problem:

A Brief History of White Contact with Alaskan Natives - Exploitation of Raw Materials, and New Markets for Products and Ideologies

Before 1784

The "pre-contact" size of the Eskimo-Aleut population in 1740 was estimated at 74,000 people (Rogers 1971:4), and covered a range of 11,000 miles (Dumond 1977, 1987:7). The 1990 Eskimo-Aleut population was 54,453 (U. S. Census Bureau). This 26% decrease in population seems inconsistent with theories of social change and modernization, such as Lenski's (1966, 1984), that suggest that the first advantage of increasing technology is the ability of societies to produce surplus food, and thus support a larger population. A further review of the literature suggests that Eskimo contact with white people (Russian and Anglo-European Americans) has had some devastating results for Alaskan Natives, while yielding a fairly consistent profit for the "civilized" exploiters of
this new source of furs, minerals, and markets for commodities.

While modernization may not be consistently detrimental to all Alaskan Natives, they appear to have been consistently exploited in the process (Oswalt 1990). The following discussion will focus on the Yupik (Riverine Eskimos), however the histories of other Alaskan Native groups have many similarities.

Oswalt (ibid:xvii) suggests that "The earliest direct and substantial contacts between Indians and Westerners apparently were in Newfoundland, a product of Norse explorations from Greenland around AD. 1000." Nonetheless, some form of aboriginal trade route existed between Siberia and Alaska. The Russian arrival in the North Pacific in the 1640's intensified this trade; however, the first permanent Russian station was not established until 1784. While sporadic Western contact had existed well prior to this time, the establishment of permanent white settlements might be considered the end of pre-contact Eskimo society. However, the difficulty of access to many areas slowed diffusion of white culture, and increased the time and costs of economic exploitation. The designation of "white" Russians and Americans is used to distinguish these races from the indigenous peoples of both countries.
**Early White Russian Contact and Impact: Approximately 1784 - 1866**

"The presence of Russians in Alaska was based on their frenzied quest for furs....In the process they ruthlessly exploited the local Aleuts and Eskimos. The Russians founded their first permanent station on Kodiak Island along Three Saints Bay in 1784, and in 1799 the surviving companies were consolidated as the monopolistic Russian-American Company" (Oswalt, 1990: 92-93).

The early technology introduced by the Russians included guns, tobacco, liquor, flour, metal knives, new hunting techniques, and steel traps.

It's interesting to note that tobacco, domesticated and used in South America before 5000 BC., reached the Eskimos by way of Western trade. It became an extremely important trade item. Liquor, on the other hand, was discouraged as a trade item until 1866.

A Russian trading post, Kolmakovskiy Redoubt, was built on the Kuskokwim River in 1841, and economic problems soon followed.

"After establishing Kolmakovskiy for the purpose of obtaining beaver pelts, the Russians found that the demand for them on the world market was declining. Furthermore, other factors, each directly involving beaver, began to have a negative impact on company profits. From the Russians (italics mine) the people
learned a new means to take these animals. They located a lodge, blocked the exits, and broke into the top. They then could remove all the animals trapped inside by snagging them with iron hooks attached to long poles. Although this method produced large catches with little effort, it destroyed beaver colonies and rapidly depleted the population. Company officials began discouraging the practice and urged hunters to shoot single animals. Yet hunting beaver with guns was not effective; of those shot only about one in three could be retrieved" (The rest sank.) (ibid:61-62).

The use of steel traps was also not effective because the Eskimos cut them up to use the metal for making knives and other objects. In an attempt to increase the number of pelts taken by the Eskimos, the Russians tried raising the price they paid for beaver skins in the mid-1840's. This caused the Kuskokwim take to decline, "much to the company's surprise.....the people traded fewer skins because they received more for them and thus had their needs satisfied more readily than before" (ibid:63).

While the Eskimos may have been somewhat reluctant in learning about the laws of supply and demand, by 1856 they realized that they got a better price for beaver pelts from the Hudson Bay Company along the Upper Yukon River, and from native middlemen trading with Siberian Eskimos, than they did from the Russians. The Russian's annual take of
pelts again declined, as the Eskimos took their furs to better markets. Perhaps it's no surprise that the Russians did not attempt to expand their Kuskokwim River operations.

While the Russians introduced capitalism and the beginnings of a money economy, in the form of beads and assorted trinkets, the greatest impact of their presence was probably the smallpox epidemic of 1838-39. It killed as many as two thirds of the native population. "Since the Russians had been vaccinated, none of them died" (ibid:51). Medical care was not one of the new technologies being exported at this time by the Russians.

In addition to the above influences on the Eskimos, Russian Orthodox Missionaries had been attempting to convert them to Christianity since 1794. Oswalt notes that they probably had the most lasting impact on the Eskimos (ibid:70). This may be one of the better examples of the role of religion in capitalist exploitation. To Eskimo society, the ideologies of Christianity and capitalism came hand in hand.
Early White American Contact and Impact:  
Approximately 1867 - 1900

This period begins roughly with the purchase of Alaska by the United States in 1867. Traders and missionaries continued their business as usual, but under somewhat different auspices.

Some Russian employees of the trading companies stayed in Alaska. Russian Orthodox Missionaries also stayed in Alaska, but with diminished support.

The Moravian Church developed an early interest in the Eskimos, and in 1884 sent its first missionaries into the Kuskokwim River area. The first mission was established at Mumtrekhlagamute Station, which they promptly renamed Bethel. While the original intent of the Moravian Church was to work with "heathen" Eskimos, this plan was compromised after the first missionaries decided that Bethel was an ideal site. As a consequence, the Moravian Church was actively evangelizing Eskimos who were at least nominal converts to the Russian Orthodox Church.

The first permanent missionaries and their wives arrived in 1885 and began a concerted effort to make "proper Christians" of the Eskimos. Oswalt notes:

"The Eskimo life-style in general and many personal habits could not be comprehended, let alone accepted, by the missionaries. One of the conditions they, particularly the women, found most upsetting was the
lack of cleanliness of their many Eskimo visitors. These people did little to care for their hair, and their heads were sometimes white with lice eggs. For one person to delouse another and eat the lice was a common pastime that the missionaries found disconcerting to watch" (ibid:83).

But hygiene was not the only problem the Moravian Missionaries had with the Eskimo lifestyle. Customary social behavior was also considerably different from their home congregation in Bethlehem, Pennsylvania:

"Many Eskimo customs affecting social behavior were not acceptable to the Moravians. Some women reportedly had as many as a dozen husbands over a period of time, and "immorbility," as the missionaries saw it, was rampant. Parents were said to have made "perfect prostitutes" of their daughters by the time they were ten years old. The newcomers found that unwanted infants might be killed, an old woman accused of being a witch was murdered, and a shaman had two wives at one time. To the Moravians this mode of living was "uncivilized" at best and "sinful" at worst. As Edith Killbuck wrote, one of the greatest missionary tasks was "to get the people to sufficiently understand the vileness of sin" and "to leave off from doing it" (emphasis in the original)." Traditional Eskimo culture represented a clear challenge to these newcomers, who had come to the area with the sole purpose of teaching the Eskimos to follow an American way of life" (ibid:84).
While initially tolerant of native ceremonials, after learning Yupik the missionaries realized that some of them were religious. These ceremonials were subsequently banned as idolatry. Christmas replaced the winter ceremonials.

It is interesting to note that the Moravian emphasis on gift-giving at Thanksgiving had parallels in seasonal gift-giving in Eskimo ceremonies. Consequently, it was readily accepted. On the other hand, since Easter occurred during Spring tundra hunting camps, it didn't catch-on nearly as well" (ibid:86).

Unlike the Russian Orthodox Missionaries, the Moravians had medical training, and brought nurses and doctors into the area, in the 1890's. These people effectively competed with the shamans, although the native healers outnumbered Moravian medical personnel.

The difficulty in replacing doctors and nurses meant that shamans continued to be influential (whenever doctors or nurses quit, died or transferred) until a hospital was built in Akiak in 1918 (ibid:88).

In sum, the Moravians required their Eskimo converts to give up numerous aspects of their culture, social organization, religion and traditional economic activity. Since Moravians didn't work on Sundays, Eskimo converts' summer subsistence salmon fishing was significantly affected. With the decreased ceremonial status of
producing surplus food, the production of surplus food was curtailed or surpluses were sold to whites. The result was further economic dependency on whites, at the risk of starvation during the winter.

The Roman Catholic Church entered the competition for Eskimo souls in 1895 by establishing a Kuskokwim mission at Ohagamiut, and another at Holy Cross in 1888. Rather than working from mission stations like the Moravians, the Catholics began operating their missions from within Eskimo villages. The remaining Russian Orthodox Missionaries soon followed suite. Oswalt summarizes the effects of these three Christian ideologies:

"Christian missionaries increasingly intruded on village life. This change signaled a growth of white control over village life that was tolerated by the Eskimos, who applied their customary pattern of accommodation to the new development without realizing the subtle shift in goals that was taking place. Eskimo goals had nothing to do with these expansions of white influence; on the contrary, the purposes being exploited were solely Western in nature. The whites maintained that all changes were intended to benefit the Eskimos, but at no time were the Eskimos given the opportunity to determine for themselves what they preferred. The dominance of Western culture had begun" (ibid:93).
Later White American Contact and Impact: Approximately 1900 - 1960

This period was characterized by expanded exploitation of natural resources by whites that typically had a negative impact on the Eskimos. Stern wheel riverboats were used to transport prospectors and supplies soon after 1900. This expanded access to more remote areas, and the need for firewood to fuel these boats became an early native industry. According to Oswalt, "Cutting cordwood was an important step in the villagers' shift from barter to a cash economy" (ibid:97). However, by 1911 whites discovered how profitable this could be, and largely replaced Eskimos in these jobs.

Industry and capitalism were further stimulated by the development of the Iditarod Trail in 1910-11. This allowed access to Western Alaska during the winter months. The trail ran for 914 miles between Seward and Nome. Industry was further stimulated by the completion of the Alaska Railroad in 1920-21.

The first plane landed at Bethel in 1926, probably on a sandbar. Bethel's first airstrip was built in 1937, and a military airfield was added in 1941.

Another major epidemic struck the Eskimos in 1900. Influenza and measles entered the native population with the gold prospectors and killed about half of the Eskimo population. Whooping cough followed this epidemic and
killed many of the surviving infants and children. Villages that had lost most of their populations were abandoned. People also lost faith in the curing abilities of both shamans and Moravian missionaries (ibid:99).

This may be one of the more dramatic examples of the Eskimos' increasing potential for alienation. It is interesting to note the some of the earliest reports of native alcoholism begin in 1901. Though prohibition passed in 1917, the law was poorly enforced. Oswalt notes that "within ten years alcoholism became a significant social problem, that continues at present" (ibid:100).

The invasion of the Kuskokwim River area by gold prospectors began in 1900 and continued in spurts through 1929. The availability of wage labor further indoctrinated the Eskimos in the ways of capitalism. Additionally, American institutions, US. Commissioners, US. Marshals, US. Post Offices, etc., were introduced into gold camps that became large enough to be designated as towns. In this way, Eskimos also became subject to American law, politics, and social planning.

One result was the recommendation that their "only salvation from filth and hunger would be the introduction of agriculture" (ibid:105). While this wasn't seriously pursued, the Presbyterian Missionary Sheldon Jackson did manage to get reindeer imported to establish a source of
food and clothing material to replace the declining seal and walrus populations. These had provided subsistence for the Eskimos before whites began the wholesale slaughtering of these animals for fur and ivory. Establishing reindeer herds in Western Alaska was an interesting idea, but the importation of Laplanders for training the Eskimos in reindeer herding resulted in racial conflict between the two groups. By 1930, the reindeer industry was well established with nearly 50,000 animals, but it was mostly owned by whites and Lapps. For reasons not entirely clear, the industry declined and disappeared by 1946. This industry was apparently never accepted by the Eskimos, and consequently could not be maintained.

Following W.W.II, commercial air traffic increased, with a commensurate increase in trade and contact with whites. By the 1950's, most villages had stores, run by white traders, that often served as post offices. This served to underline the authority of whites over Eskimos, that had begun with the influence of the missionaries.

The most visible changes in villages occurred as a result of President Lyndon B. Johnson's Great Society programs in 1965. Efforts were made to improve substandard housing in Western Alaska. In 1969, the Alaska Village Electric Cooperative began to attempt the provision of electric service to this area. As a result, Eskimo
villages began to look increasingly like suburban American communities in the 1960's, however according to Oswalt:

"The changes have generally not been enduring. Some villages have taken on the appearance of ghettos in more recent years. The government houses, usually poorly built and on unstable foundations, have deteriorated badly. Some wells intended to serve community water needs have proven unreliable, and the same is true of electrical service in some villages" (ibid:125).

By the late 1960's phone and television service was being extended to villages.

One of the major changes in social organization that occurred between 1900 and 1960 was the abandonment of the traditional men's house.

Traditionally, the village men's house was residence, workshop, and bathhouse for most males, and was the structure with which they were most physically and emotionally identified. Women had a deep attachment to their matrifocal households, where closely related women lived. The segregation of the sexes was believed to be important to successful hunting. Couples would typically share a dwelling together with their children only during fishing and trapping camps.

These practices as well as the Eskimos' attitudes towards marriage, sexuality, and divorce, were vigorously
attacked by the Moravian Missionaries. The Moravians wanted Eskimo men living with their wives and children in single family homes. Bethel was the first village to abandon traditional housing practices. Segregated housing had disappeared by 1910. This resulted in the loss of bonds between both men and women. These were not replaced with strong marital relationships, as Oswalt notes:

"In the 1950's long-term residents along the river repeatedly stated that early Moravian missionaries had forced couples into formal marriages. A missionary might arrive in a village very early in the morning and marry all those couples he found together in bed. The missionary stressed that these marriages were valid, and numerous step-relationships were traced to such marriages" (ibid:126).

The loss of the men's houses and the desegregation of the sexes was a dramatic example of the lack of regard whites typically showed for the Eskimo culture.

In a culture without written language, the storytelling that was part of the communal existence of the sexes, was the primary means of communicating history and culture, as well as of socializing the young in the values of the community. The potential for alienation as the result of this cultural loss seems apparent. While male social drinking of alcohol became a progressively more important activity in the 1930's, it was obviously not an
effective substitute for culturally defined male (or female) activities.

**Current White American Contact and Impact:**

(Approximately 1960 - The Present)

Current White American contact and impact is a continuation of previous efforts to modernize, educate, "civilize," exploit, and assimilate the Eskimos.

Bethel's first TV station began broadcasting in 1972. Its first newspaper began publishing in 1969. By the 1980's, Eskimo communities had access to the rest of the world by radio, TV, newspapers, phone, and plane. They also had all of the social problems affecting the rest of the world. Alcohol and drug abuse were particularly serious problems by this time, and continue to be at present.

The compulsory educational system introduced for Eskimo children further undermined their social structure. For example, the practice of sending children to boarding schools separated a child from family and community, and educating children in substandard village schools deprived them of learning Eskimo skills, without giving them adequate skills for competing with whites. This changed somewhat in the late 60's and early 70's with the establishment of bilingual education programs and improved
funding of village schools, however the quality of education of Eskimos is still a significant issue today.

The pressing problem of alcoholism resulted in the passage of a "local option (for prohibition) law by the state in 1981" (ibid:150). It prohibited the importation and sale of alcoholic beverages, except for sacramental wine, in villages that had voted for local prohibition. Since the big "loophole" in the 1981 law was liquor imported for personal use, a 1986 local option law allowed villages to also ban personal possession of alcohol. This is an interesting legal contrast for a state that allowed "personal use" of marijuana until 1991.

Other technological changes introduced since 1960 have directly affected hunting and fishing activities; snowmobiles, aluminum boats, and outboard motors. Commercial salmon fishing and work in the canneries continues to foster cash economies and wage labor, while stimulating markets for modern "tools of the trade."

An interesting aspect of the introduction of the snowmobile has been its restimulation of an interest in trapping (ibid:157). The speed and range of snowmobiles makes this a more profitable pursuit. However, speculation regarding a "snowmobile revolution" (Pelto and Muller-Wille:1972), do not appear to be warranted in the case of Alaskan Eskimos. While the machines are extremely popular,
they do not appear in themselves, to be causing changes in social structure, or radical environmental degradation. They do appear, along with aluminum boats, outboard motors, TV sets, etc., to be making the Eskimos increasingly economically dependent on outside sources of commodities. It has also required the progressive use of credit-based, as well as cash-based economics.

Additional changes since 1960 have included improved health care, emergency medical service, and the expansion of welfare services. Food Stamps, Aid to Families With Dependent Children, and various Social Security and transfer payments became significant components of village cash income.

Perhaps the most important development during this period was the passage of the Alaskan Native Claims Settlement Act in 1971. This allowed expanded exploration for oil and natural gas, created the Native Corporations, and supported an increasing native awareness of the need for political power based on capital.

While the complexity and effectiveness of the resulting Native Corporations has been the subject of debate, the process of establishing oneself as a member of one of these corporations has stimulated an awareness of the past, and of traditional land use. The native sovereignty movement has emerged in direct opposition to
corporate control of native land claims, and shows increasing potential for political activism. In response to recent subsistence hunting and fishing legislation, a recent and serious suggestion was made by Jeslie Kaleak Sr., mayor of Barrow, to investigate the possibility of the North Slope's secession from the State of Alaska (Anchorage Daily News: 6/23/92).

An Overview of Effects

The main effects of the economic exploitation of the Eskimos have been seen in four areas:

1. Forced shift from a barter to a cash/credit economy.

2. Loss of Eskimo social structure and identity to Western, Russian, and Christian institutions and ideologies.

3. Decimation of the Eskimo population through the introduction of non-native diseases.

4. An emergent consciousness of the need for Native political power based upon capital.
Research Objectives

The following are general research objectives

1. To examine respective rates of suicide and related behavior (homicide and accidental death).
   2a. Using Israel's (1971) model of Marx's concept of alienation, develop a typology of Alaskan Native communities that differentiates types by economic mode of production.
   2b. Qualitatively expand the above typology or develop subsequent typologies using ethnographic, historical, and case-study data of Alaskan native communities.

3. Utilize the above model and typology to explore additional social, cultural, economic, demographic, and organizational factors associated with Alaskan Native suicide.

4. Compare the strengths and weaknesses of a Marxian conflict model of suicide to the traditional Durkheimian socio-cultural model of suicide.
The Significance of the Research Problem:

Practical Implications

The magnitude of the suicide problem among Alaskan Natives has focused public attention on the need for "culturally relevant" human services, while raising the issue of the white urban majority's political commitment to the welfare of historically exploited minority groups in isolated rural areas (Dougherty, 1988). Assuming some degree of political commitment to the welfare of Alaskan Natives, this research may have practical implications in the following areas:

a. It may be relevant to the question of Native subsistence rights and support for traditional values and practices that conflict with the dominant majority, Alaska State, and/or Federal law.

b. It may challenge negative racial stereotypes associating suicide exclusively with alcoholism and other forms of substance abuse.

c. It may have implications for more effective Native Suicide prevention programs.

d. It may have implications for more effective treatment programs for Native suicide attempters.

e. It may have implications for public policy, funding for prevention programs, etc.
f. It may have implications for addressing the problem of suicide in minority groups generally, as well as for non-minority groups.

**Theoretical Implications**

The "traditional" sociological approach to the study of suicide was defined by Durkheim (1897), and might have provided an adequate theoretical orientation for this research. His description of mechanical social solidarity and the integration of primitive societies (*The Elementary Forms of Religious Life*, 1912), might fit pre-contact Alaskan Natives. Rapid social change, loss of social integration, loss of symbolic social and religious identity, combined with an "anomic division of labor" (1893) might apply to the social change that has confronted Alaskan Natives, and consequently to their high suicide rate. A structural-functionalist theoretical orientation could be used to guide an analysis of the data on Alaskan Native suicide.

However, Native Alaskans, as noted previously, have had a history of economic exploitation: first by Russian fur traders, later by white American miners, and currently by multi-national petroleum companies (Oswalt 1990).
Additionally, the conservative bias of structural-functionalism noted by sociologists like Mills (1959) and Dahrendorf (1958), suggests that it may not be the most fruitful or valid approach to the study of suicide, as it occurs in an economically exploited minority group. This appears especially to be the case if, as Douglas (1967) suggests, Durkheimian structural-functionalism implicitly approaches suicide as a moral problem. To paraphrase Marx, attributing Native suicide to lack of Native moral integration would be akin to blaming the poor for their poverty.

As a consequence of these problems, and the fact that suicide has obvious psychological components that are not well handled in the context of Durkheimian structural-functionalism, this study utilized conflict theory as its theoretical frame of reference.

**Summary**

"Conventional wisdom," as well as some of the professional literature, attributes the Alaskan Native suicide problem to the combined influences of socio-cultural change and alcoholism. Implicit in this explanation is the assumption that alcoholism is either a moral flaw, or an incurable disease. Thus promoting the view that suicide and other alcohol-correlated behaviors
are individual problems, beyond the scope of political process, or sociological inquiry.

Additionally, the "conventional wisdom" suggesting that socio-cultural change causes suicide carries the ethnocentric implication that Alaskan Natives may lack the ability to adapt to and cope with modern society. This psychological reduction appears to promote the view that Alaskan Native suicide and other alcohol-correlated behaviors are a racial problem, beyond the scope of the political process, or sociological inquiry. This "conventional wisdom" merits scientific challenge.

This research utilizes a conflict model to consider suicide, as a consequence of alienation stemming from the capitalist mode of production introduced by white exploitation of Alaskan Natives and resources. My thesis is that economic relations effect the suicide rate. If so, village economics, since they are largely defined and manipulated by the dominant white majority, may be considered a more meaningful independent variable than socio-cultural change. This may allow a more substantive view of the social, cultural, economic, demographic, and organizational factors related to suicide rates in Alaskan native villages, and suggest more effective intervention strategies than those that have implicitly viewed the
suicide problem as symptomatic of collective alcoholism, or of a racial inability to adapt to social change.

**Organization of the Dissertation**

This dissertation is organized as follows.

1. Chapter 1 included the introduction, a statement of the research problem, a discussion of the research problem, the research objectives, and the rationale for studying the Alaskan Native suicide problem in the described manner.

2. Chapter 2 is a review of relevant literature concerning suicide generally, and Alaskan Native suicide in particular.

3. Chapter 3 is an expanded discussion of the theoretical issues concerning suicide, and offers a set of interrelated propositions.

4. Chapter 4 describes the research methodology, defines units of analysis, sampling techniques, operational definitions, hypotheses, and statistical techniques used for data analysis.

5. An analysis of data is presented in Chapter 5.

6. Chapter 6 presents research conclusions, limitations of the study, practical and theoretical implications, and areas for further research.

7. Following Chapter 6 are references.
CHAPTER II

REVIEW OF THE LITERATURE:

Introduction

There is an extensive literature on suicide that represents a variety of different disciplines. McIntosh (1985) lists over 2300 citations in Research on Suicide: A Bibliography. May (1990) reviews 160 citations regarding the specific problem of suicide among American Indians and Alaskan Natives. Additional bibliographies have been compiled by Faberow (1972), Blumenthal (1982), and others. These efforts have resulted in a number of theoretical and empirical generalizations that will be subsequently reviewed.

This chapter will review pertinent literature focusing on important concepts and empirical findings, in order to derive relevant empirical generalizations. The first section begins with findings from Durkheim's (1897) classic work. The second section reviews recent studies of suicide and self-destructive behavior among American Indians. The third section reviews recent studies that specifically address the problem of suicide and self-destructive behavior among Alaskan Natives. And the final section identifies inconsistencies and generalizations that need to be addressed in the theory chapter.
Emile Durkheim, in Suicide (1951, original 1897), constructed a sociocultural explanation of suicide by looking for the causes of suicide in the characteristics of groups and societies rather than in the characteristics of individuals. As noted by Duke (1983), Durkheim argued that the underlying causes of a social group's suicide rate could be found in its social structure (nature and level of integration), and collective conscience (levels of egoism, altruism, fatalism, and anomie.) Level of integration is the primary cause, while levels of egoism, altruism, fatalism, and anomie are the secondary causes (See Figure 1.) For example, a breakdown in social integration in a social group could lead either to excessive individualism (egoism) or to a breakdown in the norms which regulate behavior (anomie), depending on the nature of the breakdown. Excessive individualism is suggested to be the result of reduced attachment to, or dependency upon the group. Anomie is suggested to be the result of the social groups ability to exert moral regulation or normative control. Both excessive individualism and anomie would lead to a higher suicide rate. Excessive integration also leads to a higher suicide rate, but in a different way: excessive attachment leads to too little individualism, or high levels of altruism, which leads to a higher suicide
rate. Though not extensively considered excessive normative regulation, in contrast to anomie, could lead to high levels of fatalism, and consequently high levels of suicide.

Figure 1. Durkheim's Socio-cultural Model of Suicide

![SOCIAL STRUCTURE (Integration)](Integration) \(\rightarrow\) [COLLECTIVE CONSCIENCE (Egoism, Altruism, Anomie, Fatalism)](Egoism,Altruism,Anomie,Fatalism) \(\rightarrow\) [SUICIDE RATE]

Source: Duke (1983:31)

Durkheim notes a number of empirical findings and generalizations in *Suicide*. Several are presented below.

1. Suicide rates are increasing, but are relatively stable between societies (geographical areas.) "Each society is predisposed to contribute a definite quota of voluntary deaths" (Durkheim, 1951: 51).

2. Suicide varies by race or nationality: "Of all the Germanic (Northern European) peoples, only the Germans are in general strongly inclined to suicide" (ibid:86).

3. Suicide varies by age: "Not only is suicide very rare during childhood but it reaches its height only in old age, and during the interval grows steadily from age to age" (ibid:101).
4. Suicide varies by season: "Beginning with January inclusive, the incidence of suicide increases regularly from month to month until about June and regularly decreases from that time to the end of the year" (ibid:111). Durkheim also notes variation by time of day and day of the week (ibid:117-118).

5. Suicide varies by religion: "Protestants show far more suicides than the followers of other confessions" (ibid:154).

6. Suicide varies by social class and education: "It is undeniably exceptionally frequent in the highest classes of society," and among members of the "liberal professions" (ibid:165).

7. Suicide varies by sex: "Women commit suicide much less than men" (ibid:166).

8. Suicide varies by marital status: Generally married people kill themselves less often than unmarried people, but this is also effected by age and sex (ibid:178-180).

9. "Suicide rates vary inversely with family size" (ibid:198).

10. Suicide rates decrease with social crises, revolutions wars, etc.: "This decrease is more and more perceptible the more serious and prolonged the crisis" (ibid:203).
Following his presentation of empirical generalizations, Durkheim proposes the following propositions (ibid:208, italics in the original):

"Suicide varies inversely with the degree of integration of religious society."
"Suicide varies inversely with the degree of integration of domestic society."
"Suicide varies inversely with the degree of integration of political society."

His more general sociocultural theory of suicide is partially stated as the conclusion that "suicide varies inversely with the degree of integration of the social groups of which the individual forms a part" (ibid:209).

While some of the empirical generalizations noted by Durkheim do not apply beyond his data, some continue to apply to modern suicide rates generally, and to current Alaskan Native suicide rates in particular. For example, women continue to commit suicide less often than men. This also hold true for female Alaskan Natives (Hlady and Middaugh, 1986, 1987, 1988a, 1988b). However, this sociocultural approach to the analysis of suicide data has influenced many later studies, often in conjunction with psychological or social psychological elements.
Suicide and Self Destructive Behavior Among Native Americans

As noted in the introductory chapter, the suicide rate among Native Americans is generally higher than that of the rest of the American population. Research on this topic has generally utilized a Durkheimian approach (Davenport and Davenport, 1987; Santora and Starkey, 1982; Resnik and Dizmang, 1971; Havighurst, 1971), or more typically a descriptive approach, lacking an explicit theoretical orientation (Blum et. al., 1992; May, 1990).

Sociocultural Factors

The following are examples of recent research that utilizes Durkheim's sociocultural orientation.

Davenport and Davenport (1987) suggest that Durkheim's theory might provide the foundation for more effective treatment and intervention strategies than those currently employing psychological and social work orientations. They suggest that Native cultures are not conducive to egoistic suicide, but that altruistic and anomie suicides are fairly common. As an example of altruistic suicide they note: "some Indians have committed suicide after having brought shame and disgrace to their family and friends. It is not unusual for Indians, especially young Indians, to attempt suicide after being jailed" (ibid:535). With regard to
anomic suicide, Davenport and Davenport (ibid:536) state that

"Although the dominant white culture has not succeeded in "anglicizing" Indians, it has prevented Indians from maintaining and developing their own culture and identity. Many Indians appear trapped between two cultures and unsure of their identity and destiny. It is little wonder that this situation, when compounded by prejudice, discrimination, and low socioeconomic status, results in the breakdown of the individual and social disorganization.

They conclude that "their professional observations and the professional literature strongly favor an anomic explanation for the high rate of suicide among Indians" (ibid:537). Consequently, social workers should concentrate their efforts to "help integrate the heritage and culture of Native Americans into the larger society to develop a social structure that is valued by Indians" (ibid:537).

Santora and Starkey (1982) review studies of suicide among Southwestern and Northwestern Indian tribes (Navajo, Pima, Papago, Yaqui, Apache, Zuni, Ute, Cheyenne, Shoshonea, and the Plateau Cultural Group). They conclude that "motives for completed suicides stem from socio-cultural forces as well as intra-psychic or individual variables" (ibid:28). The need for "culturally-relevant" mental health care is emphasized.
Resnik and Dizmang (1971) consider socio-cultural causes of suicide including "the breakdown of traditional values and patterns of behavior resulting from enforced residence on reservations, geographical isolation, widespread unemployment, and a high incidence of alcoholism" (ibid:882).

Havighurst (1971:177) concludes that "In general, the Indian suicide rates are closely co-related with disorganized family life, alcoholism, and loss of friends and relatives by death."

**Other Factors**

While there is a generally higher suicide rate among Native Americans than among other categories of the population of the United States, several authors emphasize the between tribe variation in suicide rates within this category.

Shore (1975) notes dramatic differences in suicide rates between tribes in an attempt to "clarify previous misconceptions about the American Indian suicide phenomenon" (ibid:86, italics mine). This observation is also made subsequently by McIntosh and Santos (1981), McIntosh (1984), May (1987), and May (1990).

May (1990:200) summarizes the conclusions of the above efforts:
"There are some common traits of suicide found across tribal groups. In many Indian communities, there has been a tendency for suicides to occur in "clusters" and take an epidemic form among particular groups of youth; The suicide of one young person, usually male, may trigger a series of subsequent suicides and/or attempts in the same community. Two other concerns should be mentioned here. Indian suicide is more frequently alcohol related, and violent methods (firearms and hanging) are more commonly used than in the mainstream United States population."

While May's (1990) bibliography and review lack an explicit theoretical orientation, the implications that he notes reflect the socio-cultural, psychological, and social psychological orientations of many of the reviewed articles. These implications include general socioeconomic improvement, general enhancement of self-esteem, specific intervention/prevention protocols for suicidal behavior, and the formulation of a broad set of policies and recommendations to reduce self destruction.

Of the more descriptive (and less theoretically oriented) research efforts, Blum et. al.(1992), survey American Indian and Alaskan Native youth regarding physical and emotional health. An interesting aspect of this study is its utilization of a non-Indian control group. However their conclusions underscore earlier research efforts:
"American Indian-Alaska Native adolescents reported high rates of health-compromising behaviors and risk factors related to unintentional injury, substance use, poor self-assessed health status, emotional distress, and suicide. Interventions must be culturally sensitive, acknowledge the heterogeneity of Indian populations, be grounded in cultural traditions that promote health, and be developed with full participation of the involved communities" (ibid:1637, italics mine).

Suicide and Self Destructive Behavior Among Alaskan Natives

The professional literature that deals specifically with the problem of suicide among Alaskan Natives contains little in the way of explicit theoretical orientation. This might be explained by the fact that much of the Alaskan research has been descriptive and epidemiological in nature; often conducted under the auspices of the Alaska Department of Health and Social Services (Hlady and Middaugh 1986, 1987, 1988a, 1988b; Marshall 1992), or the Alaska Federation of Natives (1989, 1992).
Hlady and Middaugh Studies

Hlady and Middaugh have summarized empirical findings of research in 1983 and 1984:

1) Alaskans committed suicide more frequently and at younger ages than were observed in recent national statistics (1986, 1987).
2) Suicide is a growing epidemic among the young (1986, 1987).
3) Alaskan Native suicides were more likely to be unrecorded than non-Native suicides (1988a).
4) Of 195 suicides, 83.1% were males, and 33% were Natives (1986, 1987).
5) The suicide rate for Natives was higher in rural areas than in urban areas of more than 5000 people. (1986, 1987).
6) For all races, the greatest number of suicides occurred in May and October. (1986, 1987)
7) Of 195 suicides, 149 (76%) were committed with guns (1988a, 1988b).
9) A blood alcohol level of greater than 100mg/dl was significantly (p<.001) associated with suicides where the cause of death was listed as a gunshot wound (1986, 1987, 1988a, 1988b, Kost-Grant 1983).

While explanations of these findings are lacking, the authors suggest that the potential causes of suicide among Alaskan Natives are related to social disorganization resulting from rapid social and cultural change: social isolation, depression, unemployment, alcoholism, seasonal
affective disorder, and the availability of firearms (Hlady and Middaugh, 1986). They note that

"During the past fifty years, Alaska Natives have gone from a majority population to a minority, from a subsistence economy to a cash economy, and through extreme cycles of economic boom and bust. This has resulted in profound changes in family roles and community function, and traditional cultural values and support systems have been severely undermined" (ibid:22).

It also appears that Hlady and Middaugh combine elements of socio-cultural, social psychological, and psychological factors to explain suicide. However, their explanation continues to reflect Durkheimian thought.

**Marshall Study**

Recent research by Marshall (1992) has been particularly important to the present project. "Native Accidental Deaths and Suicides in Southwest Alaska: 1979-1990," examines a similar time period to the present study and similar sources of data. For these reasons, the current study may serve as a replication of Marshall's efforts.

The following are the major findings from the Marshall study.
1) Native males commit suicide more often than females: 78% in the period 1979-1984, and 86% in the period 1985-1990.

2) Young Native males (15-29) are the highest risk for suicide: 72% in the period 1979-1984, and 79% in the period 1985-1990.

3) 98% of the Native male suicides in the 15-29 age cohort had never been married.

4) Guns were used to commit suicide in 80% of the cases in the period 1979-1984, and 90% of the cases in the period 1985-1990.

5) Alcohol was involved in most suicides: This was operationalized as the decedent being drunk at the time of death as reported by witnesses or that the decedent's blood-alcohol content was at least 0.150 milligrams per deciliter, or both.

6) "Prior indicators" defined as noticeable behaviors were evident in nearly all of the suicides: 62% in the period 1979-1984, and 70% in the period 1985-1990.

Marshall notes that prior indicators included increasingly numerous arguments with girlfriends, physical or verbal indications of suicidal intent (like giving possessions away), suicide attempts, suicide threats, and receiving prior psychiatric treatment for suicidal threats or attempts (ibid:3-2, 2-3).

Marshall's two major conclusions are that someone trained in suicide prevention techniques could be effective at the village level in reducing the number of completed suicides, and that there is a strong link between "lack of work and suicide" (ibid:3-4). He notes that of 66
suicides, 10 at most (15%) had steady work. He further notes:

In short, most of the 66 Natives who committed suicide over the period 1985-1990 have occupations that suggest limited skills, and at least five were unemployed. Typically, individuals with limited skills are in intermittent occupations. They move in and out of the labor force in response to short term job opportunities, in particular. Capital improvement projects, funded by the government (the state especially), are the source of employment for such individuals. Such projects declined in the YK delta (Yukon-Kuskokwim River) (and statewide) in the second period. Thus it may be that the increase in suicides in the YKHC (Yukon-Kuskokwim Health Corporation) region from 37 over the period 1979-1984 to 66 over the period 1985-1990-- is related to the reduction in employment and earning power" (ibid:3-5).

While Marshall's research appears to support some of the generalizations of other authors, it also contradicts other generalizations. Two that were specifically contradicted were noted in Hlady and Middagh's reports. June was Marshall's peak month for suicides, rather than May and October, as in Hlady and Middagh's research. September was his lowest month for suicides. This finding tends to challenge the idea of suicide as a result of seasonal affective disorder (SAD). Marshall also found that Tuesday and Wednesday were peak days for suicide, rather than weekends.
Marshall's research is explicitly descriptive, rather than theoretical, however he reviews socio-cultural, community, family, and individual explanations and concludes that a synthesis is necessary. His recommendations include research into 613 "missing" Native young men that are not reflected in the suicide, homicide, or accidental death statistics, research into what keeps the majority of young Native men from committing suicide, additional cross-sectional and time series analysis with suicide and village statistics, and further research on existing community prevention programs for suicide. It is interesting to note that a cross-sectional study that examines "the extent to which subsistence activities are engaged in" (ibid:6-2), in relationship to community suicide rates, is suggested in his concluding remarks.

**AFN Report**

Another particularly important piece of research with respect to the current project is described in "The AFN Report on the Status of Alaska Natives: A Call for Action" (1989, 1992). While this report reiterates some of the above statistics, it emphasizes the importance of political and economic dependency in the consideration of Native social problems:
"Most Alaska Natives are living in communities in which the local economies cannot provide a life-sustaining standard of living without substantial, on-going public subsidies. The analysis suggests that, more often than not, public policies and interventions intended to assist Native individuals, families, and communities have created and perpetuated dependency, rather than self-sufficiency. The struggle to adjust to political and economic systems over which Natives have little real control generates feelings of helplessness and frustration and results in destructive behavior, generally directed internally or towards family and friends" (ibid:64-65).

Other Studies

Other empirical generalizations based specifically on Alaskan Native populations include the following:

1) Alaskan Native cultures may accept suicide as a form of euthanasia, and/or to eliminate non-productive members of the community (Leighton and Hughes 1955).
2) While more men commit suicide than women, more women attempt suicide than men (Kraus 1973, 1974).
3) There is a high correlation between unemployment and suicide, and between education and suicide (Travis 1990).

Travis' research is particularly interesting in that it expressly attempts to test Durkheim's theory against Halbwach's theory utilizing data on Alaskan Native suicide.
He concludes that Durkheim's research design is not valid because it eliminates psychopathology as a causal variable. Since Halbwachs includes psychopathology as a legitimate independent variable, Travis considers it a better model for the study of suicide.

**Generalizations, Inconsistencies, and Gaps in the Literature**

Durkheim's research and extensions of his ideas have provided the foundation for the sociological understanding of suicide. However, there continue to be unresolved questions that are not well addressed by the sociocultural approach to suicide. For example, what causes the breakdown in social integration in a given society? The shift from mechanical to organic solidarity does not appear to be sufficient, particularly when confronting factors that may be specific to exploited minority groups. One such factor may be the radical shift in mode of production from primitive communal exchange to cash/credit economics.

Another question remains as to the manner in which social integration and the collective conscience function within multicultural societies, such as the United States and particularly Alaska. While the general Alaskan suicide rate is higher than the national average, the Alaskan
Native rate is considerably higher than the state rate. Despite this fact, the sociocultural approach rejects racial (i.e. biological) predispositions to suicide (Durkheim, 1951:93). It also rejects alcoholism and psychopathology as general causes of a given society's suicide rate. However, we are left without a structural explanation for such dramatic differences in suicide rate within the same society, or within the same subpopulations of the same society.

Another apparent problem is in the way Durkheim's typology of suicides based on the collective conscience, has been applied. For example, Davenport and Davenport (1987) see altruism and anomie as major factors in the Native suicide rate, but not egoism. Travis (1990) would apparently disagree, seeing egoism and anomie as major factors. Peck (1980), while not addressing the Native suicide problem specifically, attempts of make a case for "modern fatalism." These inconsistencies suggest that the sociocultural approach may be less than parsimonious, at least with regard to the explanation of Native suicide.

In summary, a review of the literature on suicide shows that while the Durkheimian approach continues to maintain a considerable influence, social psychological, psychological and economic variables should be considered in conjunction with socio-cultural variables in an effort
to expand and deepen Durkheim's original analysis as it might be applied in the service of suicide prevention programs. It appears that a theoretical synthesis that adequately incorporates the range of potential causal factors, from socio-cultural to psychological is explicitly or implicitly demanded in most, if not all, of the research on suicide since Durkheim.

While several authors invoke the concept of "culture conflict" (Hlady and Middaugh 1986, 1987, 1988a, 1988b; Davenport and Davenport, 1987; Santora and Starkey, 1982; Resnik and Dizmang, 1971; Havighurst, 1971,) a Marxist conflict perspective has not been used to study this problem. Given the magnitude of the problem among Native Americans, particularly Alaskan Natives, and considering their history of being economically exploited, this is identified as a significant gap in the literature. A conflict approach is expected to be a fruitful approach.
CHAPTER III
THEORETICAL ORIENTATION

Introduction:

Durkheim's sociocultural theory of suicide remains the dominant sociological theory of this behavior. While subsequent theories have attempted to incorporate psychological elements, a review of the literature indicates that radical departures from Durkheim's approach are rare.

The purpose of this chapter is to review Durkheim's theory of suicide and subsequent variations on his basic theme while highlighting criticisms of this theory, and to propose a theoretical framework for using conflict theory to study suicide.

Durkheim's Basic Theory

As noted in Chapter II, the key independent variable in Durkheim's theory of suicide is social integration. Turner, et al., (1989:331) note that Durkheim posits two forms of integration. The first form is described as "attachment to social groups and their goals." Egoistic and Altruistic suicide reflect a lack of attachment or excessive attachment respectively.

The second form of integration is described as "regulation by the collective conscience (values, beliefs,
and general norms) of social groupings" (ibid:331). Anomic and Fatalistic suicide reflect a lack of regulation or excessive regulation respectively. Each suicidal type will be briefly discussed below.

**Egoistic Suicide**

Durkheim's findings that suicide rates differ between religious denominations form the basis for his discussion of egoistic suicide. He suggests "that the proclivity of Protestantism for suicide must relate to the spirit of free inquiry that animates this religion" (Durkheim, 1951:158.). This spirit of free inquiry reduces social integration. Additionally, as noted by Jones (1986), Durkheim suggests that this explanation is consistent with at least three other findings. First, it accounts for the still lower suicide rate of Jews "who, in response to the hostility directed at them, established strong community ties of thought and action, virtually eliminating individual differences, and thus achieved a high degree of unity, solidarity, and integration" (Jones, 1986:93.) Second, of all the Protestant countries studied by Durkheim, England had the lowest suicide rate as well as the most "integrated" Protestant churches. And third, since the spirit of free inquiry should produce knowledge, suicide should increase with education. Durkheim goes on to
discuss the differential effects of egoism by sex and marital status. His findings indicate that women commit suicide less frequently than men. Since they are much less educated, they should be commensurately less susceptible to egoistic suicide. Marriage, in contrast, serves to protect men more effectively from egoistic suicide than women, since, according to the theory, married men experience a higher level of integration as a result of establishing a family, while the bearing and rearing of children does not appear to provide the same benefit to women. Durkheim's explanation for this is vague, but it appears to be predicated upon the idea that the bigger the family the higher a husband and father's experience of integration, while the same circumstances radically increase the burdens placed upon a wife and mother.

**Altruistic Suicide**

While excessive individuation (lack of integration) leads to egoistic suicide, Durkheim proposes that the opposite; insufficient individuation (excessive integration) leads to altruistic suicide. He notes examples of this behavior (ibid:219):

1. "Suicides of men on the threshold of old age or stricken with sickness."
2. "Suicides of women on their husbands' death."
3. "Suicides of followers or servants on the death of their chiefs."

Durkheim suggests that this type of suicide, *as an act of duty*, is more likely in primitive societies, and within social organizations such as the military, where the individual has relatively little value in comparison to the social group.

**Anomic Suicide**

Durkheim suggests that anomic suicides result when society insufficiently regulates the "sentiments and activities" of its members. In essence, human happiness requires that individual needs and aspirations be constrained;

"and since these needs and aspirations are the products of a reflective social consciousness, the purely internal, physiological constraints enjoyed by animals are insufficient to this purpose. The regulatory function must thus be performed by an external, moral agency superior to the individual - in other words, by society" (Jones, 1986:99).

Durkheim's discussion of anomic suicide begins by noting the way that economic crises tend to generate increases in suicide rates. However he notes that "crises of prosperity have the same result" (Durkheim, 1951:246).
and that any crisis or disturbance of social equilibrium tends to increase suicide rates because it reduces society's ability to regulate sentiments and activities. He also suggests that divorce may produce anomic suicide, particularly in men, presumably in the absence of the regulation imposed by marriage (ibid:260).

**Fatalistic Suicide**

Durkheim presents his entire discussion of fatalistic suicide as a footnote, and suggests that it is of merely historical interest. However, as the counterpart to anomic suicide, it merits some theoretical consideration.

"The above considerations show that there is a type of suicide the opposite of anomic suicide, just as egoistic and altruistic suicides are opposites. It is the suicide deriving from excessive regulation, that of persons with futures pitilessly blocked and passions violently choked by oppressive discipline. It is the suicide of very young husbands, of the married woman who is childless. So for completeness' sake, we should set up a fourth suicidal type. But it has little contemporary importance and examples are so hard to find aside from the cases just mentioned that it seems useless to dwell upon it. However it might be said to have historical interest..." (Durkheim, 1951:276).
Durkheim goes on to suggest that the suicides of slaves are likely fatalistic suicides as well as "all suicides attributable to excessive physical or moral despotism" (ibid:276).

These four types of suicide may also be combined, as Durkheim notes, to form composite types in a single suicide, however the overarching causal factor continues to be social integration.

In summary, Durkheim's theory proposes a social structural explanation for suicide in which the primary independent variable is social integration. Differences in social integration produce different effects upon the collective conscience (egoism, altruism, anomie, fatalism), which in turn affects the dependent variable (the suicide rate).

Criticisms of Durkheim's Theory and Extensions of Durkheim's Theory

While Durkheim's work has influenced much subsequent research on suicide, it has also been the subject of considerable criticism. The following section will consider both extensions of Durkheim's research, and criticisms of it.
**Douglas' Critique**

Douglas (1967) provides an extensive analysis and critique of Durkheim's *Suicide*. He also critiques other theories of suicide: status integration (Gibbs and Martin 1958), status and anomie (Powell 1958), ecological factors (Schmid 1928, Cavan 1928, Faris 1955), status change (Sainsbury 1955, Gibbs and Porterfield 1960, Breed 1963), and subculture (Halbwachs 1930). Douglas also reviews the theories of Henry and Short (1954), and of Gold (1958).

Douglas summarizes his critique of Durkheim's theory:

"Besides being out of line with twentieth-century scientific thought, Durkheim's general theory has the great fault of being adjustable in such a way as to be irrefutable" (ibid:75).

He suggests that this fault is due primarily to implicit theoretical assumptions; namely, the structural nature of the collective conscience, and to a lack of operational definitions of key concepts such as 'collective representations'.

Douglas also criticizes Durkheim's methodology. He objects to Durkheim's use of official statistics, which he considers invalid and unreliable. Douglas also accuses Durkheim of tailoring statistical associations to match his preconceived theory. For example, when Durkheim is trying to establish the relationship between divorce and suicide
(1951;264), the time period (1863-1888) for "countries where divorce does not exist" (Italy, France) is considerably earlier than for those countries "where divorce is common" (Baden, Prussia, 1883-1893).

Interestingly enough, Baden and Prussia have higher suicide rates, which might well be expected solely on the basis of improved recording of mortality statistics.

Despite his critique, Douglas states that "Suicide remains the best sociological work on suicide, primarily because of the ideal of scientific investigation of social phenomena which it is built on and because in the final analysis it broke with the positivistic tradition of research on suicide, the tradition of which was so antithetical to the treatment of suicide as actions caused by social meanings" (ibid:76).

Overall, Douglas argues that a symbolic interactionist approach is a more accurate interpretation of Durkheim's theory, as well as a more valid approach to the study of the causes of suicide. He believes that the causes of suicide can only be found within the specific social contexts of the people who actually commit suicide, and only by understanding the meanings of this behavior to victim. These meanings may be determined from suicide notes, interviews with family members, etc., but they would never be reliably determined through the analysis of
suicide rates and after-the-fact interpretations of the behavior. Douglas suggests that this would be particularly true, when interpretations are made by police, coroners, or other individuals who do not know the victim. The individuals responsible for the official handling of death may be dependent upon informants with a vested interest in the interpretation of the incident.

**Gibbs and Martin's Extension of Durkheim's Theory**

Gibbs and Martin (1958, 1964) attempt to extend Durkheim's theory by operationalizing the concept of social integration as a form of status integration. The measure of status integration is derived from census data on women's labor force, marital, and parental status. According to this theory, multiple status configurations suggest role conflict. In essence, the more role conflict, the less status integration, and the higher the suicide rate. An outline of this status integration theory is presented below. Gibbs (1982:228) notes Durkheim's influence.

"Postulate I: The suicide rate of a population varies inversely with the stability and durability of the social relations in that population.
Postulate II: The stability and durability of social relations in a population vary directly with
conformity to socially sanctioned expectations in that population.

**Postulate III:** Conformity to socially sanctioned expectations in a population varies inversely with the amount of role conflict in that population.

**Postulate IV:** The amount of role conflict in a population varies directly with the occupancy of incompatible statuses in that population.

**Postulate V:** Occupancy of incompatible statuses in a population varies inversely with the degree of status integration (italics mine) in that population."

Gibbs (1982) provides a summary of the status integration theory of suicide: "Although none of the five postulates is testable directly, taken together they do imply a testable (italics in the original) theorem.....The suicide rate of a population varies inversely with the degree of status integration in that population."

Unfortunately, since the degree of status integration in a population is derived from census data on white females in fourteen status configurations based on marital, parental, and employment status, the theory may therefore be limited to the same categories for generalization.

Status integration theory is a variant of what Douglas (1967) describes as the frustration leads to suicide hypothesis. Whether or not role conflict/strain consistently results in such frustration is subject to some question. It seems possible that many roles may provide
multiple opportunities for self-expression, as well as a variety of reference groups from which to establish a sense of self-esteem. Sieber (1974:567) suggests that "The benefits of role accumulation tend to outweigh any stress to which it might give rise, thereby yielding net gratification."

Regardless of theoretical and methodological problems, the status integration explanation of suicide is generally consistent with Durkheim's sociocultural theory. However, it offers a poorer explanation for suicide among Alaskan Natives than Durkheim's original conceptualization, particularly since the Alaskan data indicates the highest rates among males.

**Ecological Theories**

Ecological theories of suicide can be traced in part to the "Chicago School" of sociology (Kushner, 1991.) Generally speaking, these sociologists established the relationship between urban growth and social problems. Burgess (1925) states that urban growth "is accompanied by excessive increases in crime, vice, insanity, and suicide."

Other researchers (Schmid 1928, Cavan 1928, Faris 1955), identified additional ecological factors to be related to suicide: poverty, urban slums, the strength of churches, families, schools, commercial organizations, etc.
Perhaps the most significant impact of ecological theories of suicide has been its reinforcement of Durkheim's statistical methodology as the basis for studies of suicide. As noted by Kushner (1991:66), "Statistical methodology, although questioned from time to time, has underpinned subsequent American sociological studies of suicide."

The major limitation of ecological theories of suicide in explaining Alaskan Native suicide rates is the fact that communities with apparently similar ecological characteristic often have radically different suicide rates. This contradiction suggests that it is not the best theoretical explanation for Alaskan Native suicide.

**Theories of Status Change**

Status change is presented as an explanation for suicide by Sainsbury, 1955; Gibbs and Porterfield, 1960; and Breed, 1963). Douglas (1967:109) notes that "The idea that a change in social (prestige ranking) status, especially a loss of social status, can lead to suicide is a very old idea and a very common one." He further suggests that Durkheim had this in mind in developing his theory of anomic suicide. Sainsbury (1955) concludes that increasing social status is more a cause of suicide than poverty, except in the case of a recently lost or
dramatically reduced standard of living. This differs little from Durkheim's conclusion that "economic crises have an aggravating effect on the suicidal tendency" (Durkheim, 1951:241), which opens his discussion of anomic suicide.

The work of Gibbs and Porterfield (1960) focuses on three variables postulated to explain the relationship between status change and suicide: "(1) the long-run (economic prestige) status change, (2) a relative lack of strong social ties, and (3) a personal crisis" (Douglas, 1967:113).

The lack of definition of what exactly constitutes a "crisis" beyond anything immediately preceding the suicide, suggests that the first two variables may not be causal. Their overall theory of suicide as a result of status change suffers as the result.

Breed's research (1963) examines loss of status and resulting suicide with regard to "the work role for American males." This is done with 103 case studies of official reported suicides in New Orleans between 1954 and 1959. Douglas (ibid:123) notes similar methodological and theoretical problems to the above studies, specifically that more men quit jobs before suicides than had been fired. The implication of this finding is that a third factor may have caused both unemployment and suicide.
Integration of Psychological Factors

Powell (1958) attempts to integrate Durkheim's approach with psychological theory. He suggests that individuals kill themselves when they cannot validate their "selves" through the normally approved form of status activity. The inability to validate the "self" results in anomie and consequently suicide. Implicit in this theory is the idea that work constitutes an approved form of status activity. Being successful at work allows validation of the self. Being fired from a job, or being unsuccessful at work may produce anomie as a result. A subsequent suicide then may be described as the result of anomie. This appears to be another variant of the frustration leads to suicide hypothesis. As noted by Douglas (1967:93) "It assumes that the social "validation" of the self is an absolutely fundamental goal of human beings." This assumption presents a psychological and philosophical generalization that creates extreme problems for operationalizing the independent variable of anomie, as indicated by suicides within ranked occupation groups. There appears to be a tautological relationship between validation of the self and anomie.

Halbwachs (1930, 1978) also proposed an integration of psychological variables. While his work reported in The Causes of Suicide was intended to update Durkheim's
study, both Mauss (1930) and Giddens (1978) in their introductions note that a considerably different study and conclusions were the actual result. Perhaps the most significant departure from Durkheim's work is seen in Halbwachs' conclusion that Durkheim rejected psychological explanations of suicide "a little too quickly through depending on data that was too old and incomplete" (1930,1978:12). Halbwachs concluded that the effects of "style of life" as determined by rural or urban residence, and the relative prevalence of manic-depressive psychosis were powerful regional determinants of suicide.

In another departure from Durkheim, Halbwachs reaches a different conclusion regarding the effects of economic crisis (depression or prosperity). Whereas Durkheim saw either as causing potential increases in suicide rates, Halbwachs concluded that "suicides diminished during the phase of economic prosperity and increased, not only at the moment of crisis, but during the whole phase of depression" (ibid: 47).

A later attempt to integrate sociological and psychological variables in the explanation of official suicide rates (as well as homicide rates) is apparent in the work of Henry and Short (1954). Douglas (1967) notes that the theoretical basis for the theory is that increases in frustration will result in increases in aggression
(suicide and homicide), while decreases in frustration will result in decreases in aggression (suicide and homicide). He suggests that a major theoretical flaw is their failure to consider passive withdrawal as a response to frustration. Other methodological problems exist with regard to inferences made about the assumed level of frustration associated with membership in various social classes, racial/ethnic groups, or certain social categories.

Gold (1958:652) attempts to link sociological and psychological causes of suicide produced by "child-rearing links which mediate between structural variables and intrapersonal determinants of behavior." In essence, Gold sees class differences in socialization that cause aggression to be outwardly directed in behaviors such as homicide, or that cause aggression to be inwardly directed in behaviors such as suicide. The result postulates higher suicide rates among upper class individuals, and higher homicide rates among lower class individuals. Douglas (1967:151) suggests that "This idea, so common in culture and personality studies and theories, fails to take into consideration the many (partially) socially determined meanings of immediate situations that are....so fundamental in the causation of suicide (or of homicide)."
In summary, an effective theoretical integration of psychological and sociological variables for explaining suicide remains to be seen. While a complete discounting of psychological determinants of suicide is clearly not warranted for individual cases of suicide, social structural causes of suicide are more validly studied at a level of analysis that is broader than that of individual cases.

**Douglas' Social Psychological Theory of Suicide**

From his extensive critique of the literature on suicide, Douglas (1967) presents a symbolic interactionist and social psychological theory of suicide as "subjectively meaningful" behavior (ibid:235). He rejects the use of official statistics in favor of case studies, however he concludes that there are common patterns of social meaning to suicides, as well as a suicidal process.

Douglas states that "By meaningfulness is meant that the individual members of this culture consider the phenomena to be 'meaningful'" (ibid:273), i.e., that it can be adequately interpreted or explained. He states further that:

"To say that a suicidal action has a general dimension of meaning to the effect that something is fundamentally wrong with the situation of the actor at
the time he commits the suicidal action is almost humorous......But it is precisely this taking of the obvious for granted that has, presumably, led to the general failure to see the many implications of this fundamental meaning of suicidal actions. It is this reflexive dimension of the meanings of suicidal actions which makes suicidal actions such effective social weapons" (ibid:275).

He suggests that most psychological explanations of suicide depend upon situationally determined actions such as aggression or frustration directed inward, or "hurting yourself in order to hurt someone else" (ibid:275).

Common patterns of meaning include suicide as a means of transforming the self from this world to "the other" (and typically better) world (ibid:284), and changing the self in this world for others. An example of the latter would be the suicide intended to show how "serious, sincere, committed one is" (italics in the original; ibid:301).

Another common pattern of meaning identified by Douglas involves the production of sympathy, pity, compassion, or what he calls "fellow feeling" (ibid:304). And the final common pattern of meaning discussed is suicide as a means of getting revenge (ibid:310).

Douglas sees the suicidal process as that which gives meaning to particular suicidal behavior. Important factors in this process include previous communications about
suicidal behavior, histories of suicides (particularly within family relationships,) the existence of "typical suicidal situations" such as sudden great personal loss, and the definition of suicide potential by mental health specialists (ibid:320-340). Douglas concludes that the situated meanings of a person committing suicide are significantly different from the abstract meanings imputed to that person by others after the fact. He states:

"First, it is not possible to predict or explain specific types of social events, such as suicide, in term of abstract social meanings, such as abstract values against suicide. This generalization is a denial of the fundamental assumption of most general theories in sociology today. Second it is not possible to study situated social meanings (e.g. of suicide), which are most important in the causation of social actions, by any means (such as questionnaires and laboratory experiments) that involve abstracting the communicators from concrete instances of the social action (e.g., suicide) in which they are involved (ibid:339)."

**Other Extensions of Durkheim's Theory**

Other more recent sociological studies of suicide as a general problem have reconsidered various aspects of Durkheim's theory. Levine and Shaiova (1977) examines the relationship between anomie, juvenile delinquency, and self-destructive behavior. Peck (1980) considers fatalism

Recent applications of Durkheim's sociocultural theory were noted in the literature on the suicide problem in Native American and Alaskan Native populations (Havighurst 1971, Resnik and Dizmang 1971, Santora and Starkey 1982, Davenport and Davenport 1987) although the above citations are intended to be representative rather than exhaustive listings of work in this area.

**Summary Criticisms of Durkheim's Theory and Its Extensions**

Jones (1983:114) provides a critique of Durkheim's *Suicide* that applies in some measure to many of the extensions of Durkheim's sociocultural theory of suicide:

"It might be argued that Durkheim's central explanatory hypothesis - 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 - raises far more questions than it answers. Aren't there different kinds of "social goals and rules," for example, and aren't some of these dis-harmonious?"
What is socio-psychological "health"? Isn't it socially determined, and thus relative to the particular society or historical period in question? Why are disintegrative, egoistic appetites always described as individual, psychological, and even organic in origin? Aren't some of our most disruptive drives socially generated? And if they are, aren't they also culturally relative? Why are some individuals rather than others "impaired"? And what is the relationship (if, indeed there is one) between such impairment and suicide?....."

More generally, there appear to be three main criticisms of the sociocultural theory of suicide, as reflected in the literature:

1. It was derived from data of questionable validity (Douglas, 1967; Kushner, 1991).

2. The theory is tautological (Douglas 1967; Jones, 1986.)

3. It implicitly assumes that suicide is a moral problem (Douglas 1967; Jones, 1986; Kushner, 1991.)

Criticisms of the extensions of Durkheim's theory may be summarized as follows:

2) There are vague operationalizations of causal concepts, such as status integration (Gibbs and Martin, 1958) or status change (Sainsbury, 1955; Gibbs and Porterfield, 1960; Breed, 1963), that are not readily applied beyond the data used to frame them.

3) There are inconsistencies between causal (ecological) variables and expected empirical findings (Schmid 1928, Cavan 1928, Faris 1955), that are not effectively explained.

To these criticisms, I would add that the utility of a theory of suicide may be measured by its value in producing effective techniques for reducing suicide. This is the strongest reason for seeking an alternative theory for understanding Alaskan Native suicide: its limited value in this regard. Jones (1986:93) states that Durkheim acknowledges the role of minority status in his discussion of egoistic suicide "not because religious hostility imposes some "higher morality," but because it forces the minority to achieve greater unity and integration." In fact, in the case of Alaskan Natives, their minority status appears to have had the opposite effect.

A Conflict Theory of Suicide

The literature on Alaskan Native social problems often emphasizes the role and effects of social change based on
shifting from a communal, subsistence economy to a cash-based/credit economy, and the way in which this economic shift undermines Native traditions and values by promoting individual wealth and competition.

"The most devastating contribution of Western society is the concept of individuality" (Active, 1992b.)

"Back in the old days, when my parents were young, they did not know what money was, nor did they have a need for it. This meant altering our way of life. It introduced problems such as alcohol and drugs that are foreign, and they did not then nor do they now have the tools or the resources to deal with it" (Kipnuk Traditional Council, 1992.)

"We Yup'iks face another kind of extermination." (This is a reference to the Nazi Holocaust). "We face the threat of losing our lives indirectly by losing our way of life." (This is in reference to subsistence hunting and fishing rights.) (Active, 1992a.)

The role of economics in societal change suggests that at least in the case of Alaskan Natives, mode of economic production is a more valid independent variable in explaining suicide (and other social problems) than social integration.

The shift from a sociocultural model to a conflict model may be less dramatic than immediately apparent. For Durkheim, social structure defined in terms of social integration was the independent variable affecting suicide
rates. For Marx, social structure defined in terms of property relations, determines alienation, and a conflict theory of suicide will consider the relationship between property relations and suicide rate. Both approaches give primary emphasis to social structure.

Many of the factors seen as causally related to suicide; loss of status integration, social disorganization, culture conflict, would be viewed from the perspective of conflict theory as alienation or as consequences of alienation. Israel (1971) suggests that alienation is a social process resulting particularly from a capitalist mode of production associated with modern (relative to culture) technology. The capitalist mode of production forces a division of labor upon the individual over which he/she has no control.

This loss of control is primarily due to the social institutions created for the purpose of governing the social processes of production. Additionally, he suggests that Marx uses it to refer to psychological states of detachment from an individual's own productive activity, and from other people.

Israel proposes a model of alienation as he believes it was conceptualized by Marx (p. 16). According to this model (Figure 2.), social conditions (S1-S4, property relations), effect social structure (Ss). Social
structure, in turn effects social processes (Sp) which link social behavior to psychological/individual needs (Hn).

Figure 2. Israel's Model of Alienation

As noted above, Israel suggests that alienation is used in two different senses. It refers partly to certain psychological states (P1-P4,) and partly to certain social processes (Sp) that cause these psychological states (p. 17). He also suggests that it seems reasonable to expect feedback mechanisms between the two.

While the emphasis of this research is on social structures and social processes, the advantage of using a conflict model is that it allows a more precise operationalization of a social structural independent variable as property relations. This is a recurrent problem with the sociocultural model; namely, how to
operationalize social integration as an indicator of social structure conducive to suicide.

**Theoretical Framework**

The following theoretical framework is proposed.

1. Capitalism causes alienation. This mode of production affects individuals and social institutions and is inherently alienating due to its emphasis on individual wealth, success, domination, and competition, through the exploitation of other, weaker individuals (groups, organizations, institutions, or countries.)

2. The effects of an alienating mode of production will be most devastating to traditional societies that are targets of exploitation. Traditional hunting and gathering or subsistence societies with a mode of production resembling primitive communism will lose cultural resources as well as material resources as a consequence of capitalism.

3. Social problems such as suicide, are related to alienation, which in turn is determined by the degree to which capitalist ideology is accepted by a traditional society and/or to the degree to which exploitation is successful.

**Research Propositions:**

Given the above general theoretical statements, the following research propositions are listed below:
Propositions I: The degree to which capitalist mode of production has supplanted a traditional mode of production in Alaskan Native communities will be reflected by the economic importance of cash, in comparison to subsistence resources (property relations.)

Proposition II: The relative importance of cash, in comparison to subsistence resources (property relations), may provide the basis for a typology from which levels of community alienation may be inferred.

Proposition III: Community suicide rates are positively related to level of alienation within a community.

Proposition IV: Since property relations will distinguish communities in terms of alienation, it will also distinguish communities with characteristically high or low suicide rates.

In summary, the theoretical orientation of this research is a conflict perspective that conceptualizes suicide as one consequence of alienation. Alienation is seen as primarily a social process that is causally affected by social structures, one of which is property relations, or mode of production. The next chapter will describe how property relations were operationalized as an independent variable related to Alaskan Native Suicide.
CHAPTER IV
RESEARCH METHODS

Introduction

This chapter outlines the methodology that was employed in the effort to validly and reliably test hypotheses formulated from the theoretical propositions noted above. To this end, the unit of analysis, sampling design, and sources of data will be discussed. Data analysis procedures will be reviewed, including the typology employed, and the hypotheses to be tested. Finally, the specific statistical tests used for data analysis and hypothesis testing will be described.

Research Design and Data Analysis

The sources of data for this study included: field observation conducted during visits to high suicide areas during 1988, 1989, and 1990; historical ethnographies; case studies; death records from the Alaska Bureau of Vital Statistics for the period 1977-1990; demographic data from the 1980 and 1990 Censuses; and subsistence resource data from the Alaska Department of Fish and Game - Subsistence Resources Division, collected between 1981 and 1986.

Field observation and historical ethnographies provided the background for a subsequent analysis of death
records from the Alaska Bureau of Vital Statistics. Death records provided information on age, race, sex of decedent, veteran status, marital status, day of death, month of death, community of death, residence community, etc.

Census reports provided information on per capita income, education, percent below poverty levels, percent unemployed, as well as racial composition and migration, and other demographic factors.

The Alaska Department of Fish and Game provided subsistence hunting and fishing data, specifically, per capita consumption of subsistence resource food; namely, food harvested using traditional hunting, fishing, and gathering techniques.

Based upon a review of the literature and preliminary fieldwork, the following typology of Alaskan Native Villages and property relationships was developed (See Figure 3). The vertical axis represents the degree of village cash dependency. The horizontal axis represents the degree of village subsistence (traditional hunting/fishing) dependency.
This typology was used to conceptualize and operationalize the social condition of property relations theorized to affect the social structures of Alaskan Native villages, and consequently alienation, suicide, and related problems. Refer to Figure 4 for a model of the proposed relationships.
General Characteristics of the Population

The unit of analysis for this project was the Alaskan Native village. There are 217 Alaska Native Village Statistical Areas listed in the 1990 Census. These areas correspond closely, but not always exactly, to existing villages. The 1990 Census reports that these areas range in population from 4 to 10,491. (Although the upper range of actual village populations is 4674, the 1990 population of Bethel.) Fourteen (14) have no population listed. Missing and inaccurate data are problems in some cases. However, despite these problems, the Census continues to be the best general source of quantitative demographic data on Alaskan Native Villages.

From 1977-1990, 1175 deaths were officially recorded as suicides, 402 (34.2%) were Alaskan Natives, and 313 (78%) occurred in Native Villages. Alaskan Natives comprise approximately 15.6% of the state's total population. Roughly 14% of the state's population lives in Native Villages. Comparable data on homicides and accidental death were also examined, given the likelihood of misclassifications. Of the 217 villages reflected in the 1990 Census, 131 had at least one reported suicide between 1977-1990.

From this population, 101 villages had subsistence resource data available for subsequent analysis. This
sample, while not random, appears to be representative of the study population (See Table 1). As can be seen from Table 1, null hypotheses of no differences between sample and population means would not be rejected, at least on the basis of income, population, and mean suicide rate.

Table 1. T-Tests of Differences Between Sample and Population Means

<table>
<thead>
<tr>
<th>Variable</th>
<th>Population (N=206)</th>
<th>Sample (N=101)</th>
<th>D.F.</th>
<th>Value of T (Prob)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990 Village</td>
<td>332</td>
<td>305</td>
<td>DF=101</td>
<td>T=0.670 (Prob=.504)</td>
</tr>
<tr>
<td>Population Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990 Mean Per</td>
<td>7659</td>
<td>8858</td>
<td>DF=99</td>
<td>T=0.001 (Prob=.99)</td>
</tr>
<tr>
<td>Capita Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Suicide Rate (per 100,000)</td>
<td>576</td>
<td>509</td>
<td>DF=100</td>
<td>T=-0.905 (Prob=.368)</td>
</tr>
</tbody>
</table>

*p<.05  **p<.01  ***p<.001

Research Propositions and Hypotheses

**Proposition I:** The degree to which Alaskan native villages can be classified as Pluralistic, Traditional, Assimilated, and Dependent communities can be differentiated in terms of property relations.
**H1(a):** Community property relations defined by high per capita incomes and high per capita use of subsistence food will differentiate Pluralistic communities from other communities.

**H1(b):** Community property relations defined by high per capita use of subsistence food and low per capita income will differentiate Traditional communities from other communities.

**H1(c):** Community property relations defined by high per capita incomes and low per capita use of subsistence food will differentiate Assimilated communities from other communities.

**H1(d):** Community property relations defined by low per capita incomes and low per capita use of subsistence food will differentiate Dependent communities from other communities.

**Proposition II:** Suicide should vary by village type.

**H2(a):** Suicide rates will be higher in Dependent villages than in Assimilated villages.

**H2(b):** Suicide rates will be higher in Assimilated villages than in Traditional villages.

**H2(c):** Suicide rates will be higher in Traditional villages than in Pluralistic villages.
H₂(d): Suicide rates will be positively associated with per capita income.

H₂(e): Suicide rates will be negatively associated with per capita use of subsistence resources.

Table 2 presents the hypothesized relationships graphically.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Dependent</th>
<th>Assimilated</th>
<th>Traditional</th>
<th>Pluralistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide</td>
<td>Highest</td>
<td>High</td>
<td>Low</td>
<td>Lowest</td>
</tr>
<tr>
<td>Homicide</td>
<td>Highest</td>
<td>High</td>
<td>Low</td>
<td>Lowest</td>
</tr>
<tr>
<td>Accidents</td>
<td>Highest</td>
<td>High</td>
<td>Low</td>
<td>Lowest</td>
</tr>
</tbody>
</table>

**Proposition III:** Property relations should effect other social problems in addition to suicide (homicide, accidental death).

H₃(a): Homicide rates will be higher in Dependent villages than in Assimilated villages.

H₃(b): Homicide rates will be higher in Assimilated villages than in Traditional villages.

H₃(c): Homicide rates will be higher in Traditional villages than in Pluralistic villages.

H₃(d): Accidental death rates will be higher in Dependent villages than in Assimilated villages.

H₃(e): Accidental death rates will be higher in Assimilated villages than in Traditional villages.
H₃(f): Accidental death rates will be higher in Traditional villages than in Pluralistic villages.

Proposition IV: Suicide, homicide, and accidental death should be intercorrelated.

H₄: Suicide, homicide, and accidental death rates will be positively intercorrelated.

**Alternative Hypotheses**

Alternative hypotheses were developed in an effort to further address research objective (4) of comparing the strengths and weaknesses of a Marxian conflict model of suicide to the traditional Durkheimian socio-cultural model.

Assuming that social solidarity is the independent variable affecting suicide rates, that rapid social change tends to reduce social solidarity, and that traditional societies should have the highest levels of social solidarity, the following alternative hypotheses are proposed:

Hₐ(1): Suicide rates will be positively associated with population change.

Hₐ(2): Suicide rates will be positively associated with education.

Hₐ(3): Traditional communities will have the lowest suicide rates.
**Operational Definitions**

*Subsistence dependency* was operationalized as the per capita quantity of food (in pounds) consumed per year, that was produced using a traditional mode of production (hunting and fishing). These figures were collected for the sample communities between 1980 and 1986. Villages were identified as high or low on this variable based on relative position to each other, as produced by cluster analysis of the entire sample. Arbitrarily fixed cut-off points were not utilized, since there was no theoretical (or empirical) basis for determining these points. This method was also used for determining the designation of these characteristics for cash dependency.

*Cash dependency* was operationalized as 1980 per capita income.

*Suicide, homicide and accidental death rate* were operationalized as indexes of the total number of cause-specific recorded fatalities between 1986 - 1989, divided by the number of years during this interval (4) and then by the 1990 populations of the sample communities. This figure was then multiplied by 100,000 to provide a statistic similar to the annual mortality rates calculated by the Alaska Bureau of Vital Statistics.

*Population change* was operationalized as the percentage to total population increase or decrease between
1980 and 1990. Population figures for 1980 were subtracted from comparable figures for 1990. The result was divided by the 1990 population, then multiplied by 100 to provide a percentage of population change during the decade.

*Education* was operationalized as the percentage of persons 25 years and older that have completed high school or higher levels of education in 1990. This cohort of individuals would have experienced high school during the early 1980's. Consequently, it is necessary to use the 1990 statistic for education hypothesized to affect suicide in the later 1980's.

**Data Analysis Procedures**

Statistical data analysis began with records from the Alaska Bureau of Vital Statistics. Descriptive statistics were calculated on all death records between 1977 and 1990 that occurred in Alaska and were labeled suicides, accidents, homicides, or other violent death (N=6184). This was done using a mainframe version of SAS (Version 6.03, 1988.)

From this preliminary data base, demographic data from the 1980 and 1990 censuses were added, as well as subsistence use data from the Department of Fish and Game - Subsistence Resources Division. The resulting data base
was used to gain an overview of the suicide problem in Alaska during this time period.

Prior to hypothesis testing, mortality data from 1977-1985 was excluded, since the desired statistics related to the independent variable of property relations were not available before 1977. Data from 1990 was also excluded because it was incomplete.

There were 1834 deaths between 1986-1989 identified as accidents, homicides, suicides, or "other violent." Of these fatalities, 211 occurred in villages that composed the final sample (N=100). The final statistical analyses were done using Systat (Version 5.2, 1992).

Hypotheses H1(a) - H1(d) from Proposition I, The degree to which Alaskan native villages can be classified as Pluralistic, Traditional, Assimilated, and Dependent communities can be differentiated in terms of property relations, were tested using cluster analysis, analysis of variance procedures, and chi-square tests. Since per capita consumption of subsistence resource food and per capita income are interval level variables, and since the typology intends to distinguish categories based upon these variables, these techniques are appropriate.

Cluster analysis is a multivariate procedure for detecting natural groupings in data (Wilkinson, et. al., 1992). It is particularly appropriate when seeking to
classify a set of objects into subgroups, when neither the number of the subgroups, or the membership of the subgroups is known, however it may also be used to explore a hypothesized typology, such as the one presented in Figure 3. Clusters are produced on the basis of measures of dissimilarity. Consequently, similar objects appear in the same cluster and dissimilar objects appear in different clusters. For this research, clusters were created using negated Pearson Correlation coefficient matrices from standardized village data on per capita subsistence resource use and per capita income.

Analysis of variance allows the testing of differences between sample means. It is particularly appropriate for use with interval level data, such as per capita income, per capita subsistence resource use, and mortality rates (Blalock, 1960).

Hypotheses H2(a) - H2(c) from Proposition II, *Suicide should vary by village type*, were tested using analysis of variance procedures (MANOVA). Hypotheses H2(d) and H2(e) were tested using Pearson Correlation techniques.

Hypotheses H3(a) - H3(f) from Proposition III, *Property relations should effect other social problems in addition to suicide* (*homicide, accidental death*), were also tested using analysis of variance.
Hypothesis $H_4$ from Proposition IV, *Suicide, homicide and accidental death should be intercorrelated*, was tested using Pearson Correlation techniques. This technique is particularly appropriate for determining the degree of association between interval level variables such as mortality rates.

Alternative hypotheses $H_a(1)$ and $H_a(2)$ were also tested using Pearson Correlation methods. Alternative hypothesis $H_a(3)$ is essentially a restatement of $H_1(a-c)$, (with the exclusion of pluralistic communities), and is effectively tested with the analysis of variance techniques used for these hypotheses.
CHAPTER V

FINDINGS

Introduction

This chapter presents data collected as described in the preceding chapter. It is divided into four sections. The first section describes general characteristics of Native Villages and of the research sample, and general characteristics of suicide in Alaska. The second section describes hypotheses that were tested. The third section reports tests of alternative socio-cultural hypotheses. The fourth section summarizes the above findings.

Characteristics of Alaskan Native Villages

The original sample for this research included data for 206 Native Villages, obtained from the Alaska Bureau of Vital Statistics and the U.S. Census Bureau. The official populations of these villages range from 3 – 10,523. However, this population range is misleading at the upper extreme. The village of Ninilchik "defined the boundary of the Alaska Native Village Statistical Area (ANVSA) to include all of the Kenai Peninsula south of the community of Ninilchik to Kachemak Bay (Dept of Labor, 1992:60-61)." This area included several other communities and consequently inflates the reported population figure for
this area. (See Map 1). The more accurate population figure for Ninilchik is 456, as reported for its status as a Census Designated Place (CDP).

Map 1. Kenai Peninsula Area Map
Alaskan Native Villages typically range from 35 - 4674 (Hlady and Middaugh, 1986:2). Many of these communities are isolated to the degree that they can only be reached by boat, plane, or snowmobile.

Per capita income ranges from well below the poverty level ($720 in Council, population 6) to well above it ($184,067 in Eyak, population 168), however the mean per capita income for Native Villages, based on 1990 data was $7659. (U. S. Census Bureau 1990a:88-89). Per capita incomes from 1980 census statistics indicate a narrower range from $1304 (in Chuathbaluk: population 71), to $21,206 (in Sand Point: population 462). Mean Native Village per capita income reflected in 1980 census statistics was $5082 (U.S. Census Bureau 1980a:(3)8-10).

Approximately 70% of Alaska's Native population live in these communities (Hlady and Middaugh, 1986:2). These communities may be geographically divided by the 14 boroughs used by the Census Bureau, or by the 12 Regional Corporations that were formed as a result of the Alaska Native Claims Settlement Act of 1971. (See Maps 2 and 3).
Map 3. Native Regional Corporations and Alaskan Native Villages
Sample Characteristics

From the original data base of 206 communities, 101 villages were selected for further analysis, since data for per capita utilization of subsistence food resources was available for only these 101 communities. As noted in the preceding chapter, this is not a random sample, however none of the sample means was significantly different from the population means. (See Table 1: p. 78).

Characteristics of Individual Suicides in the Original Sample

Over 26,000 deaths between 1977 and 1990 were recorded by the Alaska Bureau of Vital Statistics (1990 data was incomplete at the time of analysis). Of these, 1175 were officially designated as suicides, and 402 (34.2%) were Alaskan Natives. Alaskan Natives comprise approximately 15.6% of the state's total population. Therefore, the proportion of suicides is disproportionate to size of the Native population.

From this sample of 1175 reported suicides, 313 were identified as having occurred in places designated as Alaska Native Villages by the U. S. Census Bureau. Of the 209 villages reflected in the 1980 Census, 131 had at least one reported suicide between 1977-1990. From this
population, the sample of 101 villages with subsistence resource data had 211 recorded suicides between 1986 and 1989.

Table 3 shows frequency of suicide in Native Communities, compared to urban and other areas in relationship to total 1990 population. 26.6% of the suicides between 1977 and 1990 occurred in Native Villages.

Table 3. Frequency of Suicide by Selected Community: 1977-1990

<table>
<thead>
<tr>
<th>Community</th>
<th>Frequency</th>
<th>Percent of 1990 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchorage</td>
<td>365</td>
<td>31.1</td>
</tr>
<tr>
<td>Fairbanks</td>
<td>117</td>
<td>10.0</td>
</tr>
<tr>
<td>Juneau</td>
<td>47</td>
<td>4.0</td>
</tr>
<tr>
<td>Native Villages</td>
<td>313</td>
<td>26.6</td>
</tr>
<tr>
<td>Other</td>
<td>333</td>
<td>28.3</td>
</tr>
<tr>
<td>Total</td>
<td>1175</td>
<td>100</td>
</tr>
</tbody>
</table>

Of the 1175 recorded suicides between 1977-1990, 83.2% (978) were males. In contrast, 16.8% (197) were females.

Table 4 shows the frequency of suicide by ten (10) year age cohort. As can be seen from this table, people between the ages of 15 and 25 show the highest frequency of suicide.
Unlike national statistics, this frequency declines with age. However this may be due in part to Alaska's generally younger population: 3.8% 65 and over compared to the U.S. rate of 12.4% (Census Bureau, 1990:23).

Table 4. Frequency of Suicide by Age Cohort: 1977-1990

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14 or younger</td>
<td>13</td>
<td>1.1</td>
<td>13</td>
<td>1.1</td>
</tr>
<tr>
<td>15-25</td>
<td>452</td>
<td>38.5</td>
<td>465</td>
<td>39.6</td>
</tr>
<tr>
<td>26-35</td>
<td>346</td>
<td>29.4</td>
<td>811</td>
<td>69.0</td>
</tr>
<tr>
<td>36-45</td>
<td>166</td>
<td>14.1</td>
<td>977</td>
<td>83.1</td>
</tr>
<tr>
<td>46-55</td>
<td>99</td>
<td>8.5</td>
<td>1076</td>
<td>91.6</td>
</tr>
<tr>
<td>56-65</td>
<td>59</td>
<td>5</td>
<td>1135</td>
<td>96.6</td>
</tr>
<tr>
<td>Over 65</td>
<td>40</td>
<td>3.4</td>
<td>1175</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 5 shows the frequency of suicide by race. Alaskan Natives comprise 34.2% (402) of the total number of suicides during this time period.
Table 5. Frequency of Suicide 1977-1990 By Race With 1990 Population

<table>
<thead>
<tr>
<th>Race</th>
<th>1990 Population</th>
<th>Percent of Total Population</th>
<th>Percent of Total Suicides 1977-90</th>
<th>Number of Suicides 1977-90</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>415492</td>
<td>75.5</td>
<td>62.6</td>
<td>736</td>
</tr>
<tr>
<td>Black</td>
<td>22451</td>
<td>4.1</td>
<td>1.7</td>
<td>20</td>
</tr>
<tr>
<td>Native</td>
<td>85698</td>
<td>15.6</td>
<td>34.2</td>
<td>402</td>
</tr>
<tr>
<td>Asian</td>
<td>19728</td>
<td>3.6</td>
<td>1.1</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>6674</td>
<td>1.2</td>
<td>.4</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>550043</td>
<td>100.0</td>
<td>100.0</td>
<td>1175</td>
</tr>
</tbody>
</table>

Table 6 shows frequency of suicide by marital status. Never-married people represent 52.3% of the suicides committed during this time period.

Table 6. Frequency of Suicide by Marital Status: Alaska 1977-1990

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Frequency of Suicide</th>
<th>Percent of Total</th>
<th>Cumulative Frequency</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Married</td>
<td>614</td>
<td>52.3</td>
<td>614</td>
<td>52.3</td>
</tr>
<tr>
<td>Married</td>
<td>346</td>
<td>29.4</td>
<td>960</td>
<td>81.7</td>
</tr>
<tr>
<td>Widowed</td>
<td>26</td>
<td>2.2</td>
<td>986</td>
<td>83.9</td>
</tr>
<tr>
<td>Divorced</td>
<td>181</td>
<td>15.4</td>
<td>1167</td>
<td>99.3</td>
</tr>
<tr>
<td>Unknown</td>
<td>8</td>
<td>0.7</td>
<td>1175</td>
<td>100.0</td>
</tr>
</tbody>
</table>
In summary, the individual characteristics associated with Alaskan suicide from the original data show that Native males between the ages of 15 and 25, who have never been married, and that are living in rural Alaskan Native Villages have high frequencies of suicide.

From this original sample, 101 communities had subsistence resource data available from the Alaska Department of Fish and Game - Subsistence Resources Division. These communities consequently became the focus of the theoretical component of this research related to the development of a typology distinguishing village mode of economic production. Tests of Hypotheses 1-3 were limited to these communities. However, the entire population of Alaskan Native Villages (N=206) was used to test hypothesis 4.

**Tests of Hypotheses**

The purpose of this section is to consider research objectives two and four. Objective two attempts to "develop a typology of Alaskan Native communities that differentiates type by economic mode of production." It was theorized that 1) the degree to which capitalist mode of production has supplanted a traditional mode of production in Alaskan Native communities will be reflected by the economic importance of cash, in comparison to
subsistence resources (property relations), 2) the relative importance of cash, in comparison to subsistence resources (property relations), may provide the basis for a typology from which levels of community alienation may be inferred, 3) community suicide rates are positively related to level of alienation within a community, 4) property relations will distinguish communities in terms of alienation, it will also distinguish communities with characteristically high or low suicide rates. From these general propositions and the more specific ones that follow, sixteen research hypotheses, and three alternative hypotheses were developed for testing.

**Proposition 1** The degree to which Alaskan native villages can be classified as Pluralistic, Traditional, Assimilated, and Dependent communities can be differentiated in terms of property relations.

\(H_1(a)\): Community property relations defined by high per capita incomes and high per capita use of subsistence food will differentiate Pluralistic communities from other communities.

\(H_0[1(a)]\): Community property relations defined by high per capita incomes and high per capita use of subsistence food will not differentiate Pluralistic communities from other communities.

\(H_1(b)\): Community property relations defined by high per capita use of subsistence food and low per capita
income will differentiate Traditional communities from other communities.

$H_0[1(b)]$: Community property relations defined by high per capita use of subsistence food and low per capita income will not differentiate Traditional communities from other communities.

$H_1(c)$: Community property relations defined by high per capita incomes and low per capita use of subsistence food will differentiate Assimilated communities from other communities.

$H_0[1(c)]$: Community property relations defined by high per capita incomes and low per capita use of subsistence food will not differentiate Assimilated communities from other communities.

$H_1(d)$: Community property relations defined by low per capita incomes and low per capita use of subsistence food will differentiate Dependent communities from other communities.

$H_0[1(d)]$: Community property relations defined by low per capita incomes and low per capita use of subsistence food will not differentiate Dependent communities from other communities.

Cluster analysis, in conjunction with multiple analysis of variance (MANOVA), and chi square analysis were performed to test the above hypotheses ($H_0[1(a-d)]$). Tables 7, 8, and 9 summarize the results of these analyses. Null
hypotheses Ho[1(a-d)] may be rejected at the .05 level of significance. This finding is consistent between the various tests used to establish the validity of this typology of Alaskan Native communities on the basis of mode of production.

Table 7. Cluster Analysis Distance Statistics for Village Types

<table>
<thead>
<tr>
<th>Village Type</th>
<th>Number of Communities</th>
<th>Variable</th>
<th>Minimum</th>
<th>Mean</th>
<th>Maximum</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td>29</td>
<td>perinc79</td>
<td>-1.63</td>
<td>-1.03</td>
<td>-0.04</td>
<td>0.37</td>
</tr>
<tr>
<td>(Cluster 1)</td>
<td></td>
<td>percapfd</td>
<td>-0.11</td>
<td>0.59</td>
<td>1.44</td>
<td>0.41</td>
</tr>
<tr>
<td>Traditional</td>
<td>11</td>
<td>perinc79</td>
<td>-0.82</td>
<td>0.39</td>
<td>1.35</td>
<td>0.61</td>
</tr>
<tr>
<td>(Cluster 2)</td>
<td></td>
<td>percapfd</td>
<td>0.60</td>
<td>1.32</td>
<td>2.47</td>
<td>0.61</td>
</tr>
<tr>
<td>Pluralistic</td>
<td>2</td>
<td>perinc79</td>
<td>-0.09</td>
<td>0.31</td>
<td>0.71</td>
<td>0.40</td>
</tr>
<tr>
<td>(Cluster 3)</td>
<td></td>
<td>percapfd</td>
<td>3.79</td>
<td>3.98</td>
<td>4.17</td>
<td>0.19</td>
</tr>
<tr>
<td>Assimilated</td>
<td>60</td>
<td>perinc79</td>
<td>-0.47</td>
<td>0.74</td>
<td>2.19</td>
<td>0.68</td>
</tr>
<tr>
<td>(Cluster 4)</td>
<td></td>
<td>percapfd</td>
<td>-1.23</td>
<td>-0.66</td>
<td>-0.11</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Table 8. Multiple Analysis of Variance (MANOVA)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Between Groups SS</th>
<th>DF</th>
<th>Within Groups SS</th>
<th>DF</th>
<th>F-Ratio</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>perinc79</td>
<td>36.786</td>
<td>3</td>
<td>17.214</td>
<td>51</td>
<td>36.329</td>
<td>0.000</td>
</tr>
<tr>
<td>percapfd</td>
<td>87.221</td>
<td>3</td>
<td>13.779</td>
<td>98</td>
<td>206.787</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Table 9. Bartlett Chi Square Test For Homogeneity of Group Variances

<table>
<thead>
<tr>
<th>Variable</th>
<th>Chi-Square Value</th>
<th>DF</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capfd</td>
<td>13.279**</td>
<td>3</td>
<td>0.004</td>
</tr>
<tr>
<td>Pcinc90</td>
<td>10.071*</td>
<td>3</td>
<td>0.018</td>
</tr>
</tbody>
</table>

*p<.05  **p<.01  ***p<.001

Since only two (2) communities could be designated as Pluralistic, this type was excluded from further analysis. Consequently, hypotheses $H_2(c)$, $H_3(c)$, and $H_3(f)$ were not tested as originally intended.

The following hypotheses address research objective four:

**Proposition 2** Suicide should vary by village type.

$H_2(a)$: Suicide rates will be higher in Dependent villages than in Assimilated villages.

$H_0[2(a)]$: Suicide rates will not be significantly higher in Dependent villages than in Assimilated villages.

$H_2(b)$: Suicide rates will be higher in Assimilated villages than in Traditional villages.
**H0[2(b)]:** Suicide rates will not be higher in Assimilated villages than in Traditional villages.

As can be seen from Table 11, Hypothesis 2(a) occurs in the predicted direction. This difference is not significant, however, and null hypothesis **H0[2(a)]** is not rejected. Hypothesis 2(b) does not occur in the predicted direction. These differences are not significant and null hypotheses **H0[2(b)]:** is also not rejected. Analysis of variance results are presented in Table 10.

Table 10. Analysis of Variance: Village Type By Suicide Rate

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F-Ratio</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>618716.938</td>
<td>2</td>
<td>309358.469</td>
<td>1.072</td>
<td>0.346</td>
</tr>
<tr>
<td>Error</td>
<td>2.79988E+09</td>
<td>97</td>
<td>288647.501</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *p<.05  **p<.01  ***p<.001

Table 11. Least Squares Means of Village Type For Suicide Rates

<table>
<thead>
<tr>
<th>Village Type</th>
<th>Number of Villages (N)</th>
<th>Mean Suicide Rate (LS Mean)</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assimilated</td>
<td>60</td>
<td>175.251</td>
<td>69.360</td>
</tr>
<tr>
<td>Dependent</td>
<td>29</td>
<td>314.805</td>
<td>99.767</td>
</tr>
<tr>
<td>Traditional</td>
<td>11</td>
<td>376.629</td>
<td>161.990</td>
</tr>
</tbody>
</table>

**H2(d):** Suicide rates will be positively associated with per capita income.
**H2(e):** Suicide rates will be negatively associated with per capita use of subsistence resources.

Contrary to Hypotheses H2(d) and H2(e), suicide rates are negatively associated with per capita income ($r = -0.174$) and positively associated with per capita use of subsistence resources ($r = 0.312, p < .05$). While the first correlation is not statistically significant, both occur opposite of the predicted direction.

**Table 12. Pearson Correlations For Suicide, Income, and Subsistence Resource Use**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Income</th>
<th>Subsistence Resource Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide</td>
<td>-0.174</td>
<td>0.312*</td>
</tr>
<tr>
<td>Income</td>
<td>-</td>
<td>-0.500***</td>
</tr>
</tbody>
</table>

(N=53) *p<.05 **p<.01 ***p<.001

**Proposition III:** Property relations should affect other social problems in addition to suicide (homicide, accidental death).

**H3(a):** Homicide rates will be higher in Dependent villages than in Assimilated villages.

**H0[3(a)]:** Homicide rates will not be higher in Dependent villages than in Assimilated villages.

**H3(b):** Homicide rates will be higher in Assimilated villages than in Traditional villages.
**H0[3(b)]:** Homicide rates will not be higher in Assimilated villages than in Traditional villages.

As can be seen from Table 13, findings related to Hypothesis 3(a) occurs in the predicted direction. Findings related to Hypothesis 3(b) do not occur in the predicted direction. These differences are not significant, however, and null hypotheses H0[3(a)] and H0[3(b)] are not rejected. Analysis of variance results are presented in Table 14.

**Table 13. Least Squares Means of Village Types For Homicide Rates**

<table>
<thead>
<tr>
<th>Village Type</th>
<th>Number of Villages (N)</th>
<th>Mean Homicide Rate (LS Mean)</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assimilated</td>
<td>60</td>
<td>93.463</td>
<td>190.337</td>
</tr>
<tr>
<td>Dependent</td>
<td>29</td>
<td>550.234</td>
<td>273.779</td>
</tr>
<tr>
<td>Traditional</td>
<td>11</td>
<td>262.715</td>
<td>444.531</td>
</tr>
</tbody>
</table>

**Table 14. Analysis of Variance: Village Type By Homicide Rate**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean-Square</th>
<th>F-Ratio</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>4083093.61</td>
<td>2</td>
<td>2041546.80</td>
<td>0.939</td>
<td>0.394</td>
</tr>
<tr>
<td>Assimilated</td>
<td>80.716</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent</td>
<td>20.716</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional</td>
<td>2173686.98</td>
<td>9</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>210848E+0</td>
<td>97</td>
<td>2173686.98</td>
<td>0.98</td>
<td></td>
</tr>
</tbody>
</table>

*p<.05  **p<.01  ***p<.001
H₃(d): Accidental death rates will be higher in Dependent villages than in Assimilated villages.

H₀[₃(d)]: Accidental death rates will not be higher in Dependent villages than in Assimilated villages.

H₃(e): Accidental death rates will be higher in Assimilated villages than in Traditional villages.

H₀[₃(e)]: Accidental death rates will not be higher in Assimilated villages than in Traditional villages.

As can be seen from Table 15, findings related to Hypothesis 3(d) and 3(e) do not occur in the predicted directions. These differences are not significant, however, and null hypotheses H₀[₃(d)] and H₀[₃(e)] are not rejected. Analysis of variance results are presented in Table 16.

Table 15. Least Squares Means of Village Type For Accidental Death Rates

<table>
<thead>
<tr>
<th>Village Type</th>
<th>Number of Villages (N)</th>
<th>Mean Accidental Death Rate (LS Mean)</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assimilated</td>
<td>60</td>
<td>495.177</td>
<td>90.710</td>
</tr>
<tr>
<td>Dependent</td>
<td>29</td>
<td>277.200</td>
<td>130.477</td>
</tr>
<tr>
<td>Traditional</td>
<td>11</td>
<td>722.988</td>
<td>211.854</td>
</tr>
</tbody>
</table>
Table 16. Analysis of Variance: Village Type By Accidental Death Rate

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean-Square</th>
<th>F-Ratio</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>.1803267</td>
<td>2</td>
<td>901633.501</td>
<td>1.826</td>
<td>0.167</td>
</tr>
<tr>
<td>Error</td>
<td>.478890E+0</td>
<td>97</td>
<td>493700.967</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05  **p < .01  ***p < .001

**Proposition IV:** Suicide, homicide, and accidental death should be intercorrelated.

**H4:** Suicide, homicide, and accidental death rates will be positively intercorrelated.

Table 17 presents Pearson Correlation Coefficients for suicide, homicide, and accidental death. Findings support Hypothesis H4, with regard to suicide and accidental death rates, and with regard to homicide and accidental death rates. These variables are significantly intercorrelated at a probability level of < .001. However the correlation between suicide rate and homicide rate is low (.077) and not significant. It should be noted that the population of 206 villages was used for this analysis, since investigation of these relationships does not require subsistence data and the typology utilized above.
Table 17. Pearson Correlations For Suicide, Homicide, and Accident Rates

<table>
<thead>
<tr>
<th>Variable</th>
<th>Suicide</th>
<th>Homicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide</td>
<td>-</td>
<td>0.07</td>
</tr>
<tr>
<td>Homicide</td>
<td>0.07</td>
<td>-</td>
</tr>
<tr>
<td>Accident</td>
<td>0.585 ***</td>
<td>0.475 ***</td>
</tr>
</tbody>
</table>

(N=174) *(p<.05)** *(p<.01)** ***(p<.001)

Tests of Alternative Hypotheses

Alternative hypotheses were developed in an effort to further address research objective four of comparing the strengths and weaknesses of a Marxian conflict model of suicide to the traditional Durkheimian socio-cultural model. As noted in the preceding chapter, the following hypotheses were proposed for this aspect of the analysis:

Ha(1): Suicide rates will be positively associated with population change.

Ha(2): Suicide rates will be positively associated with education.

Table 18 shows Pearson Correlation coefficients for suicide rate, education, and percentage of total population change. A low (.035) correlation exists between suicide rate and education in the predicted direction. However, this association is not statistically significant. The
association between suicide rate and total population change is not in the predicted direction. It is also not statistically significant.

Table 18. Pearson Correlations For Suicide, Education and Population Change

<table>
<thead>
<tr>
<th>Variable</th>
<th>Education</th>
<th>Population Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide</td>
<td>0.035</td>
<td>-0.040</td>
</tr>
<tr>
<td>Education</td>
<td>-</td>
<td>-0.159</td>
</tr>
</tbody>
</table>

(N=118)  *p< .05  **p< .01  ***p< .001

Ha(3): Traditional communities will have the lowest suicide rates.

A test of this hypothesis exists in the testing of Hypotheses H2(a) and H2(b). As can be seen from the findings presented in Tables 10 and 11, suicide rates are highest in Traditional villages. However, differences in mean suicide rates are not statistically significant.

Summary of Findings

This chapter described suicide as a general problem in Alaska. It also described suicide as a specific problem in Alaskan Native Villages. A typology of Alaskan Native Villages that defines village types in terms of mode of production was presented. The labels Dependent,
Assimilated, Pluralistic, and Traditional are used to describe mode of production, operationalized in terms of per capita subsistence resource use and 1980 per capita income.

In general terms, the findings presented in this chapter support the definition of village types in term of economic mode of production, with the exception of the designation of the Pluralistic type. Since only two villages were identified as Pluralistic, this designation was excluded from further analysis.

However, this typology is not clearly effective in distinguishing villages in terms of suicide, homicide, and accidental death rates. The expectation that suicide, homicide, and accidental death rates would be intercorrelated was generally supported by the results of this research.

Alternative hypotheses were also not strongly supported by the findings, though a low and non-significant correlation between suicide and education was found.
CHAPTER VI

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

Introduction

Suicide is the fourth leading cause of death in Alaska (Bureau of Vital Statistics, 1990:68). Native males between the ages of 15 and 25 are overrepresented as victims of suicide in Alaska, and the problem is increasing (AFN, 1992:1-2). Successful programs for mitigation of this problem will require a thorough understanding of suicide as it occurs within this category of victims. This research has attempted a conflict analysis of the affects of community mode of economic production upon suicide and other variables.

The overarching purpose of this research was to challenge conventional thinking with regard to the Alaskan Native suicide problem that assumes that alcoholism, failure to assimilate, and "culture conflict" adequately explain this phenomenon. It was proposed that alienation resulting from socio-economic change and particularly from economic exploitation offers a better explanation of the suicide problem, than Durkheim's socio-cultural explanation which dominates so much thinking and research on the topic. Consequently, if the socio-economic foundations of the problem may be established, more effective solutions to the
problem may be developed. The general research problem was stated as follows:

To what extent are social, cultural, economic, demographic, and organizational factors related to suicide rates in Alaskan native villages?

Following a review of the relevant literature on suicide; historical ethnographies of Native communities; and visits to high suicide areas, a typology of Alaskan Native Villages (N=100) was developed to distinguish communities' relative use of subsistence resources and per capita income. The typology characterizes Alaskan Native villages as Traditional, Dependent, Assimilated, or Pluralistic communities. This typology was then used to analyze census statistics and mortality records between 1986 and 1989.

Findings support the potential utility of Native community analysis using the developed typology. However, while some mortality rates occurred in predicted directions, these findings were not statistically significant, and the utility of the typology in explaining suicide, accidental death, and homicide rates is questionable.

This chapter will first discuss each of the research hypotheses that were tested, and conclusions that were
drawn. Secondly, theoretical implications will be presented. Thirdly, limitations of the research will be noted. Finally, practical implications and suggestions for future research will be considered.

**Research Propositions, Hypotheses, and Conclusions**

The following propositions and hypotheses were developed to address these general research objectives:

1. Examining respective rates of suicide, homicide and accidental death;
2. Developing a typology of Alaskan Native communities that differentiates types by economic mode of production;
3. Exploring additional factors associated with Alaskan Native suicide; and

**Proposition I:** The degree to which Alaskan native villages can be classified as Pluralistic, Traditional, Assimilated, and Dependent communities can be differentiated in terms of property relations.

H1(a): Community property relations defined by high per capita incomes and high per capita use of subsistence food will differentiate Pluralistic communities from other communities.
Cluster analysis of the sample communities was able to differentiate Pluralistic communities from other communities on the above basis. However, only two communities emerged from the analysis that could be defined as Pluralistic. Since this appeared to be the potential result of extreme scores for per capita use of subsistence resource, and since the small number of cases threatened the validity of further analysis, this type was removed from further analysis.

The potential for a Pluralistic Native village, one in which "minority groups participate fully in the dominant society, yet maintain their cultural differences" (Webster's, 1991:1040), may exist. However, it appears in hindsight that the expectation for finding communities of this nature was naive. While a different operationalization of mode of production might yet make this a useful ideal type, its existence in real society, Native or otherwise, is debatable.

\( H_1(b) \) : Community property relations defined by high per capita use of subsistence food and low per capita income will differentiate Traditional communities from other communities.

Relative to other Native communities, Traditional villages (N=11) had clearly higher per capita use of
subsistence resource food ($p < .001$), and lower per capita incomes ($0 < .001$).

$H_1(c)$: Community property relations defined by high per capita incomes and low per capita use of subsistence food will differentiate Assimilated communities from other communities.

Relative to other Native communities, Assimilated villages ($N = 60$) had clearly the lowest per capita use of subsistence resource food ($p < .001$), and the highest per capita incomes ($0 < .001$).

$H_1(d)$: Community property relations defined by low per capita incomes and low per capita use of subsistence food will differentiate Dependent communities from other communities.

Relative to other Native communities, Dependent villages ($N = 29$) had clearly lower per capita use of subsistence resource food ($p < .001$), and lower per capita incomes ($0 < .001$), than either Traditional or Assimilated villages.
Proposition II: Suicide should vary by village type.

H2(a): Suicide rates will be higher in Dependent villages than in Assimilated villages.

While mean suicide rates for Dependent villages (mean=314) are higher than mean rates for Assimilated villages (mean=175), this difference was not found to be statistically significant. While the null hypothesis was not rejected, the potential for Type II error should be noted. Suicide rates developed for communities with such small populations may not reflect enough variance, particularly when averaged over four years, to give a clear statistical picture of differences in suicide between communities.

On the other hand, it is certainly possible that the complexity of factors responsible for suicide is not well explained by the typology that was utilized.

H2(b): Suicide rates will be higher in Assimilated villages than in Traditional villages.

Contrary to hypothesized, the mean suicide rate for Traditional villages was actually higher than for either Dependent or Assimilated villages (mean=376). While these differences were not significant, and given the
considerations noted above, this finding may have the most substantive value. It raises a question with regard to the theoretical assumptions of both the conflict model of alienation, and the socio-cultural model of social integration, and the presumed effect of traditional activities upon social structure and social process. This will be considered further in the theoretical section of this chapter.

**H2(d):** Suicide rates will be positively associated with per capita income.

Contrary to hypothesized suicide rates were negatively associated with per capita income (r = -0.174). While not statistically significant, this association also suggests that both conflict and socio-cultural models of suicide may need some reconsideration of the relationship of traditional activities to alienation or social integration, and consequently to suicide.

**H2(e):** Suicide rates will be negatively associated with per capita use of subsistence resources.

Contrary to hypothesized, suicide rates were positively associated with per capita use of subsistence resources (r = 0.312, p < 0.05). This finding was statistically
significant, and suggests support for the conclusions noted above, that both conflict and socio-cultural models of suicide may need some reconsideration of the relationship of traditional activities to alienation or social integration, and consequently to suicide.

**Proposition III: Property relations should affect other social problems in addition to suicide (homicide, accidental death).**

**H₃(a):** Homicide rates will be higher in Dependent villages than in Assimilated villages.

The mean homicide rate for Dependent villages (mean=550) was higher than the mean rate for Assimilated villages (mean=93). However, this difference was not statistically significant. Considerations noted above for suicide rates also apply to homicide rates

**H₃(b):** Homicide rates will be higher in Assimilated villages than in Traditional villages.

The mean homicide rate for Traditional villages (mean=262) was higher than the mean rate for Assimilated villages (mean=93). This finding is contrary to hypothesized, but it is also not statistically significant. Considerations noted above for suicide in Traditional
villages rates also apply to homicide rates, and tend to underscore the same question with regard to traditional activities.

H3(d): Accidental death rates will be higher in Dependent villages than in Assimilated villages.

The mean accidental death rate for Dependent villages (mean=277) was actually lower than the mean rate for Assimilated villages (mean=495). While this difference was not statistically significant, it is contrary to the hypothesis. In addition to the considerations noted above for suicide and homicide rates, higher accident rate may, in part, reflect vehicle accidents. Higher incomes may translate into the potential for higher accidental death due to ownership of vehicles, that are not affordable in Dependent villages.

H3(e): Accidental death rates will be higher in Assimilated villages than in Traditional villages.

The mean accidental death rate for Traditional villages (mean=722) was actually higher than the mean rate for Assimilated villages (mean=495). While this difference was not statistically significant, it is still contrary to the hypothesis. In addition to the considerations noted
above for suicide and homicide rates, Traditional villages having the highest accident rate may reflect the increased hazzards of traditional hunting and fishing activities. It too may also reflect vehicle accidents, particularly with boats, four-wheelers and snowmobiles that are often used in these activities. While Traditional villages have low mean per capita incomes (mean=$6643), they are significantly higher than the mean incomes of dependent villages (mean=$2902; p< .001). And like Assimilated villages, these higher incomes, in conjunction with the use of vehicles in traditional activities, may translate into the potential for higher accidental death than in either Assimilated or Dependent villages.

Proposition IV: Suicide, homicide, and accidental death should be intercorrelated.

H₄: Suicide, homicide, and accidental death rates will be positively intercorrelated.

Suicide and accidental death rates show significant correlation (r=.585; p<.001) in Alaskan Native villages. Homicide and accidental death rates also show significant correlation (r=.475; p<.001). However, suicide and homicide show only a slight and statistically non-significant correlation (r=.077). Given the considerations noted above with regard to mortality rates in Native villages.
generally, the findings suggest that suicide and accidents may share similar social structural antecedents, particularly when noting rates in Traditional villages. However, these findings may also suggest a degree of systematic error in classification of suicides as accidents; or perhaps systematic problems related to consistent data collection between villages.

The fact that homicide and accidents are also correlated may support the possibility of systematic error. However, it may also be possible that the social structural factors influencing homicide and suicide are substantially different than hypothesized. It is interesting to note that homicide rates are highest in Dependent villages; namely, those with both low per capita incomes and low per capita subsistence resource use. High levels of alienation in a community may be more conducive to suicide than to homicide, whereas moderate levels are more conducive to homicide. On an individual level, it may be the difference between hopelessness and rage.

**Alternative Hypotheses**

The following alternative hypotheses were used to address research objective four of comparing the strengths and weaknesses of a Marxian conflict model of suicide to the traditional Durkheimian socio-cultural model of
suicide. It was assumed that social integration was the independent variable affecting suicide rates; that rapid social change tends to reduce social integration; and that traditional societies should have the highest levels of social integration.

\textbf{Ha(1):} Suicide rates will be positively associated with population change.

Contrary to this hypothesis, there was a slight negative correlation between suicide rates and population change ($r = -0.040$). This correlation was not statistically significant however, and is subject to the same considerations and limitations of the previous statistical associations that use mortality rates. However, it does not support the alternative hypothesis and a socio-cultural model of suicide.

\textbf{Ha(2):} Suicide rates will be positively associated with education.

A low correlation ($r = 0.035$) was found between suicide rate and education. It was not statistically significant. However, given the considerations noted above, it suggests a degree of support for the socio-cultural model of suicide; namely, that increasing education may lead to
higher levels of egoism in communities and consequently higher rates of egoistic suicide.

\textbf{Ha(3)}: Traditional communities will have the lowest suicide rates.

Contrary to this hypothesis, Traditional communities had the highest rates of suicides. This finding was not statistically significant, yet given the above considerations with regard to mortality rates, suggests that the relationships between traditional communities, social integration, and suicide may not be particularly well explained by the socio-cultural model.

\textbf{Theoretical Implications}

The implications of this research for a conflict theory of suicide are inconclusive. While a typology of Alaskan Native villages that differentiates communities in terms of mode of production may have theoretical potential for understanding the social structure of these communities, this particular operationalization does not greatly advance an understanding of suicide from a conflict perspective. It may however, make a theoretical contribution to the degree that it challenges the idea that alienation can reasonably be expected to be lower in Traditional societies, than in societies that have been
assimilated into the dominant capitalist culture. The results of this research suggest that the highest levels of alienation may exist in Traditional societies, at least to the degree that Traditional societies are defined by the production and use of subsistence resources. In retrospect, perhaps this should have been expected, since Traditional societies are likely to be alienated from the dominant culture despite the likelihood of regular contact. Also, communities with a traditional mode of production may be likely targets for more aggressive economic exploitation of labor.

In contrast, perhaps Assimilated communities may reflect "that there is a powerful, effective, dominant ideology in contemporary capitalist societies, and that this ideology creates an acceptance of capitalism in the working class" (Abercrombie, Hill, and Turner, 1980:1). Consequently, the effects of alienation might be less visible in Assimilated communities than in Traditional communities that have not yet accepted the dominant ideology. Assimilated communities may in fact be more alienated than traditional communities, but less consciously aware of their own alienation. It seems that awareness of alienation may be the more important independent variable, than alienation in itself.
High suicide rates in Traditional societies may also imply a flaw in the socio-cultural model of suicide. Traditional communities may not have a higher level of social integration and consequently lower propensity for suicide. Or it may be that social integration is not as influential a cause of suicide as theorized. Perhaps high levels of social integration actually increase levels of alienation, as suggested by Seeman (1983), in his analysis of "Alienation and Alcohol: The Role of Work, Mastery and Community in Drinking Behavior." It seem possible that high levels of social integration could reinforce the social recognition and experience of alienation (anomie, altruism, or fatalism).

While this research does not demonstrate a superiority of a conflict model of suicide over a socio-cultural model, it seems to have implications for both.

**Limitations**

The greatest limitation of this research has been previously noted with regard to the use of mortality rates, given the small populations of the sample communities. Additionally, it should be noted that subsistence data exists for only half of the population of Native villages. Subsistence resource harvests change annually, and one year samples may not accurately reflect overall community dependence on the use of subsistence resources. It should
also be noted that census data for Alaskan native villages becomes progressively less complete prior to 1990. Consequently, per capita income data for some villages is missing.

Finally, it's possible that villages could change between designations such as Traditional and Assimilated quite radically. Consequently, mortality trends over time may not give an accurate picture of alienation related to mode of economic production. For example, a massive inflow of capital, such as occurred in several Native Communities following the 1989 Exxon Valdez oil spill, might shift economic mode of production within the space of a few weeks. People who had engaged in traditional subsistence activities were prevented from these activities by the oil. Many were given short-term, high paying clean-up jobs. Social problems followed, according to current research (ISER, 1993), that may be related to alienation. However, the typology utilized for this research would not have been sensitive to these circumstances and events.

In summary, the empirical conclusions of this research should be limited strictly to the sample communities. The theoretical implications of the research may have broader application for future work.
Practical Implications

This research began with the hope that practical implications for suicide prevention would emerge and that it would challenge conventional thinking with regard to Native suicide. It may have had a limited success in the following ways:

(1) Failure to assimilate does not appear to be a dramatic cause of the suicide rate, if the majority of the sample (N=60) can be categorized as Assimilated communities and show lower mean rates.

(2) Social change, in itself and as a variable above the political process, may also be a poor explanation of suicide. Since Assimilated communities have experienced the greatest social change and show the lowest suicide rates.

(3) Alcoholism, though not tested directly, has been associated with Dependent villages (Dougherty 1988:1-2). Since Dependent villages do not have the highest suicide rates, alcoholism alone does not explain the problem.

(4) Prevention efforts should not consequently be based on this conventional thinking. While this may seem a forgone conclusion, human service providers are schooled in the socio-cultural model of suicide, typically combined with psychological explanations.
The magnitude of the ongoing problem, and in small measure this research, suggest that new approaches are necessary.

**Future Research**

Future research might benefit from the use of the typology employed in this effort, but with differently measured dependent variables. It would be preferable to have more complete subsistence resource data, and to explore qualitative measures of suicide. While the reliability of suicide rates is attractive to quantitative researchers, the validity of these measures as noted by Durkheim (1897), Hlady & Middaugh 1988, Douglas (1967), and others remains a concern.

Future research should also analyze community social structures of smaller scope. While the community, as a unit of analysis, is appropriate for studying suicide rates, the social networks or lack of them that exist within communities: churches, schools, etc., may shed new light upon the effects of alienation. Regardless of theoretical orientation, the question remains as to why some individuals in communities with high levels of alienation (or anomie, egoism, altruism, or fatalism) commit suicide and some do not.

The question of alcoholism as a correlate of suicide, homicide, and accidental death merits research. Local
option laws regulating the use, possession, and sale of alcohol vary widely between villages. This factor may be an important covariant to economically-based models of alienation, since alcohol sales and taxes can be a major source of revenue to villages.

Finally, the complexity of the problem demands a multi-disciplinary approach. Sociological analysis effectively combined with insights from psychology might result in a theoretical understanding of suicide that provides more effective grounding for practical prevention efforts, than these disciplines have produced independently.
References:


