Calling From the Rim: Suicidal Behavior Among American Indian and Alaska Native Adolescents

American Indian and Alaska Native Mental Health Research
The Journal of the National Center Monograph Series

Volume 4, Monograph, 1994

Published by the University Press of Colorado, a cooperative publishing enterprise supported, in part, by Adams State College, Colorado State University, Fort Lewis College, Mesa State College, Metropolitan State College of Denver, University of Colorado, University of Northern Colorado, University of Southern Colorado, and Western State College of Colorado.

Subscription rates are $35 (U.S. currency) per volume, which includes three issues. Annual monographs are sold separately. Make checks payable to: University Press of Colorado, P.O. Box 849, Niwot, Colorado 80544.

ISSN 0893-5394

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Edited by Christine Wilson Duclos and Spero M. Manson

CALLING FROM THE RIM: SUICIDAL BEHAVIOR AMONG AMERICAN INDIAN AND ALASKA NATIVE ADOLESCENTS

In the cultural beliefs of Indian/Native nations, the spiritual philosophy concerning one's purpose and existence on this earth is found in his/her relationship to the world and everything in it. This relationship is the gift of the Great Spirit. As children, we were taught that everything around you, the earth and all the natural elements of life, is related.

Symbols such as the circle depict this philosophy, permeate every aspect of Indian/Native culture, and are considered sacred. The circle is especially significant: Within it walk the four winds and therein dwell the spirits of the four directions. These spirits are the guardians who direct us on the pathway of life. The horizontal edge of the circle is as far as one's eye can perceive and represents the rim of the world. Beyond it is known only to our Creator.

The present generation of Indian/Native youth live within a duality of philosophies — those of non-Indian societies and Indian/Native societies. They are caught between two worlds — that of modern, sophisticated technology and the center-of-life philosophy of Indian/ Native nations. This dilemma can create barriers and impede natural growth and learning processes as children attempt to cope with their uniqueness. Often the results are feelings and actions of helplessness and despair.

To the individuals whose words are written on these pages, my deepest expression of gratitude. Our children are "calling from the rim." Let us heed this call, work together, and find better ways to nurture them and those who follow. Therefore, we honor both worlds.

IVA L. YOUNG BEAR-ROY
An American Indian mother

ACKNOWLEDGMENTS

This monograph was made possible through the efforts and support of a number of people who deserve special acknowledgment. We would like to begin by thanking the contributors to the conference and monograph for their diligence in preparing the presentations and articles presented herein, their patience for the extended publication process, and their ready acceptance of editorial modifications.

Initial discussions with various representatives of the National Institute of Mental Health of the possibility of a conference and monograph of this nature were very influential. We thank Dr. Juan Ramos, Associate Director of Special Projects and Prevention, Dr. Freda Cheung, then Acting Director of the Minority Research Resources Branch, and Dr. Eve Moscicki, Chief, Prevention Research Branch, for their support in making the conference and monograph a reality. Funds were provided through the Division of Biometry and Applied Sciences and administered by the Minority Research Resources Branch and, subsequently, the Prevention Resources Branch, Grant Number R13 MH45776-01. We would like to thank Harlan K. Zinn and Dr. Peter Muehrer, who served as Project Officers and were instrumental in bringing this effort to fruition.

Dr. James Shore, Chairman, Department of Psychiatry, University of Colorado Health Sciences Center, provided continual support throughout the planning and implementation of the conference as well as subsequent publishing of the proceedings.

As Director of Office of Mental Health Programs, Indian Health Service, Dr. Scott Nelson encourages research as well as prevention activities in this important subject matter. He showed his support by making monumental efforts to have IHS representation at this conference; however, in the end, due to constraints not under his control, this was not possible.

The planning committee for this conference consisted of the editors as well as conference co-chairpersons, Drs. Don Bechtold and Bill Sack, representing the American Academy of Child and Adolescent Psychiatry, American Indian Child Committee, and Dr. Lemyra DeBruyn, representing the Indian Health Service. Their input and support during the planning stages were instrumental to the conference's success. We would like to extend a special thank-you to Dr. David Shaffer for his specific assistance with the recommendations section of the monograph.

Judy Palier, serving as the conference secretary, assisted with arrangements and logistics. Her enthusiasm and organization helped the effort run smoothly. Cheri Munn was a great help during the conference and generated valuable bibliographic material that aided the participants in writing their papers. Judy Kuntze and Iva Roy devoted an inordinate

amount of time and effort to preparing the manuscripts for publication. This monograph could not have been done without their expertise. While under the "crunch," Barbara James and Billie Kay Cook stepped in to provide additional assistance when needed in finalizing these proceedings. We also would like to especially acknowledge Iva Young Bear-Roy, our journal manager, for her creative effort with the title of this work. Again, we thank all who were involved.

CHRISTINE WILSON DUCLOS, M.P.H.
SPERO M. MANSON, Ph.D.

INTRODUCTION

Suicide among American Indians and Alaska Natives, particularly adolescents, has increased on many reservations from 200% to 300% in the past 29 years (Berlin, 1987), becoming a topic of vital interest. Death by suicide is more frequent among this group than its white counterpart. The factors associated with these different rates within and across ethnic groups remain somewhat unclear. However, cultural norms are believed to affect suicide rates as well as the design, implementation, and evaluation of preventive interventions directed to youths at risk.

Most U.S. teenagers are faced with problems of adjustment, life meaning, and success in a fast-paced society, particularly during an economic recession. Indian/Native youths are faced with even greater challenges. Minority status, fewer economic and educational advantages, and cultural differences add to the difficulties of transition to adulthood. Indian adolescents must choose from at least two not totally clear paths: Indian and non-Indian.

The National Center for American Indian and Alaska Native Mental Health Research (herein referred to as the National Center), with the support of the National Institute of Mental Health, convened nationally recognized experts working on a variety of projects that relate directly to the identification of risk factors for and prevention of suicide among adolescents in general and among Indian and Native communities specifically. Held in October 1990 in Estes Park, Colorado, the meeting was cosponsored by the Committee on the American Academy of Child and Adolescent Psychiatry and the Indian Health Service's Office of Mental Health Programs. It was a unique opportunity to summarize the state of suicide research in the context of this special population.

Focus of Conference

The conference comprised two and one-half days of presentations and discussions organized in five parts considering the epidemiology of suicide behavior, clinical and developmental features, programmatic efforts, influence of special settings, and state and federal experiences. The initial 46 participants were chosen for their contribution to the state-of-the-art research, preventive service experience, and/or theory on sociocultural factors in the perception, risk, and prevention of suicide within the general population as well as within American Indian and Alaska Native communities. Moreover, the presence of high-ranking administrative officials from the Indian Health Service, Mental Health Programs Branch, and the National Institute of Mental Health was felt to

increase the direct, substantial impact of the proceedings on public policy in this area.

National suicide experts who assisted in drawing parallels between the mainstream literature on suicide and the Indian/Native experience were represented. We believe it is critical to maintain a comparative perspective in order to best understand the culturally unique and the more generic elements of suicide in this special population. Thus, the contributors and conferees constituted a diverse mix of disciplines; specifically, anthropology, criminal justice, education, psychiatry, psychology, public health, public administration, sociology, and social work. At the last moment, federal budgetary problems precipitated a travel freeze for all federal employees. This unfortunate situation decreased the number in actual attendance to 32.

Eleven major overview and position papers were prepared by 14 of the participants and addressed a variety of topics in these areas. Major discussants were assigned to each area and seen as a means of stimulating critical discussion. Papers were revised after the conference with the benefit of expert reaction and opinion. These revised papers, together with portions of the discussion later selected and abstracted by the editors, constitute the major elements of this document.

The first morning of the conference offered a general overview and introduced the major epidemiological issues surrounding adolescent suicidal behavior. The afternoon turned to clinical and developmental considerations, as well as state and federal experiences. The second day concentrated on current programmatic efforts from the field as well as influential aspects of special institutional settings. The last morning of the conference was set aside for research policy recommendations and for closing remarks. An initial draft of the recommendations with respect to adolescent suicide research planning and policy was circulated after the meeting and was modified according to additional input by the participants.

Overview

The ensuing set of papers offers a comprehensive review of relevant research knowledge of adolescent suicidal behavior among American Indians and Alaska Natives, the identification of gaps in the current knowledge base, and promising new areas for study and outlines the recommendations and priorities that such research should follow.

Part 1 contains two papers that are specific to the epidemiology of American Indian adolescent suicidal behavior. "Indian Adolescent Suicide: The Epidemiologic Picture in New Mexico," by May and Van Winkle, examines the characteristics and trends of suicidal death among Indian youth, specifically the Navajo, Pueblo, and Apache in New Mexico from 1957 to 1987. Using 5-year age intervals of youth aged 5 to 29 years, this chapter shows that rates of suicide have fluctuated over the study time

period. A more in-depth look at the data suggests that Navajo youth have lower average suicide rates than the Apache or Pueblo youth; however, their average rates have risen the most in the major time periods covered. While suicide rates are high and are a definite concern between ages 10 and19, the highest rates among all three cultural groups are found in 20- to 29-year-olds. May and Van Winkle conclude with suggestions for future research, including more social and psychological autopsies for the study of "significant conditions" accompanying suicide, and a more accurate, complete study of the effects of alcohol involvement as well as suicide contagion on Indian youth.

"A Study of Suicide Attempts Comparing Adolescents to Adults on a Northern Plains American Indian Reservation," by Zitzow and Desjarlait, was in response to a rural community concern of an increase in suicide attempts. This chapter examines documented suicidal behavior over a 5-year time period. This study gives us a close look at suicidal attempt characteristics and the differences between adults and adolescents within an Indian community. Zitzow and Desjarlait's interests lie in how the timing of attempt, precautions against discovery, notification of attempt, final preparatory acts, motivation, perception of lethality, and period of contemplation prior to the attempt relate to the overall seriousness of suicide intent and how this differs between adults and adolescents. This paper highlights four theoretical suicide types: "the ruminating planners," "the want to dies," "the confused reactives," and "the manipulating ambivalents." Implications for prevention and postintervention activities suggest considering the characteristics and behaviors of attempters prior to and after each suicide attempt.

Part 2 comprises two papers specific to clinical and developmental features of Indian adolescent suicide. "Indian Adolescent Suicide: Clinical and Developmental Considerations," by Bechtold, stresses that demographic risk factors explored across cultures also should be explored in detail within American Indian cultures. Cultural-specific patterns, thus, can be and have been found. Bechtold begins by detailing characteristics of Indian adolescent suicide that relate to the phenomenon of suicide in general as well as to culturally specific patterns. He reviews the nature of "suicide clustering" and its impact on one American Indian community. The paper also argues that clinical assessment of suicide risk is not complete until developmental risk factors have been considered. One hardly can disagree with his statement that "as adolescent development progresses, so also does the risk for suicide." After outlining culturally sensitive risk factors, Bechtold concludes with suggestions for evaluation, treatment, and further research.

"Depressive and Suicidal Symptoms in Indian School Children: Findings From the *Flower of Two Soils*," by Sack, Beiser, Baker-Brown, and Redshirt, examines depressive symptoms and suicidal ideation among two cohorts of children over a 3-year time period. Depressive

symptoms as indicated by self-report were found to be lower among Indian children than among Caucasian children. Their findings suggest this trend may reverse as these children enter puberty and adolescence. However, a smaller sample of Indian children consistently endorsed suicidal items at a higher rate than their Caucasian comparison group. This study concludes that depressive symptoms at this particular age are multifaceted and resemble those found in previous studies of adolescent Caucasians.

Part 3 presents three exemplary preventive intervention efforts currently available within communities that are addressing suicidal behavior and related risk factors among Indian adolescents. "The Zuni Life Skills Development Curriculum: A Collaborative Approach to Curriculum Development," by LaFromboise and Howard-Pitney, describes a school-based intervention specifically focused on adolescent suicide prevention. This paper details the development, implementation, and evaluation of a skills-based prevention curriculum addressing risk factors for suicidal behavior in one of the southwest Pueblos. The paper begins with background information about skill-training and its relevance to this particular cultural group and suicide prevention. LaFromboise and Howard-Pitney then describe the initiation of the curriculum development, emphasizing collaborative efforts between the community and university researchers. Using both process and outcome evaluations of pilot efforts, the curriculum and evaluation plan then was revised and modified to meet the needs of the community, school, and researchers. This chapter presents an excellent overview of a rare opportunity when researchers are able to be involved in the design and implementation of preventive efforts initiated by a community. Through such involvement, they were able to include a comprehensive evaluation component in this suicide-specific preventive intervention.

"PRIDE: Substance Abuse Education/Intervention Program," by Dorpat, outlines a school-based educative and preventive effort addressing the significant risk factor of substance use and abuse for suicide. The paper describes a curriculum that was developed and implemented for elementary through high school students in an urban Indian reservation located in the Pacific Northwest. PRIDE (Positive Reinforcement in Drug Education) is a comprehensive program that addresses all aspects of the substance abuse issue, stressing self-awareness and self-esteem. Dorpat offers a program history and overview and details its implementation during the 1988–1989 school year. Student outcomes also are described as they relate to self-report of suicidal behavior.

"The Blue Bay Healing Center: Community Development and Healing as Prevention," by Fleming, describes a comprehensive community development approach to substance abuse prevention (Blue Bay Healing Center). The center's primary goal is the prevention of substance abuse and related behavior such as suicide among youth on the Flathead

Reservation by breaking the generational cycle associated with this problem. The paper outlines the development of a culturally relevant treatment modality that engages the entire reservation population in the healing process. Fleming summarizes suicide prevention efforts prior to the development of the Blue Bay Concept as well as the history and implementation of the intervention. Results of two evaluative efforts also are presented.

Part 4 contains two papers that are specific to two special institutional settings — boarding schools and detention environments — that historically have been thought to contribute to adolescent problem behaviors. "Suicide Ideation and Suicide Attempt Among American Indian and Alaska Native Boarding School Adolescents," by Dinges and Duong-Tran, describes the development and validation of suicide ideation and suicide attempt screening measures for high-risk Indian/Native adolescents attending a northwestern Bureau of Indian Affairs boarding school. This report focuses on the suicide ideation and suicide attempt components of a screening for early identification of Indian or Native adolescents currently experiencing or potentially at risk for major mental illness, psychological dysfunction, or substance abuse. The authors found that the sensitivity of these indices was encouraging for the purposes of broad-base screening among an Indian/Native adolescent population. In closing, Dinges and Duong-Tran argue that contrary to popular criticisms of the deficiencies of boarding schools, their potential as protective environments in which high-risk students can be identified and receive timely and appropriate treatment is greatly underestimated.

"American Indian Adolescent Suicidal Behavior in Detention Environments: Cause for Continued Basic and Applied Research," by Duclos, LeBeau, and Elias, highlights a very overlooked population: adolescents in custody. The paper begins with an overview of the detention environment for Indian adolescent offenders, with a special focus on the reservation setting. A profile of detained youth is presented from available juvenile offender data. The literature addressing suicidal behavior in this setting is reviewed, highlighting the dearth of information available, especially concerning American Indian youth. Preliminary data are presented with a discussion of the significant difficulties encountered in and near Indian country. Finally, Duclos, LeBeau, and Elias suggest future in-depth topics for basic and applied research within this unique treatment arena and cultural group.

Part 5 comprises the two papers emphasizing state and federal experiences and responses to Indian/Native adolescent suicide. "When Communities Are in Crisis: Planning for Response to Suicides and Suicide Attempts Among American Indian Tribes," by DeBruyn, Hymbaugh, Simpson, Wilkins, and Nelson, outlines a system of crisis intervention planning in response to suicides and suicide attempts within Indian communities. This includes the development of suicide surveillance systems, crisis response teams, and consistent community education. The informa-

tion and data presented are based on the efforts of the Special Initiatives Team, Mental Health Programs of the Indian Health Service. These efforts include crisis response and consultation to tribes throughout the United States on suicide, domestic violence, and child abuse.

"The State's Role in Suicide Prevention Programs for Alaska Native Youth," by Forbes, describes a major program funded and administered by the state, that is intended to prevent youth suicide among Alaska Natives. Ongoing secondary and tertiary prevention efforts by the state's mental health system as well as data on completed suicides through 1988 are presented. Forbes discusses and critiques the state's prevention efforts, pointing out the information needed to plan more effective suicide prevention programs.

A synopsis by Shore of current knowledge of Indian/Native adolescent suicide follows. This chapter reports Indian/Native specific case and research studies and summarizes conference issues and concerns. It thus becomes the appropriate precursor to the conference-generated research agenda and recommendations to the National Institute of Mental Health, Substance Abuse and Mental Health Services Administration (SAMHSA), and other groups or organizations for the continued support of both basic and applied research on the prevention of suicide among Indian and Native adolescents.

This volume represents a major resource document for future research and policy formulation. We hope that this monograph also will further stimulate appropriate research in partnership with American Indian and Alaska Native communities. There is a great deal of excitement in these communities over the potential for preventing suicide and its concomitant suffering. The chord of hope that has been struck by the exemplary programs and by research presented in this volume acknowledges the local strengths and resources that all too often are overlooked in the face of the overwhelming problems that plague many tribes. This conference presented an exciting and timely opportunity for stimulating critical discussion of a number of concerns, programmatic as well as theoretical, that underpin the understanding and prevention of suicide among Indian/Native adolescents. The challenge now is to take stock of the contributions presented herein in a systematic fashion that will serve as the basis for the next generation of studies and their application.

CHRISTINE WILSON DUCLOS, M.P.H.
SPERO M. MANSON, Ph.D.

Reference

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Part 1

Epidemiology

INDIAN ADOLESCENT SUICIDE: THE EPIDEMIOLOGIC PICTURE IN NEW MEXICO

PHILIP A. MAY, Ph.D., and NANCY VAN WINKLE, Ph.D.

Introduction

Ever since the earliest contemporary recognition that suicide among some tribes of American Indians was a problem, the high rate among adolescents has been seen as a unique and outstanding feature of Indian suicide. From the first articles appearing on American Indian and Alaska Native suicide problems in both the United States (Curlee, 1972; Dizmang, 1967, 1969; Dizmang, Watson, May, & Bopp, 1974; Frederick, 1973; Levy, 1965; Miller & Shoenfield, 1971; Mindell & Stuart, 1968; Shore, 1972, 1975) and Canada (Trott, Barnes, & Dumoff, 1981; Butler, 1965; Cutler & Morrison, 1971; Jarvis & Boldt, 1982; Kenora Social Planning Council, 1973; Spaulding, 1985–1986; Ross & Davis, 1986; Ward & Fox, 1977), suicide among American Indians and Alaska Natives has consistently been found to be most prevalent among those in the younger age groups. This is particularly true in ages less than 30 years (see May, 1987 and 1990, for a review and bibliographic reference). In more recent studies among both U.S. and Canadian Indians, the trend of adolescent or youth suicide has been found to continue into the 1980s (Garro, 1988; Forbes & Van Der Hyde, 1988; Hislop, Threlfall, Gallagher, & Band, 1987; Jilek-Aall, 1988; Thompson & Walker, 1990).

Another key trait of Indian suicide epidemiology has been the extreme variation of suicide rates from one tribe to the next and from one community to the next. For example, in New Mexico from 1957 to 1979, some tribes recorded no suicides, while others had average rates up to 56.6 per 100,000 population over the entire period (Van Winkle & May, 1986). A third key factor of Indian suicide epidemiology has been the variation of suicide rates overtime. As Thompson and Walker (1990) point out, studies of Indian suicide are too often done in a short time frame and involve numbers so low that trends are difficult to discern. Given these

Partial support for this paper was contributed by a small grant from the National Center for American Indian and Alaska Native Mental Health Research, Department of Psychiatry, University of Colorado Health Sciences Center and ADAMHA Grant #T34-MH19101. Special thanks are extended to Tony Ortiz, Lena Towles, Cindy Cheng and Jeff So. Also our thanks are extended to our colleagues in the New Mexico Office of the Medical Investigator, Patricia McFeeley and David Broudy.

extreme tribal and temporal variations (Levy, 1965; Levy & Kunitz, 1987; Shore, 1975; Van Winkle & May, 1986), it is imperative that researchers follow the trends of Indian suicide over time to better understand self-destruction and to examine, in detail, how the trends affect the various age groups. For example, is Indian suicide, and adolescent suicide in particular, continuing to rise in some tribal groups? Is it stabilizing or decreasing, and why? Further, understanding the broader epidemiology over time better enables one to comprehend and pinpoint larger questions of etiology. While new questionnaire-based studies of etiological factors related to youth suicide are appearing in the literature (Lin, 1987; Manson, Beals, Dick, & Duclos, 1989), the need to study and understand the larger and broader trends remains.

One of the most valuable uses of the epidemiological studies on Indian youth suicide has been the planning of prevention and intervention programs (May, 1987; Neligh, 1988). Surveillance of suicide and suicide attempt rates and the delineation of the overall patterns of these behaviors have led to the design of a number of positive programs and responses to problems of self-destruction in many Indian and Native communities. While some initiatives are broadly based public health programs (Claymore, 1988; DeBruyn, Hymbaugh, & Valdez, 1988; Hymbaugh, 1988a; Polk, 1987), others focus more directly on school, small-group, or clinical interventions (Belgarde & LaFromboise, 1988; Berlin, 1987; LaFromboise & Bigfoot, 1988; Main & West, 1987; Neligh, 1988; Thronbrugh & Fox, 1988). Nevertheless, virtually all of these programs have been based on epidemiological knowledge, and in many cases they have resulted from community suicide surveillance and/or a suicide register (Bechtold, 1988; Claymore, 1988; Shore, Bopp, Waller, & Dawes, 1972; Ward, 1984). Recently, Hymbaugh (1988b) has produced guidelines for developing a suicide register for the purpose of setting up prevention programs. These guidelines are being distributed by the Indian Health Service, Office of Mental Health Programs.

Epidemiology, therefore, has been vital to the development and proliferation of prevention programs in Native communities. Continued surveillance in the future also is important. If suicide prevention in particular and mental health programs in general are to continue to serve the needs of a variety of Indian populations, then epidemiological monitoring must continue (see Fox, Manitonabi, & Ward, 1984, and Ward, 1984).

The following are data from 31 years of suicide mortality experience among American Indians in New Mexico. Eight of these years (1980–1987) are being presented for the first time in a published paper. The other years have not been analyzed before in the manner used here, for the explicit focus in this paper is on suicide of individuals under 30 years of age. Previous papers (May, 1987; Van Winkle & May, 1986) can be consulted for further exposure to these data and for the theoretical perspectives underlying this research. The emphasis in this paper is on the

specific suicide trends that may be present in the most recent years, changes from the patterns of earlier years, and more specific analysis of youth age groups from 5 to 9 through 25 to 29 years of age. The detail and the emphasis are on the analysis of various youth age aggregates that have not been explored similarly or in such detail in other literature on Indian suicide.

Methods

The data for this study were obtained from death certificates registered with the New Mexico State Department of Vital Statistics from 1957 through 1987. To be certain that all of the New Mexico American Indian suicides were identified for 1957–1979, the following sources were consulted: (a) summaries of suicides in New Mexico from 1958 through 1974, provided by the New Mexico State Department of Vital Statistics to the Indian Health Service (IHS) Mental Health Program in Albuquerque; (b) computer printouts of suicides from 1969 through 1978 from the Department of Vital Statistics; and (c) a mortality tape of all deaths in New Mexico from 1957 through 1979 generated by Vital Statistics but obtainable through the New Mexico Tumor Registry. Using these three sources of identification ensured the most complete list of cases. Data for 1980–1987 were obtained directly from Vital Statistics. Death certificates were obtained for all of the identified American Indian suicides. As a check for the 1980–1987 deaths, the files of the New Mexico Office of the Medical Investigator were consulted and cross-referenced. To be as consistent as possible, the suicides included in the following analyses are limited to those Apache, Navajo, and Pueblo Indians who were residents of New Mexico at the time of death and who died in New Mexico.

New Mexico mortality data for causes such as suicide have been quite good over the past decade, because the state is organized into one centralized medical investigator system. All suspicious deaths (over 35% of all deaths) are investigated by an agent of the Office of the Medical Investigator. For example, in the 1957–1979 data, 71% of the death certificates of suicides of decedents less than 30 years of age were signed by local physicians and 2% by medical investigators. In the 1980s data, 22% were signed by physicians and 66% by an agent of the Office of the Medical Investigator, indicating some extra degree of investigation into the cause of death. In both time periods, 23% of youth suicides were autopsied, indicating consistency in the investigation of suicide over time.

Population estimates used to calculate rates for all tribes and reservations in the study came from the IHS. During the period 1957–1979, the population estimates increased from 2,400 to 3,705 for the Apache, 32,309 to 60,841 for the Navajo, and 19,550 to 27,824 for the Pueblo. In 1987 the populations of the three cultural groups were 4,697 (Apache), 75,644 (Navajo), and 30,982 (Pueblo). These figures are based on New

Mexico resident population on and adjacent to the reservation (service population) rather than enrolled tribal population. They are estimates calculated from the U.S.Census, which has been suspected of undercounting the actual Indian population.

Therefore, the rates in this study may be slightly exaggerated due to the low population estimates, but the margin of error for the data prior to 1980 would probably be no greater than 7–10% for most tribes (Passel, 1976). For the data after 1980, the rate of error is lower. In a typical western state such as New Mexico, with a high number of resident Indians, the error is likely to be as low as 0.4 to 3.2% (Passel & Berman, l987). The IHS data were used because they represent the most consistent, detailed, and complete estimates of local resident population available. This consistency allows the most accurate measurement of trends over time and the most accurate intertribal comparisons because the direction of error should be similar for all tribes. In addition, rates may be slightly exaggerated due to the use of a resident population base while including suicides by New Mexico Indians who may have lived outside of the IHS-defined service area for the particular tribe.Instances where this occurred, however, were quite infrequent and are corrected to a great extent by including only suicides by state residents that occurred in-state.

Since tribal affiliation was not recorded on New Mexico death certificates prior to 1982, in earlier years it was determined from the information on birthplace, burial place, surname, and place of residence at the time of death. In the rare cases when these indicators showed little agreement, outside referees from appropriate tribes were consulted to make a positive identification of the particular individual's tribal affiliation. The same methods also were used in the rare cases where tribal affiliation was not recorded on the death certificates in 1982 through 1987.

Results

In Table 1–1, the 3-year average suicide rates for all New Mexico Indians younger than 30 years of age are presented for a 31-year time period. Few studies, if any, have aggregated the data in discrete 5-year age groups such as these. From these tabulations, the reader is better able to examine the specific age group patterns that differentiate the various teenage patterns and also those of the early and late 20s.

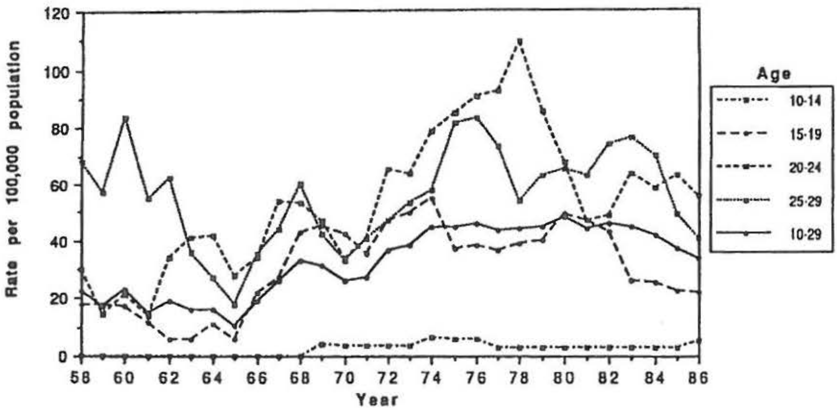
No suicides were recorded among Indians younger than 10 prior to 1983, when there was one hanging death of a Navajo in western New Mexico. Among the 10- to 14-year-olds, suicide began to surface as a problem in 1969. It peaked in 1974, then dropped and stayed low until 1986. Three-year average rates among 15- to 19-year-olds began to rise in the 1960s, stayed high (35–55 per 100,000) from 1968 to 1982, and began to drop with 1983 averages. The very highest rates are currently found among the 20- to 24-year-old age group, and this has been the

Table 1–1
Three-Year Average Age-Specific Suicide Rates (per 100,000) for New Mexico Indian Youth (<30 years of age), 1958–1986

Mid-Point Year	5–9	10–14	15–19	20–24	25–29	10–29 Combined
1958	—	—	18.17	29.91	67.86	22.55
1959	—	—	17.86	14.70	57.19	17.42
1960	—	—	17.46	21.57	83.88	23.22
1961	—	—	11.35	14.02	54.53	15.10
1962	—	—	5.54	34.19	62.05	19.14
1963	—	—	5.56	41.19	35.60	16.26
1964	—	—	11.19	41.46	27.01	16.37
1965	—	—	5.63	27.82	18.04	10.49
1966	—	—	22.15	34.19	35.46	19.14
1967	—	—	27.22	53.79	43.58	26.06
1968	—	—	42.83	52.90	60.00	32.76
1969	—	3.90	45.24	46.90	42.31	31.00
1970	—	3.74	42.19	33.65	33.10	26.24
1971	—	3.57	34.95	40.42	40.31	26.97
1972	—	3.45	46.52	65.20	46.82	36.54
1973	—	3.36	49.40	63.47	53.18	38.11
1974	—	6.37	54.67	78.27	57.65	44.59
1975	—	6.00	36.74	84.97	81.36	44.22
1976	—	5.64	37.99	90.52	82.85	45.83
1977	—	2.71	36.51	92.11	73.49	43.02
1978	—	2.62	38.57	109.02	53.38	43.65
1979	—	2.73	39.58	85.50	62.75	44.71
1980	—	2.86	49.18	67.54	65.37	47.70
1981	—	3.00	46.84	46.71	63.17	44.05
1982*	2.87	2.92	42.93	48.75	73.83	45.65
1983	2.79	2.85	26.13	63.29	75.89	44.45
1984	2.72	2.77	25.44	58.54	70.00	41.54
1985	—	2.70	22.29	62.99	49.21	37.07
1986	—	5.25	21.70	55.47	40.53	33.62

* Represents only one death in 1983.

Figure 1–1
Three-Year Average Suicide Rates for All 3 Native American Cultural Groups Combined 1958–1986



case fairly consistently since the late 1960s. The 25- to 29-year-old age group had the highest rates prior to 1962 but generally had lower rates than the 20- to 24-year-old group from 1963 to 1980 and again in 1985 and 1986.

Therefore, in summary of Table 1–1, the different age groups show variable suicide patterns and rates over the years; this is illustrated in Figure 1–1. The highest rates generally occur in the ages from 20 to 29 rather than in the younger age groups. The rates do not indicate a pattern of a cohort of suicidal people moving through life but instead suggest that differing social and cultural conditions and variables are at play in each age category. An age cohort that is consistently self-destructive does not seem to exist.

Cultural variation in suicide rates has been a hallmark of many studies, and Table 1–2 and Figures 1–2 and 1–3 present cultural-specific data for New Mexico's three main Indian cultural groups. The age-specific rates again indicate variation between the different age groupings in both the early years (1957–1979) and the later period. In the early period, Apaches had the highest age-adjusted rates of youth suicide and extremely high rates in the 15–19 age category. The Apache rate in this category was 29 times higher than the comparable U.S. rate, 12 times higher than the Navajo rate and 3 times higher than the Pueblo rate. In the 20-year-old age groupings, the Apache and Pueblo rates are rather comparable, and the Navajo rates remain consistently lower (one third to one half as high). Figure 1–2 illustrates these patterns.

In the later years studied (1980–1987), the overall age-adjusted rate for Indian youths has remained similar for each of the tribes (see

Table 1–2
Age-Specific and Age-Adjusted* Suicide Rates (per 100,000) for New Mexico Indian Youth by Tribe with U.S. Comparison, 1957–1987

	1957–1979						1980–1987					
Age Group	Apache	Navajo	Pueblo	All 3 Combined	U.S. 1968	Ratio Indian to U.S.	Apache	Navajo	Pueblo	All 3 Combined	U.S. 1984	Ratio Indian to U.S.
5–9	0.0	0.0	0.0	0.0	0.0	—	0.0	1.52	0.0	1.03	0.0	—
10–14	10.17	0.72	4.29	2.29	0.6	3.82	0.0	4.65	0.0	3.15	1.3	2.42
15–19	149.53	12.37	45.56	29.16	5.1	5.72	45.84	11.38	75.86	30.88	9.0	3.43
20–24	96.06	39.49	97.26	60.53	9.6	6.31	138.81	39.64	70.99	52.59	15.6	3.37
25–29	114.97	32.60	84.07	52.78	11.4	4.63	175.19	45.68	79.06	60.47	15.7	3.85
Age-Adjusted* (Ages 5–29)												
	33.06	7.45	20.30	12.71	2.34**	5.43	31.27	8.94	20.12	12.98	3.66**	3.55

* Adjusted to the 1940 U.S. population.

** U.S. rates are for midyears 1968 and 1984, respectively.

Figure 1–2
Age-Specific Suicide Rates for Native American Cultural Groups and U.S. for 1957–1979

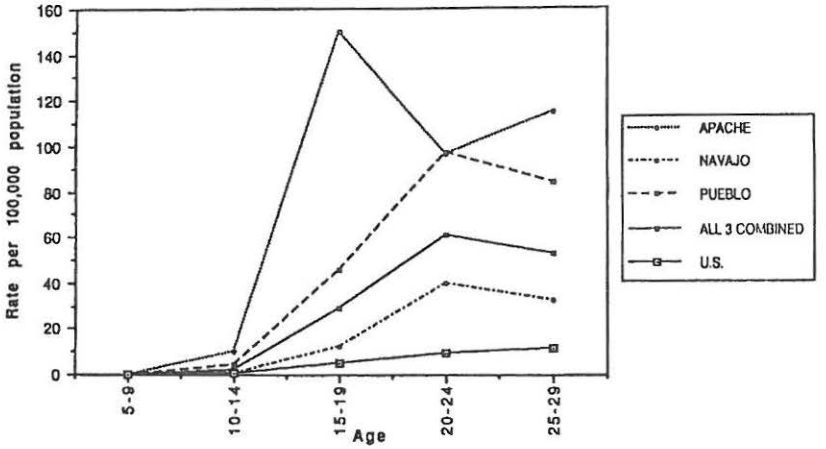
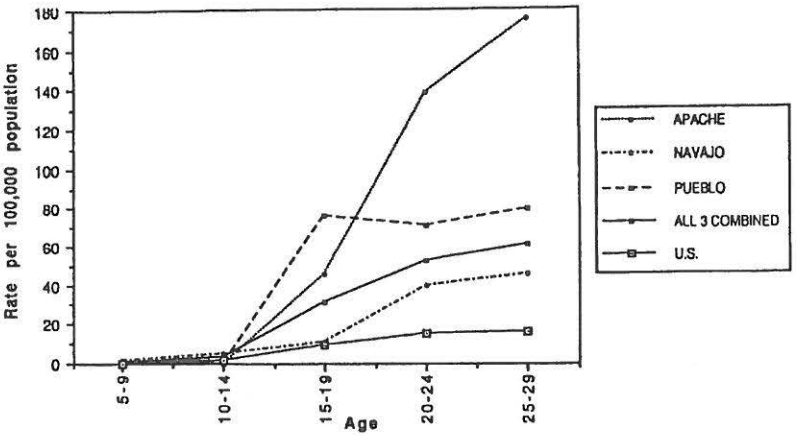


Table 1–2). Within each tribe, however, there is a tendency for the problem to be dispersed more evenly into the various age groups. In other words, the rates are more equal between the ages 15 and 19, 20 and 24, and 25 and 29 within each cultural group, the major exception being the Apaches. The highest rates are currently found in the older youths for the Apache and the Navajo; the Pueblo youth suicide rates are virtually identical in each of the three youth age categories (see Figure 1–3).

The ratio of the age-specific rates for the U.S. and New Mexico Indians has dropped from the early period to the most recent period. In the early years, the ratios of age-specific suicides for U.S. all races and New Mexico Indians was 3.8 to 6.3 higher than U.S. rates; the ratio now is 2.4 to 3.9.Furthermore, the ratio of the age-adjusted youth rate has gone from 5.4 to 3.6. This reflects the rise in youth suicide in the general population of the United States more than any drop in suicide among New Mexico Indian youth.

Tables 1–1 and 1–2 and Figures 1–1, 1–2, and 1–3 raise several interesting points. Youth suicide over the years has been characterized by a number of high and low cycles, especially among particular age groups (Figure 1–1). But examining the 10–29 years of age trend line in Figure 1–1, it appears that the current high rates are more chronic or endemic (with only a small downward trend in recent years). In addition, among some cultural groups such as the Pueblo, youth suicide may be losing some of its epidemic or contagious nature in the youngest age categories, only to become dispersed and diffused across the other age groups (see Figure 1–2 versus Figure 1–3).

Figure 1–3
Age-Specific Suicide Rates for Native American Cultural Groups an U.S. for 1980–1987



Another hallmark of New Mexico Indian suicide, although not shared by all Indian tribes or cultures, has been the use of very certain or lethal methods for committing suicide. Firearms and hanging have been the predominant methods, exceeding their prevalence of use in the general U.S. population. Table 1–3 presents the methods used by New Mexico Indian youth over the past 31 years. There has been some change between the early and later years. Firearms are by far the most common method in both periods, but the firearms total dropped from 71.3% in 1957–1979 to 51.6% in 1980–1987. This 19.7% drop was made up by a 19.7% gain in hanging suicides, therefore leaving the bulk of suicides (92.6%) in these two methods. The remaining suicides have registered little change. Somewhat different from Indians in other states or tribes and the general U.S. data, New Mexico Indians have a very low percentage of overdose deaths.[1] Part of this is due to the fact that most New Mexico Indian youth suicides are male, but even among young New Mexico Indian females, 67% of all suicides ($N = 31$) in 1957–1987 have been by hanging and firearms.

There is not a substantial age differentiation in choice of method. In other words, each age grouping picks its methods in similar proportions. Firearms and hanging account for approximately 90% in each category.

Table 1–4 presents a variety of social and demographic variables for Indian youth suicide victims. Throughout the 31 years of the study, suicide of Indian youths has been predominantly a male phenomenon, with approximately 90% of all suicides being male.

Table 1–3
Method of Suicide for New Mexico Indian Youth by Age Group and Percent, 1957–1987

	1957–1979					1980–1987					Overall U.S.	
Method	<15	15–19	20–24	25-29	Total <29	<15	15–19	20–24	25.29	Total <29	Difference	<30 1984
Overdose/ Poisoning	—	7.7	1.4	2.0	3.4	25.0	6.3	2.2	7.3	5.7	+ 2.3	7.7
Hanging	40.0	19.2	17.1	27.5	21.3	75.0	34.4	44.4	39.0	41.0	+19.7	19.7
Firearms	40.0	73.1	75.7	66.7	71.3	—	59.4	51.1	51.2	51.6	–19.7	58.0
Cutting	—	—	1.4	—	0.6	—	—	2.2	—	0.8	+ 0.2	(see other)
Other (incl. drowning, gas and jumping)	20.0	—	4.3	3.9	3.4	—	—	—	2.4	0.8	–2.6	14.7
TOTAL	100.0	100.0	99.9	100.1	100.0	100.0	100.1	99.9	99.9	100.0	—	100.1
(N)	5	52	70	51	178	4	32	45	41	122	--	8646

In recent years it has become even more male. In 1980–1987 there were 113 male suicides and 9 female suicides under the age of 30. The male/female ratio has gone from 7.5:1 in 1957–1979 to 12.5:1, and this ratio is similar throughout the youthful age groups.

Table 1–4
Various Social and Demographic Indicators for New Mexico Indian Youth Suicides (<30 years of age), 1957–1987

Percent Male	Age Group	1957–1979 (N = 178)	1980–1987 (N = 122)	Difference
	5–9	—	100.0%	—
	10–14	60.0%	66.7%	+ 6.7
	15–19	82.7%	87.5%	+ 4.8
	20–24	90.0%	95.6%	+ 5.6
	25–29	94.1%	95.1%	+ 1.0
Total	5–29	88.2%	92.6%	+ 4.4
	Male/Female Ratio		1957–1979	= 7.5:1
			1980–1987	= 12.5:1
Marital Status	Age Group			
1957–1979	10–19	98.2% single, 1.8% married		
	20–29	56.8% single, 33.9% married		
		9.3% divorced, separated or widowed		
1980–1987	10–19	100.0% single		
	20–29	62.8% single, 31.4% married		
		5.8% divorced, separated or widowed		
Veteran Status				
1957–1979		16.2% were veterans		
1980–1987		5.8% were veterans		
Occupation/Employment				
1957–1979		Occupational status (20–29 yrs.):		
	Unclassifiable		31.7%	
	Laborers/unskilled		34.7%	
	Craftsmen		19.8%	
	Employed (15–29 yrs)		53.4%	
	Unemployed		11.5%	
	Student		31.3%	

Marital status is not a highly differentiating variable in a group so young. Virtually all people who kill themselves (91–94%) are either single or married. There is little time for divorce or widowhood (even in these populations with high rates of accidental death), and separation is probably underestimated by the death certificates.

Table 1–4 (Continued)
Various Social and Demographic Indicators for New Mexico Indian Youth Suicides (<30 years of age), 1957–1987

Occupation/Employment (Continued)			
1980–1987	Occupational status (20–29 yrs.):		
	Unclassifiable		31.7%
	Laborers/unskilled		44.4%
	Craftsmen		18.5%
	Employed (15–29 yrs)		64.6%
	Unemployed		11.5%
	Student		21.2%
Place of Injury			
	1957–1979	1980–87	Difference
Residence	67.2%	78.3%	+11.1%
Rural Area	10.9%	7.8%	–3.1%
Jail	9.5%	6.1%	–3.4%
On-/Off-Reservation Community			
1957–1979:	Death	74.1% died on reservation/Indian community	
	Resident	88.1% living on reservation/Indian community	
	Injury	80.2% injured on reservation/Indian community	
1980–1987:	Death	67.8% died on reservation/Indian community	
	Resident	82.8% living on reservation/Indian community	
	Injury*	81.7% injured on reservation/Indian community	
*21.8–22.4% of all suicides in the 20–29 age group were off reservation.			
Significant Conditions			
1957–1979 (N = 13)			
	Alcoholism/alcohol intoxication		84.6%
	Depression/mental illness		7.6%
1980–1987 (N = 12)			
	Alcoholism/alcohol intoxication		50%
	Depression/mental illness		50%

Similarly, veteran status is low, particularly in the recent study years. Prior to 1980, 16.2% of the youth suicides were veterans, but recently, that figure has dropped to 5.8%. This decrease is probably a reflection of the decrease of military experience in this population, and not specifically in those who commit suicide.

The occupational characteristics of these youth also are not well differentiated. Data for these variables were not as complete (and possibly as valid) as other data in this study. Nevertheless, in both the early and late periods, more than half of the 15- to 29-year-olds were employed. However, the predominant occupation listed for these people was laborer (unskilled) or unclassifiable. Strong economic, educational, and/or occupational needs have been a recurrent theme in Indian youth suicide literature.

Suicides of Indian youths generally occurred in or around a residence (67–78%), in a rural (open) area (8–11%), or in a jail (6–10%). Jail suicides, never as big a problem in New Mexico as they have been in other Indian reservation states, have decreased throughout the 31 years of data. Most suicidal injuries were inflicted on a reservation or in a predominantly Indian residential community (80–82%). Only in the 20–29 age categories were off-reservation suicides slightly more common, accounting for 22% of the events. More than 80% of all people younger than 30 who killed themselves were residing on a reservation at the time of the suicide. However, there has been a downward trend in this variable in recent years (88.1% to 82.8%). Both because of the place where the suicides occurred and the location of major hospitals and clinics, 29% of the suicides died off-reservation. Many were transported off the reservation before dying or being pronounced dead.

A final consideration in Table 1–4 is the listing of "significant conditions" on the death certificate. Plagued by incomplete recording, these data may be of little validity or use. Nevertheless, one might note that the two items most commonly mentioned over the years are alcoholism/alcohol intoxication and depression/mental illness.

The final variables to be considered here are the temporal variables. These may be of use to mental health clinics and practitioners or to other health and law enforcement practitioners who need to anticipate and prevent certain patterns of occurrence.

Table 1–5 presents the month of death of the suicides. A shift is occurring away from spring suicides to late summer and fall.[2] May was the most common month for youthful suicide in the 1957–1979 data, but August is the modal month in the 1980–1987 period. In the 1980–1987 data for the various age groups, the 10–14 age group is most likely to commit suicide in the fall (100%). The 15- to 19-year-olds show the greatest dispersion of occurrence throughout the year, but with the highest incidence in November (15.6%) and March (12.5%). The 20- to 24-year-olds are most likely to kill themselves in June through September (55.6%), while the 25- to 29-year-olds die most frequently in August through December (68.4%)

Day of the month is not too useful a variable, for youth suicides are widely dispersed throughout the month (see Table 1–6). In the recent data, however, days 5–9 and 20–24 account for about half of all deaths.

Table 1–5
Month of Suicide Death for New Mexico Indian Youth (<30 years of age), 1957–1987

Month	1957–1979 N	1957–1979 %	1980–1987 N	1980–1987 %	Difference
January	15	8.4	9	7.4	–1.0
February	15	8.4	6	4.9	–3.5
March	15	8.4	7	5.7	–2.7
April	9	5.1	6	4.9	–0.2
May	23	12.9	8	6.6	–6.3
June	15	8.4	12	9.8	+1.4
July	8	4.5	7	5.7	+1.2
August	11	6.2	18	14.8	+8.6
September	14	7.9	14	11.5	+3.6
October	14	7.9	11	9.0	+1.1
November	20	11.2	10	8.2	–3.0
December	19	10.7	14	11.5	+0.8
Total	178	100.0	122	100.0	

Table 1–6
Day of the Month When New Mexico Indian Youth (<30 years of age) Suicidal Injury Occurred, 1957–1987

Day of the Month	1957–1979 N	1957–1979 %	1980–1987 N	1980–1987 %	Difference
1–4	26	17.8	16	14.4	– 3.4
5–9	16	11.0	23	20.7	+ 9.7
10–14	25	17.1	14	12.6	– 4.5
15–19	17	11.6	16	14.4	– 2.8
20–24	27	18.5	25	22.5	+ 4.0
25–29	22	15.1	11	9.9	– 5.2
30–31	13	8.9	6	5.4	– 3.5
	146	100.0	111	99.9	

Further, the 5th through 9th days have gained in incidence in the most recent years.

Table 1–7
Day of Suicide Injury for New Mexico Indian Youths
(<30 years of age), 1957–1987*

Day of the Week	1957–1979 N	1957–1979 %	1980–1987 N	1980–1987 %	Difference
Monday	19	10.7	14	11.5	+0.8
Tuesday	10	5.6	10	8.2	+2.6
Wednesday	19	10.7	14	11.5	+0.8
Thursday	27	15.2	19	15.6	+0.4
Friday	31	17.4	18	14.8	−2.6
Saturday	38	21.3	21	17.2	−4.1
Sunday	34	19.1	26	21.3	+2.2
	178	100.0	122	100.1	

* Note: Day of injury was only completed in 111 of the 122 (91.0%) suicides in the later period and 146 of 178 (82.0%) in the earlier period. Therefore, day of death was used which would skew the sample slightly as to actual occurrences. In the total suicide samples for years 1957–1979, 71.5% of suicides had the same day of injury and death. In 1980–87, 71.7% had the same. Very few suicides, 13.2% and 18.3%, were different by more than one full day.

Weekend suicides are quite common in all youth age categories; in Table 1–7 this is apparent. Overall, there has been little change over the years. In the 1980–1987 data, about 53% of all suicides occur Friday through Sunday, and 65% occur Friday through Monday. In the different age categories 100%, 78.2%, 57.8%, and 58.6% of the suicides of the 10–14, 15–19, 20–24, and 25–29 age groups, respectively, occur on Friday through Monday. Therefore, the younger age categories are more likely to die on weekends, and the older age categories are more likely to die at various times throughout the week.

In the final temporal variable, hour of injury, there has been only moderate change (see Table 1–8). Most suicides of Indian youth occur in the afternoon, evening, and night (63%). But when broken down to 4-hour intervals, 51.4% now occur between 4 p.m. and midnight. When midnight to 4 a.m. is also added, 64.6% occur from 4 p.m. to 4 a.m.

Discussion

Few studies of Indian suicide have been able to closely examine the social and demographic characteristics of specific age groups of Indian youth in any detail. Limited by short time frames and small num-

Table 1–8
Hour of Suicide Injury for New Mexico Indian Youths
(<30 years of age), 1957–1987

Hour (Military)	1957–1979 N	1957–1979 %	1980–1987 N	1980–1987 %	Difference
Midnight–399	20	16.3	10	13.2	−3.1
400–799	15	12.2	10	13.2	+1.0
800–1199	10	8.1	8	10.5	+2.4
Noon–1599	21	17.1	9	11.8	−5.3
1600–1999	28	22.8	23	30.3	+7.5
2000–2399	29	23.6	16	21.1	−2.5
	123	100.1	76	100.1	
a.m.	48	37.2	28	36.4	−0.8
p.m.	81	62.8	49	63.6	+0.8
	129	100.0	77	100.0	

bers of cases, most research has relied on case studies and other less statistical approaches (Thompson & Walker, 1990). This paper begins to add to our understanding of youth suicide in particular age categories that heretofore have been hidden. Further, the data set allows us to examine the occurrence for several cultural groups over a long time period. While not too many large or substantial surprises have emerged, some unique insights have been gained.

First, we have been able to examine the trends of Indian youth suicide. The rates of suicide have risen and fallen in the various youth categories over the years. No particular cohort seems to account for the high rates, yet the cohorts of youths appear to be responding to a variety of social and psychological confluences. Reservation-specific trends might shed more light on this, but it is another complete study and paper topic. While the Navajo youth suicide rate has risen over the two periods covered in this paper, the overall rates of youth suicide among the Apache and Pueblo have not. These latter groups have experienced a rise and fall of rates over time and a shifting of occurrences and rates within age groups. Currently, the rates of all Indian cultural groups in New Mexico indicate that they reached a plateau in the late 1970s and/or began a slight decline in 1982–1986.[3] Nevertheless, the rates of all groups remain too high, especially those of the Apache and Pueblo, which are three times the U.S. rate in most age categories less than age 30.

New Mexico Indian youth continue to use extremely lethal methods for committing suicide. In addition, the male/female ratio of suicidal

death has increased to 12.5:1. The social role of Indian males in all tribes in New Mexico must, indeed, be considerably less protective (or more stressful) than that of females, and it does not seem to get better for males over time. An examination of the interaction between traditional and modern techniques of male coping in all three of these cultural groups is needed. Further, this study has again shown that Indian females have substantially lower rates of suicide death than males. Studies are needed that highlight the specifics of the male/female differences in self-destruction and also describe the particular strengths, traits, and roles of Indian females that may protect them.

Most youth suicides continue to be reservation residents who kill themselves in and around their residences. In the 20-year-old age groups, however, more suicides (approximately one fifth) are now occurring off-reservation.

The temporal variables generally have remained constant over the years. Youthful suicides are most common on the weekends, in the first and third weeks of the month, and in the late evening and early morning hours. There is, however, a shift in the month of the year, with fewer suicides in the spring and more in the fall. Taken together, all of these youthful age groups are more likely to commit suicide in the fall, possibly due to factors related to school. It is interesting to note, however, that this fall trend is actually more pronounced in the 20–24 and 25–29 age groups. What broad social pressures/influences are at play in the fall? Is it school or more generalized expectations of achievement? This needs to be examined further. Nevertheless, while 55% of suicidal deaths among Indian youth in 1980–1987 occurred in August through December, the other months should not be ignored, particularly from clinical, social, and psychological perspectives.

Several important questions are raised by this paper, most of which call for further research. The weakest part of this data set (and most death certificate data) is the data called significant conditions. Very little social setting, human interaction, and mental status data are available from death certificates and other demographic sources. Furthermore, the Indian literature is in need of additional studies incorporating human interaction data (May, 1990) to interpret more fully the setting, meaning, and circumstances of the particular suicide cases. More social and psychological autopsies would therefore add greatly to the interpretation of data such as these.

Also, in the significant conditions data, there is a dearth of information on alcohol consumption (chronic or acute) related to the suicide. An accurate and complete study of alcohol involvement, drinking patterns, and specific blood alcohol levels of suicide decedents is essential. Some studies that have estimated and measured alcohol involvement have shown that about 75 to 85% of Indian suicides are alcohol related, with a range of 50 to 100%. But these studies are few, are based to a

great degree on anecdotal information, and are not specific enough as to the exact nature of alcohol involvement (see, for example, Andre & Ghachu, 1978; Berman, 1979; Cutler & Morrison, 1971; Fox et al., 1984; Jarvis & Boldt, 1982; Levy, 1965; Shore et al., 1972; Shuck, Orgel, & Vogel, 1980; Spaulding, 1985–1986; and Trott et al., 1981). A fuller evaluation of alcohol involvement in American Indian suicide is long overdue.

Finally, a study like this raises the issue of suicide contagion, imitation, or clusters; but it is not able to adequately measure contagion without utilizing different techniques of analysis or by breaking the data down to local geographic areas (e.g., reservation, town, county). A number of studies have described clusters as they affect young Indians (Bechtold, 1988; Davis & Hardy, 1986; Long, 1986; Tower, 1989; Ward & Fox, 1977; Watson, 1969), but no statistical study exists to test this assumption for Indians demographically and longitudinally. This paper shows that the rates vary between and within Indian cultural groups over time, rising and falling in the aggregate data. A cluster study could add detail to our knowledge and assist in better understanding the etiology of suicide. Most of those who are experienced in reservation settings are aware that clusters occur, but this pattern needs to be tested using techniques similar to those used on other populations.

In conclusion, some Indian youth of various ages in New Mexico and elsewhere have substantial problems with self-destruction. We must continue to work to obtain more accurate knowledge for solving the puzzle and ultimately to develop better prevention and intervention programs.

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Discussion

Dr. Bromet: I would like to talk for a minute about what epidemiology is and why it should be part of a program like this. I hope what we are talking about today will come up tomorrow, very specifically when we talk about programs. Epidemiology is a science that is designed to understand how something is distributed in the population, what the risk factors are, and, therefore, how we can intervene and reduce the morbidity attached with whatever illness that is under study.

So when epidemiologists do their work, they do it on one of three levels, and this morning you've only heard about one level. I want to make sure that you know about all three. The first level is the descriptive level. The work that Phil May and Nancy Van Winkle presented is a very nice example of descriptive epidemiology. On this level, you work with statistical data and do the best you can with it. Of course, you're limited by the data that you're given. In their case they were trying to do something which on the surface is a very simple task; that is, to establish the suicide prevalence rate in specific age groups living in specific areas with specific tribes while also looking at temporal changes and demographic characteristics that it might relate to.

Now, you think that to do something that straightforward as to establish a rate of suicide would be a really easy task. However, as Phil demonstrated and discussed, this is really difficult. You need two things to establish a rate: a numerator and a denominator. In their case, their numerator was based on death certificates that were ascribed to suicide. Which meant, I think by definition, a probable gross underestimation in the numerator. There is a real problem with single automobile accidental deaths in young Indian youth which involve alcohol. Suicidal adulation might go along with it. If we were in a position to actually investigate all

deaths and all suspicious deaths of youths, and not just those that were called suicide, we would find that our numerator was probably even bigger and even more alarming than the data that you presented.

The other problem that Phil and Nancy described was his denominator. In fact, the tribe with the smallest denominator was really too small to study with any reliability for a low-incident issue like suicide. The rate that fluctuated the most was the highest. I think that probably Phil and Nancy have done a wonderful job with the data. However, it's not clear to me how much more they want to do in terms of descriptive epidemiology, working with this kind of data.

I'd like to suggest that there may be other things that they can do in the future that Phil, I think, even suggested in his own discussion. One is working with the coroner's office very closely —hand in glove, if you will. You could even get deputized so that when these deaths occur, they can collect additional information. This would not necessarily mean gathering very extensive information, as would occur in a psychological autopsy, which can take a great deal of time. At least information on use of alcohol and other drugs and maybe some superficial information on people's mental health histories. Clearly, what we've learned from studies of suicide is that they're not random events. They don't just happen. They happen to people who have very specific vulnerable characteristics. They happen to people who are very troubled and come from troubled families. These are findings that are well known. However, it would be nice to try and incorporate this into descriptive epidemiology. I think we can do that without a huge amount of funds.

My bias, though, as an epidemiologist personally is not to do descriptive epidemiology. I think it is really important. We need to know these things and I am glad there are people who are willing to do it. My own interest is looking at analytic studies. Studies like case control studies where we can begin to isolate what the causal variables are. A lot of that work already has been done in non-Indian populations.

Risk factors for suicide attempts within a Navajo population as described by Grossman et al. are so comparable with any other study (Grossman, Milligan, & Deyo, 1991). When I read his paper, it reminded me of a conference that I attended on the psychological effects of the accident at Chernobyl. The concern was the vast majority of the population that had not received radiation exposure. Not having any health consequences, they were all terrified and ascribing every symptom and every illness to the accident at Chernobyl, including things that could not possibly have anything to do with radiation exposure. Not only was the population convinced that Chernobyl had caused all these health problems, but so, too, were the local physicians.

This was a "déjà vu" experience. We've been doing studies of people living near Three Mile Island. We've been following them over time. Over time people have gotten more and more symptomatic. These

mothers of young children are beginning to do exactly what these women who live in these areas far outside Chernobyl are doing. They are ascribing every health problem that their children or any child that they know of to the Three Mile Island accident. This situation seems to be getting worse instead of better.

If the risk factors for adolescent suicide attempt really are not unique, then maybe what we need to begin to think about is integrating the wider literature on adolescent suicide into our thoughts about what we're going to do about the current problems. From a research point of view, how are we going to design analytic epidemiologic studies that take us a step further? We don't need to reinvent the wheel. We don't need to do exploratory, analytic studies where we again test out whether certain variables are going to be risk factors for adolescent suicide or suicide attempts in Indian populations. I think we can hypothesize that they will be and, therefore, design our studies in such a way that we test focused hypothesis about those variables.

The variables that I am even more concerned about that we haven't talked enough about are the ones that probably are unique to the experiences that American Indian populations are having. Issues like assimilation, intermarriage, employment, and keeping kids in school. I would like to suggest that when we start talking about school-based interventions that we begin long before kids enter school. We're talking about family pathology that begins before kids ever arrive on the scene.

I wanted to make one other comment about analytic epidemiology. We've talked about case control studies, but I don't really know what that means. There can be all sorts of controls. One of the most interesting studies that I know about used a control group of kids who were hospitalized for suicide attempts that were so severe that they should have died. It was just a miracle that these kids were found in time and saved. The other control group were kids who made attempts or were severely depressed but that weren't as severe. It turned out that some of the similarities between the kids who had killed themselves and the kids who should have died were quite remarkable. It suggested that we could learn a lot by doing studies that are focused on these unique kids who really did try to kill themselves in a lethal way and somehow managed to survive.

I'd like to also suggest that a school-based study that was suggested by Dr. Grossman could be an opportunity for a two-stage study. Epidemiologists love to do two-stage studies where the first thing they do is a massive screening. This is done since we're often looking at things that have low prevalence. In this case, we find the prevalence was 15%. We can pick, then, people whom we want to go reinterview for more detailed information. What were these attempts all about? What did people actually do? Did they do it on a number of occasions? Did they do it the same way? Did their attempts get more and more lethal? When did they say that they were having problems with their mental health? Specifically,

what are they talking about? How long have these problems gone on? What kind of coping mechanisms do they say they use that helped them or didn't help them?

Dr. Shaffer is absolutely right when he says anytime you rely on an analysis of a single item, you do have problems with reliability. What you would want to do is a two-stage study in a group twice the size of the group who said they did make an attempt. Then use a group that is maybe twice as big that said they didn't. We can really begin to understand the groups who did and didn't in major analytic ways.

My hope is that all the things we're talking about this morning are going to be relevant tomorrow. If they're not, then we've failed in some way. Epidemiology really is a field that should be going on simultaneously at three levels: the descriptive level, where we understand the rates and how they change over time; the analytic level, where we begin to understand the things that cause it; and the intervention level. If we think we know what the roots are, then we should be designing interventions that tap those roots. Ultimately, we should see rates going down because of it. It really takes a careful, experimental study to prove whether those things we felt were risk factors really were risk factors.

Dr. Van Winkle: One of the things that we are trying to do is to work more closely with the Office of Medical Investigator. You're absolutely right. You are real limited in the reliability of a number of things on the death certificates. I think we'll find out a lot more and a have a much better understanding when we can use the medical investigation records and coordinate those with the death certificates.

Dr. Bromet: My colleague in Pittsburgh, a psychiatrist, became deputized. His relationship with the coroner was close. They are now publishing their papers together. I think the coroner, being a traditional medical model type, learned a lot from my colleague. They both learned tremendously from their relationship.

Dr. Shaffer: This morning, as people were talking about secular changes, it occurred to me that most of the analyses were presented without differentiation of sex. An epidemiologist always likes to find different rates in different populations. That gives you some means with which to try and pry apart what might be important risk factors. One of the main goals in the New York study is to try and explore some of what Evelyn called descriptive epidemiology a bit further in a case control design. I thought the data that we have recently analyzed might be relevant to the work that you are doing now. If you look at changes since 1968 in 15- to 19-year-olds, what is very striking is that the majority are white males. There has been a smaller increase among nonwhite males followed by white and nonwhite females.

The finding is that the secular increase is confined to one sex. This is very exciting. When we embarked upon our descriptive and more

analytic study, we looked for risk factors that might be confined to a single sex. We took 179 consecutive adolescent suicides that occurred in the New York tri-state area over a 2-year period. We had normal controls and attempted suicide controls. They all involved extensive interviewing with survivors. One of the early findings was that if you looked into the history of substance abuse in the male completers, it was just under 40%. This compared to about 5% of the normal controlled males. On the other hand, the rate of substance abuse or alcohol use in the females was no different from the controls. We need to find an element that had been subject to change over this time period, affecting one's sex selectively. That could possibly explain the mystery.

Substance abuse, mainly alcohol use and a little bit of cocaine use, did not seem to be a factor in the young suicides. We found virtually no alcohol or substance use under the age of 15. However, one third of all adolescent suicides are actually 18- and 19-year-olds; two thirds of these had a history of associated substance abuse. The patterns of substance abuse among the suicides were different from the normal controls. They were more likely to be complex patterns of co-morbidity of conduct disorders with substance abuse, disruptive disorder, and/or depression or the three combined, accounting for the majority. Substance abuse in normal controls was more likely to be uncomplicated by another diagnosis.

We were very interested in trying to pry apart some of the competing models for co-morbidity. The very fashionable one says that depression comes first, then you self-medicate, and that gets you into trouble. Most of the data would suggest the reverse. You start off at a very early age with conduct disorder, which predisposes you to substance abuse, which then gets you into a lot of trouble with mood. Interruptions in intake, as you get in binge drinking, can induce dysphoric responses. What we tried to do was to look at the co-morbid cases and see which single diagnosis these resembled. The co-morbid cases were 100% males. The depression only cases were 40% male, substance abuse showed 93% were male, and disruptive behavior were 100% male. That is, the co-morbid group looked very much like the other disruptive conduct disorders and the substance abuses.

Also, we were able to get at onset of first symptom. Among the 11 co-morbid cases where we could date onset, 10 cases either the substance abuse or the disruptive behavior came on first. In only one the depression came first. Our conclusion from this is that it looks most likely that an increased substance intake is the reason for the male-specific secular increase. The traditional pathways probably do apply rather than the secondary medications pathways. Given the high prevalence of this risk factor in the American Indian/Alaska Native population, it may be well worth focusing on this perhaps in an even more detailed way than we were able to do. We probably neglected to do it as thoroughly as we should have.

I also would like to disagree with Evelyn that it is not okay to go ahead and do prevention projects without information. I think there are well-documented prevention projects that have a paradoxical effect. They have been more harmful than beneficial.

Dr. Van Winkle: I would like to make one comment on the data that we've looked at overall for 1980–1987, which is the most recent data that we have. We have looked at male and female age-specific rates. They are very different for males and females. The females are much lower. All the female suicides are for women under 44. For men, it extended out in this period. It went down to 9 years for one young boy and went up to 96 years for an elderly gentleman who walked in front of a train. So what we see are much higher rates for the males for all the different age groups. They peak very high into the 1990s per 100,000 for the 25- to 34-year age groups, and then they drop down substantially after that. But there are suicides for older men and none that we've seen for women.

Dr. Shaffer: Nationwide, the rate for over age 65 is between 40 and 60 per 100,000. The 85-plus tiny age group death-by-suicide rate is 80 per 100,000, so it is way above the national average.

Dr. Van Winkle: What we find is that as you get older in our age categories, the U.S. rates are much higher than the Indian rates. Also, if you figure age-specific rates for the small numbers of elderly Indian suicides, you have this outrageous rate of 60 per 100,000 and it's one suicide. So it is really not representative of what is actually happening in the population.

Dr. Bromet: I think the double issue is alcohol and firearms. If you look at David Brent's data in Pittsburgh showing blood alcohol content levels have been going up steadily in adolescent suicides with the availability of firearms. Loaded guns in people's houses is just phenomenal. These kids can kill themselves.

Dr. May: It doesn't explain it all, because in New Mexico everybody has access to firearms. There is still a tremendously differential rate. The Indian rate is higher. Substance abuse prevalence, particularly for those under 20 in New Mexico Indians of Pueblo and Navajo descent, are actually lower than Hispanics and Anglos. So there is a cultural factor in addition. Those two things are very important — alcohol and firearms — but the cultural factor still is there.

Dr. Neligh: I have heard talk about alcoholism and substance abuse as a generic condition. Joe Bloom reported in working with Alaska Native homicides that alcohol was predominately an agonal event. In other words, it was found on autopsy, but it was a unique precursor to the homicidal event as opposed to being a long-standing condition. What are your thoughts about this? Is it a long-standing condition, or is it just something people do just before they try to kill themselves?

Dr. May: In our studies, 61 to 74% of our suicides from 1980–1987 are alcohol related, as verified by autopsy with BAC, vitreous or muscle samples. The suicides who are intoxicated are intoxicated at outrageously high levels. The average is going to be about .20. The other 25 to 30% are stone sober. There is both a mix of chronic alcoholism, and in some cases the people are coming off a 2- or 3-month binge, but in other cases alcohol is just a very sporadic, acute influence. That's why it is very important that we look at this stuff really carefully.

Dr. Shaffer: In the New York study, we actually had higher reported rates of alcohol use than found in positive toxicology. That was against our expectations, because we thought that the history would be underreported and the toxins would give you the true role. That is compatible with acute dysphoria or mood changes being induced by withdrawal. I was just wondering when you said "coming off of a binge," how many of the kids were in fact dysphoric as a function of forced withdrawal.

Dr. May: I do not know.

Dr. Shore: Addressing Evelyn's comment, it has become clear to me how descriptive and nonanalytic the work in Indian adolescent suicide has been. I think as we move toward the third day of this conference, this group should be charged with developing recommendations. There is a lot of data out there. Do we need to spend another 5 years rediscovering some of those high-risk factors that we know apply equally to American Indian adolescents? If we don't, then that is going to change the wording of our research priorities.

Twenty years ago, after our first study involving a community of 3,000, we returned to the tribal council. We said to them and the health committee, we had the ability in this study to identify through risk factors analysis 20% of your tribe. Certain extended families of the tribe accounted for 80% of the suicides, homicides, and deaths of alcohol cirrhosis. That identified about 600 tribal members. We noted that half of those 600 are kids, which further reduces 3,000 to 300 kids. We proposed that they consider a very specific intervention program for these 300 kids. Half of the group is adolescent, so you now go from 3,000 to 150. Their response was basically, "Are you kidding? We can't politically give anything special to those families. They're the worst families on the reservations." They did not at that point have the political ability to narrow the available resources to target a high-risk group.

From Phil's hypothesis in his follow-up article, they have developed that capacity, or for other reasons the rates have gone down. In my experience there are at least three major hurdles and probably more that we need to consider in taking the facts that we have to communities with specific intervention efforts that are analytically evaluated. We do not need to do this nationally. We've got to do it focused in a few places where we study carefully. That if you do what we suggested, do you

label? Do you stigmatize? How can you minimize the negative effect of either labeling the tribe, labeling the risk families of the tribe, or the high-risk adolescents within the high-risk families?

Another important factor is this very interesting dichotomy that comes out of this morning's discussion that you labeled the descriptive versus the analytic. That's a problem because all of our data on American Indian adolescent suicide is descriptive. Can we then really take the next step? Can we move forward more quickly by using the analytic data from the majority population identifying some of the major risk factors important for Indian adolescents?

Dr. Forbes: I am curious about whether the drinking patterns among the Indians in New Mexico were recognized as being different patterns than the alcohol abuse among the whites. For a long time, for political reasons, this was not recognized. It is pretty widely recognized in Alaska that Alaska Natives use alcohol differently than whites do even though they encounter the same labels and are frequently subjected to the same programs. They are more episodic for one thing, and they are more tied to community events. They are more tied to the need for companionship, and they're also much more public in their lives.

Dr. Shaffer: What about the Type 1, Type 2 distinction? I imagine the males are associated with antisocial behavior and early onset.

Dr. Forbes: I really don't know. In New Mexico do you find that same sort of thing?

Dr. May: In New Mexico we all have drinking problems. As the Director of the Center on Alcohol, Substance Abuse and Addictions, it is more and more obvious to me every day. The differentiators are mainly quantity and frequency, as you are indicating. However, the politically sensitive issue to bring up given our epidemiology is that Hispanic and Indian patterns are almost identical. However, you can't say that in our state. Give you an example: If you look at the BAC of fatal accident victims in our state, Anglos are dying at .12, Hispanics are dying at .18, and Indians are dying at .19. In a number of other types of mortality that we are starting to examine, we are seeing the same, exact pattern.

Yes, the Indian patterns are unique in some sense, but unfortunately, not that unique. There are really two very different patterns in the Indian populations. There is the recreational drinker, which is more your Type 1 drinker. That is the younger, very sporadic, heavy quantity, and binge drinker. The more chronic, anxiety alcoholic is in the minority. These people are ostracized, alienated, and not part of the mainstream Indian society at all. It's important to differentiate those when you come up with prevention programs, because 75 to 80% of all the problems of alcohol-related mortality and morbidity are caused by the recreational drinkers; whereas all the alcohol programs focus on the older, anxiety drinkers.

Eighty percent of the problem is with recreational drinkers, while 20% with the anxiety drinkers. The funds are spent in an inverse manner; 80% are spent for the small problem and 20% for the larger.

Dr. Schoettle: While serving with the Public Health Service in Alaska, I observed two different types of drinking. The town was basically Athapaskan, and about 10% Eskimo population; the other percent, which is minimal, is Caucasian. The adolescents that I saw there drank when it was available and almost exactly like the Caucasian adolescent, college-age adolescent, and young adult drinkers. They'll drink whatever is available. Whereas the chronic alcohol abusers try to make the alcohol available throughout the year. If they were firefighting, we would see a lot of increased violence, increased money, and increased drugs. When that money ran out, there would be slight resumption of some increased stability.

So it really depended on not just the political factors and the sociocultural factors but literally the financial-availability factors. They had a two-bed log cabin jail, which was the drunk tank. The chronics were almost never jailed, while the acute adolescents were jailed. If the chronic people would come in and out of the jail, people would question what were they doing in the jail. The basic focus of the response was to the acute situation.

Dr. Guilmet: I'm troubled by the fact that alcoholism is the etiological factor here. I don't want to disregard that completely, but it seems to me that this assumption is almost always our first hypothesis. We saw, since the 1960s, a huge increase in the suicide population, yet alcohol has always been available. There must be ways in this kind of methodology to integrate what sociology calls the structural-functional perspective. This looks at differences in perceptions and expectations and the individual's perceived ability to achieve those goals or achieve those ends that they're defining. Then you consider, for example, the role of media in terms of changing these perceptions. During the civil rights movement, change in expectations was necessary for individuals to mainstream. Is it possible to talk about these kinds of variables within this methodology?

Dr. May: I think you're exactly right. Alcohol is a necessary condition in a lot of these suicides, but it is not a sufficient condition. Some of my colleagues from Indian Health Service, Lemyra DeBruyn, Carol Lujan, and I did a case control study of child abuse and neglect in northern New Mexico. When we looked at abused kids and their families, we found with neglect it was 97% alcohol-related incidents. With abuse, it was 70% alcohol related. Deciding to pick a control group, we employed a mast stratified control group. We found that supposedly nonproblem families had a few cases of abuse and neglect, but they had a 55 to 60% alcoholism or alcohol abuse problem. Basically, all we could conclude from that was that alcohol was necessary in a lot of these cases but not sufficient

for abuse. Here these 55 to 60% of the families who had similar alcohol abuse problems but had no abuse or neglect. I think the same thing applies to suicide and a number of these other behaviors. What are these other factors — social, cultural, psychological, whatever — that explain another part of this? Alcohol is one part of it and one part only.

Dr. Manson: Back to Evelyn's earlier comments about what is it that is uniquely cultural about this phenomenon among Indian and Native people. George, the arena that you called our attention to holds considerable promise for understanding the unique social and cultural contributions. If Jerry Levy were here today, he would say in his fashion, "Well, it's obvious." He would cite a list of unique cultural factors. I'll never forget one that he described that was not necessarily specific to Hopi, but it was in terms of its manifestation. Those of us who are anthropologists understand this intimately. It has to do with issues of marriage rules, specifically endogamy and exogamy, the rules that govern whom an individual is expected, indeed almost required, to marry. If those rules are broken and the individual doesn't marry a person from that class or category of persons and marries someone else from another category, not necessarily outside of the tribe, then the offsprings of those marriages clearly have the greatest risk. They have the history of most frequent attempts and actual completions of suicide among the Hopi. This suggests in a very pointed fashion a way in which a very unique cultural dynamic can contribute to that increased risk.

I think that there are other examples that we can draw. They underscore, George, your point about the structural-functional arena in terms of what additional risk factors and unique ones we need to consider. We've been talking from my point of view at a macro level. I would like to take this for a moment, to the microanalytic level. David, your comments about the adaptability or the nonadaptability of some of the measures in the adolescent health survey served to remind me that issues of measurement always are part of a necessary task that we have to undertake. This happens especially as we move from a descriptive to an analytic level in our epidemiology. How we operationalize such constructs as family cohesion, alienation, etc., etc., must be informed by the particular cultural context in which we're working. This may vary by tribe or may not, but it seems to me that it is a necessary part of our task.

All too often, in my experience, that when moved to that level the dialogue gets very polarized. We have one camp of individuals who say all of these measures can be used with impunity because the nature of the experiences we're talking about are universally human. On the other side of the camp, we have to go in and develop something unique and specific to every group that we work with. I guess in most things the answer lies somewhere in between those two extremes. So it seems important to me to be careful as we move from descriptive to analytic types of research enterprises. We must do our basic homework about the

properties of the measures that we're using. We must pay attention to and make sure that we are constructively critical in the way in which we operationalize these efforts.

Another area of concern I have probably springs from my background as an anthropologist. Rubbing shoulders with epidemiologists like Evelyn, Phil, and others, I am excited by the importance of having greater numbers of records and data available to us that will allow us to at least think on more generalizable terms to Indian and Native populations. On the other hand, I think it is important that we not lose sight of the value of small studies, especially if they're longitudinal and continuous in design. Studies that we have going on, for example, as far as I know, unfortunately are unique. Just taking one school and looking at it over a 5- to 10-year period, we can examine the cohorts of adolescents coming into that school. Then we can begin to tease out through multiple measurement periods, from cohort effects, from maturational effects, from environmental effects of what impacts these kinds of school contexts have on the students, the impacts of peer association and peer relationships, and what kinds of impacts the process of being socialized into that milieu path. If we don't attend to these contexts in addition to the broader, more epidemiologically, demographically driven studies, it would be an imbalance. That is not to say that epidemiology doesn't do the latter. It can and has a lot to suggest about how to proceed. In fact, such inquiry probably represents that analytic level of epidemiology we're suggesting.

Dr. Bromet: I think some of epidemiology is pretty superficial. At the same time some of the smaller studies tend to be on unrepresentative samples of people, and so generalizing from them is hazardous. There is no reason why it cannot be done simultaneously.

Dr. Shore: Reviewing the mental health literature, there is only one published case study in Indian adolescent suicide. I would challenge us all as to why haven't we done more.

Dr. Shaffer: Surely, it's an empirical question as to whether there is a high rate of human universally applicable risk factors, lower rate of universally applicable protective factors, or whether there are idiosyncratic factors. The major barrier to progress is perhaps the assumption that there are idiosyncratic factors.

Dr. Manson: It is my personal opinion that we experienced an interesting dynamic probably reflected in research with other minority populations. In fact, it was Norm Dinges a decade ago that gave me the pseudospecies argument that American Indians and Alaska Natives are so different from all other populations that the comparative enterprises are much less worthwhile. I think that argument is beginning to fall apart in the beginning of the accumulating empirical evidence. The challenge now is to say, How can these other studies constructively inform our future efforts? We must

not lose sight of that critical edge of attending to what can transfer and might not transfer rather than simply tending to the reverse side of that coin: the wholesale adoption of those other methods of design and measurement techniques. It seems that we need a critical, dialectic process that hasn't really characterized our work.

Dr. Shaffer: It also represents deficiency in design. It means when you do get to do your analytic studies in this population, you either have to link them in some ways with similar measures in non-Native populations or else have a non-Native controller.

Reference

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Notes

1. In the later period, two or three of the overdose deaths among one tribe were from ingestion of battery acid, making these more lethal than most overdose/poisoning methods.

2. Seasons are roughly defined as: winter: January through March; spring: April through June; summer: July through September; and fall: October through December.

3. This plateau trend is even more obvious in comparisons using all ages from this New Mexico data set. Work in progress indicates that overall rates are not rising.

A STUDY OF SUICIDE ATTEMPTS COMPARING ADOLESCENTS TO ADULTS ON A NORTHERN PLAINS AMERICAN INDIAN RESERVATION

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Mental health professionals within the reservation community in this study became concerned with the apparent steady increase in suicide attempts and behaviors among the American Indian residents. From 1984 through 1989, 194 suicide attempts were recorded, with a total of 4 completions. A 5-year assessment indicated both an attempt rate and a suicide completion rate at least 2.5 times the U.S. average. Claymore (1988) reported a high recent attempt rate for Pine Ridge, South Dakota, at 1,281 per 100,000 population; the reservation assessed in this study had a 5-year prorated frequency average of 38.8 attempts per year, or 1,021 per 100,000 population annually.

Mental health professionals observed that attempters offered a variety of explanations regarding when the attempts occurred, where they occurred, how and under what circumstances they occurred, and why (the motivating conditions/perceptions prior to the attempts). Attempters also evidenced a variety of behavioral responses immediately following the attempt, as well as differences in recovery periods. Adolescent attempter responses to some of the questions offered by assessment professionals appeared to differ somewhat from the responses of adults. It was felt that a clearer definition of attempter perceptions and behaviors just prior to, during, and immediately after a suicide attempt would be helpful to the establishment of more effective prevention, intervention, and follow-up programs. There has been encouragement for gathering of data on Indian suicides that provide nonstereotypical and more accurate information regarding suicide among American Indians and that offer distinctions between adult and adolescent causal factors (Thompson & Walker, 1990).

We were interested in assessing the descriptive characteristics of suicide attempters as well as other conditions surrounding the attempts, including stressors, motivations, and other behavioral data. This information

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The authors are currently employed by the Indian Health Service and this study was funded in part by a grant from the Indian Health Service. The ideas and opinions expressed within this study are those of the authors and do not necessarily represent those of the Indian Health Service or the reservation population assessed.

was deemed important in helping emergency room and mental health personnel to develop more effective early intervention strategies after an attempt occurred and a better general understanding of the characteristic phenomena of suicide attempts. We also became increasingly interested in what appeared to be a burgeoning increase in adolescent attempts over the past 5 years. (Exactly half of all attempts were by individuals age 19 or younger.) Finally, an accurate understanding of attempter characteristics and motivations was considered essential to developing more effective suicide prevention strategies and an "early warning" system.

Guiding Hypotheses

The study was guided by two hypotheses. First, there is a significant correlation among timing of the attempt for intervention by others, precautions against discovery of the attempt, notification of others about the attempt, final acts in preparation for death, suicide notes left, motivation for an attempt, and attempter perception of lethality, and period of contemplation of the attempt as related to the overall seriousness of suicide intent.

Second, there is a significant difference in the seriousness of these characteristics between adolescents (ages 12–19) and adult (ages 20–60) attempters.

Methodology

The rural northern plains American Indian reservation in this study has approximately 3,800 American Indian residents, most of whom are of Ojibway descent. Within the reservation there are four separate communities that range from very traditional (about one fifth primarily speaking the Native language and living in largely traditional ways) to a group that is culturally mixed and has many nontraditional and dominant culture influences. Much of the reservation population is geographically isolated from the outside world and experiences high rates of unemployment (80–85% in the winter months), with a majority dependent on welfare systems (75%).

For this study, we used existing data from patient files (medical and psychological), police reports, and a suicide registry/protocol that had been implemented for each suicide attempt and completion within the 5-year time period from January 1, 1985, to December 31, 1989. The total number of suicide attempts recorded at the local IHS service unit was 194. Additional suicide attempts possibly occurred but were not reported to law enforcement, social work, mental health, or medical personnel. (The data did not include suicide attempts by tribal enrollees that occurred outside of the reservation boundaries.)

To provide a more accurate representation of suicide behaviors, the following continuum of suicide definitions was used:

1. Suicidal ideation: thoughts about killing self; no behaviors occur ("I wonder who would care if I died right now?").

2 Suicidal threat: declaration to others of an intention to kill self, usually in retaliation or conditional upon a certain action or cause. Threats remain only verbal ("If you don't give me another chance, I'll kill myself").

3 Suicide gesture: behaviors (verbal and physical) short of an actual attempt that imply or suggest the potential of acts to injure or kill self. This is usually done for effect but may include the presence of the means to kill or injure self (e.g., surface scratching of the wrists), usually without the intent of dying ("Leave me alone or I promise I'll swallow these pills and kill myself").

4 Suicide attempt: clearly observable and measurable actions with intent to injure or kill self. The person may or may not be fully intent on dying but somehow was persuaded or prevented from dying.

5 Near suicide completion: an individual nearly dies as a result of his or her own intent and actions to kill self. Serious life-saving emergency medical procedures are usually required. Individual appears motivated to kill self. Circumstances were such that the attempt should have resulted in death.

6 Suicide completion: individual dies as a result of his or her own intent and actions.

An interview policy developed during the 5-year period required mandatory assessment of all persons admitted to the emergency room because of suicide attempts. In addition to emergency room protocols, the patients were required to have an interview with a mental health professional at the time of admission, prior to release, and at 24 hours after initial admission. Most of the respondents were admitted for observation and were interviewed in an inpatient setting. A small number of patients who were released shortly after admission to the emergency room were interviewed as outpatients in the mental health department, usually within 24 hours. Data used in this study reflected the earliest possible patient response summaries.

The original protocol used within the 5-year period of this study included information from Pierce's Intent Scale (the source of Pierce's Intent Scale could not be found). A revised protocol was developed that included the addition of descriptive and behavioral information (i.e., education completed, day of attempt, month of attempt, living arrangements, history of drug and alcohol use, therapy follow-up contacts, categorization of emergency room response, attempter stressors, and a checklist reflecting protocol evaluator perception of the subject's attempt motivation). The protocol evaluator was asked to select from the designed checklist any

and all motivations perceived present in the attempter at the time of the attempt, once the entire initial interview was completed. The revised protocol was designed to provide more structure and categories for greater comparability of data summary.

The behavioral protocol included a section measuring seriousness of intent with the suicide attempt. The illustration in Appendix A provides a copy of the "seriousness of intent" items used for summation in calculating a summed total seriousness-of-intent score. Each of the items were scored with a value of 1, 2, or 3, with a summation total ranging from 10 to 30.

Validity

Many items used within the protocol previously have been assessed in the literature on suicide (Farberow & Schneidman, 1961; Patros & Shamoo, 1989; Shore, 1975; Thompson & Walker, 1990). Four mental health professionals reviewed the items for face validity. Content validity with 10 seriousness-of-intent items was assessed through item-to-item and item-to-total correlations. Construct validity was assessed through the behavioral item correlation with postmortem protocols from four suicide completions and the eight "near completions." Total Pearson *r* correlations ranged from .81 for the near completions to .83 for suicide completions.

Reliability

The protocol was given in a pilot effort to four mental health professionals, who assessed 10 separate case studies. Recorder rating consistency correlated from .80 to .85 on the behavioral items to .98 on the descriptive items.

The internal consistency of the 10 seriousness-of-intent items was assessed through item analysis providing item-to-total correlations ranging from .21 to .60 and item-to-item correlations from .02 to .51.

Results

Descriptive Data

Table 1 summarizes the descriptive characteristics of the 194 suicide attempts included in the study. The age of attempters ranged from 12 to 55; the most frequent attempts occurred within the age group 15–19, with the least frequent attempts over the age of 45. Exactly half of all suicide attempts were made by adolescents age 19 and under.

Females outnumbered males, overall, by a ratio of 2:1. Females outnumbered males within the adolescent age group in a ratio greater than 3:1.

Community No. 1, considered the most traditional of the villages within the reservation, had a disproportionately higher rate (39% of total) of suicide attempts per population. This community accounted for half of all the adult (over 19 years of age) attempts.

Community No. 4 had the second greatest overall frequency of attempts (30.9%) and is considered the most subject to non-Indian influences. This community had the highest number (34%) of all adolescent attempts in the 5-year study.

Overall, the most frequent group of attempters were under the age of 18 (32.5%) "living with a parent." This was followed by single adults (28.9%). Nearly 86% of all attempters were either unemployed or attending school (public school or postsecondary).

Behavioral Data

The study assessed which day of the week resulted in the most suicide attempts. The greatest portion of all attempts (20.1%) tended to occur on Saturday, with the weekends providing the greatest number of attempts for both the adolescent and adult age groups (47% from Friday at 6 p.m. to Sunday midnight).

Both age groups tended to attempt suicide most frequently between the hours of 6 p.m. to midnight. Adolescents attempted next most frequently between noon and 6 p.m.; adults attempted next most frequently between midnight and 6 a.m. Admissions of attempters to the hospital emergency room followed these time patterns.

Transportation of attempters to the hospital emergency room occurred most frequently by ambulance (62.8% overall). Eighty percent of all adults and 45% of all adolescents went to the hospital via ambulance; 35% of adolescents were transported by a family member.

In terms of the hospital emergency room response, 77% required minor medical procedures (e.g., stitches, stomach pumping, bandages); 10.9% required serious lifesaving medical procedures (e.g., surgery, placement in intensive care, antidote medications); 7.3% were admitted for observation with no medical treatment; and 4.1% were released from the emergency room. There were no differences between the age groups regarding emergency room response.

Attempter behavior was rated at the time of admission. Significantly more (χ^2 test, $p < .02$) adolescents (88%) were rated as quiet, while 73% of the adults were rated as quiet. Similarly, 85% of the adolescents were observed by emergency room personnel as cooperative, while only 71% of the adults were observed as cooperative ($p < .05$). More than

Table 2–1
Study Population Characteristics

Characteristics	Adolescent (12–19) N	%	Adult (20 & Older) N	%	Total Sample N	%	
Age:							
12–14					33	17.0%	
15–19					63	32.5%	
20–24					34	17.5%	
25–34					33	17.0%	
35–44					23	11.9%	
Over 45					8	4.1%	
Sex:							
Male		24%		38%	60	30.9%	
Female		76%		62%	134	69.1%	
Ratio Females:Males		3.1:1		1.6:1			Percent o Total Pop
Community of Residence:							
#1		28%		50%	76	39.2%	22%
#2		26%		12%	37	19.1%	21%
#3		10%		8%	18	9.3%	17%
#4		34%		28%	60	30.9%	40%
Off reservation		1%		2%	3	1.3%	100%
Living arrangements:							
Married with partner		0%		22%	22	11.3%	
Separated/divorced		0%		3%	3	1.5%	
Living with partner		2%		31%	32	16.5%	
Single		14%		44%	56	28.9%	
Under 18 with parent		66%		0%	63	32.5%	
Under 18 without parent		15%		0%	14	7.2%	
Other		4%		0%	4	2.1%	
Work status:							
Employed full-time		0%		14%	14	7.2%	
Part-time/seasonal		2%		12%	14	7.2%	
Unemployed		21%		70%	88	45.4%	
Student		77%		4%	78	40.2%	

three fourths of all attempters were regarded as quiet and cooperative once they arrived at the hospital emergency room.

The attempters' homes were the most frequent locations of all suicide attempts (82.5%). This was followed by other homes (11.3%) and outdoors within the community (5.2%). No differences in location were observed between age groups.

Drug or alcohol usage by the attempters within the 4-hour period prior to the attempt was assessed (this did not include drugs or alcohol as the actual method of attempt). Significant differences (using χ^2 test, $p < .01$ and Pearson r) were found between age groups. Seventy percent of the adolescent attempters consumed *no substances,* while only 24% of the adults consumed *no drugs or alcohol* prior to the attempt.

The most frequent method of attempt for the study population was pills (prescription, nonprescription, or combination) used by 80.4% of the population. While no significant differences were evident, adult attempters (20%) had a greater tendency to use nondrug methods (sharp instrument, gun, auto, hanging) than did adolescents (7%).

Forty-seven percent of the total population reported at least one previous suicide attempt. The average number of previous attempts was .95. Sixty-nine percent of the adolescents had no previous attempts, while only 38% of the adults had not previously attempted suicide. There were significant differences ($p < .01$) using Pearson r and F tests between the age groups.

During the majority of attempts (80%), at least one other person was present (within earshot) either directly or in the immediate vicinity. No differences emerged between age groups regarding vicinity of other persons.

The timing of nearly three fourths of the attempts was such that intervention and disruption of the suicide by another person was probable. There were no differences between the age groups regarding timing of the attempt for possible intervention.

Attempters were interviewed regarding precautions they made *against* discovery of the attempt. Just over half (53.5%) engaged in passive precautions against discovery (e.g., went into a separate room; failed to lock the door, did not hide sounds). Forty percent engaged in no precautions against discovery (e.g., informed others, attempted in full auditory or visual range of others). While no differences were seen between the age groups, adolescents appeared more passive (indifferent) about being discovered than adults.

The majority of all attempters (64.2%) told another person during or after the attempt as an act of self-preservation. Adolescents were significantly more active than adults to tell others about a failed attempt (χ^2 test, $p < .01$).

The majority of attempters (85.5%) engaged in no final acts of preparation for death (e.g., going to confession, giving items away, saying

goodbye to others). No differences between age groups were apparent in this regard. The majority of attempters (91.1%) did *not* leave a suicide note. Adolescents demonstrated a slightly greater tendency to leave a note than adults.

Attempters were asked to share their perception of the lethality of their method of attempt. The majority appeared confused (68.8%) and explained that they felt "uncertain" whether or not the method used would result in their death. This was followed by 9.9% who thought the attempt would *not* cause their death, and 11.3% who were *certain* the attempt would cause their death. Adolescents and adults did not differ significantly.

Nearly three fourths (75.3%) contemplated the suicide attempt for less than one hour. The period of contemplation for adolescents and adults appeared equal.

Table 2 summarizes a comparison of motivation both at the time of the suicide attempt and 24 hours later.

Table 2–2
Comparison of Patient Motivation at Time of Attempt and 24 Hours Later n = 194

Motivation	At attempt n	%	24 hours later n	%	
Not wish to die	51	27.4%	95	50.8%	increased 23.4%
Uncertain	110	59.1%	88	47.1%	decreased 12%
Wanted to die/regrets living	25	13.4%	4	2.1%	decreased 11.3%
Not available	8		7		

At the time of the attempt, 27.4% of the individuals in this study indicated that they "did not wish to die"; 59.1% indicated "uncertainty"; and 13.4% "wanted to die." After 24 hours, the persons indicating they did not wish to die increased by 23.4%, while those who were uncertain decreased by 12%, and those who regretted living decreased by 11.3%. After 24 hours, 62% of the adolescents stated they "did not wish to die," compared to only 41% of the adults who made similar statements. Adolescents appeared to rebound in a positive direction more quickly ($\chi^2 = p < .02$) than did adults.)

Table 2–3 provides a comparison of stressors experienced by individuals prior to their suicide attempts. Significant differences were observed between the age groups. Sixty-three percent of the adolescents listed "relationship problems with family," followed by 27% who reported "relationship problems with a partner." This appeared significantly different from 54% of the adults, who listed "relationship problems with a partner" as the main stressor, followed by 50% indicating "relationship problems with family" ($\chi^2 = p < .01$).

Table 2–3*
Comparison of Age Group by Stressors
Prior to Attempt (N = 190)

Stressor present	12–19 yrs (n = 96) %	20–60 yrs (n = 94) %
Relationship problems with partner (boyfriend/girlfriend or spouse)	27%	54%
Relationship problem with family	63%	50%
Other relationship problems	17%	2%
Loss due to death	3%	12%
Health/physical disability	0%	0%
Mental confusion	7%	14%

* Note. Attempters may have indicated more than one stressor, therefore, totals exceed 100%.

χ^2 values for all stressors ranged from 3.45 to 14.65, significant differences between the groups at $p = .01$ level were reflected for all items.

After the initial evaluation, support personnel made appointments, but 39.7% of the subjects failed to have any subsequent contact with support personnel. Nearly one fifth (18.5%) of subjects made only one follow-up contact with support personnel. The average number of therapy contacts was 1.96 per attempter. There were no differences between age groups.

When evaluating the participation of attempters in a violent episode (an experience where someone was hit or purposely injured), the number of attempts that indicated victimization in one or more episodes (22.2%) outnumbered perpetration of one or more episodes (3.6%) by a ratio of 6:1. These data, while suggesting a tendency for suicide attempters to be victims (as opposed to perpetrators of violent episodes) must be regarded with caution. These data were based entirely on attempter self-report covering a lengthy period of time. Attempters appeared more open in discussing their suicide attempt and less open in discussing participation in violent episodes. There were no differences between age groups.

Protocol evaluators completed a checklist identifying their perception of attempter motivation with each suicide attempt. The most common motivation perceived was "to get away or escape stressors" (39.2%). In descending order of frequency, other motives included "to punish or get back at someone else" (36.1%), to gain attention/help/nurturance (20.6%), to "want to end his/her life" (18%), and to want "to punish self" (10.8%). Fully 8.8% of those attempting suicide appeared to be making

an impulsive decision without considering the consequences of their actions.

Adolescents appeared to display significantly greater motivation to "escape/get away" ($\chi^2 = p < .07$) or "act on impulse" than adults ($\chi^2 = p < .01$). Adults tended to be more motivated to end their lives ($\chi^2 = p < .01$) or to be suffering from mental confusion than adolescents ($\chi^2 = p < .01$).

Item analysis of seriousness-of-intent scores were completed. The summed seriousness-of-intent scores were correlated with each of the items contained within the seriousness-of-intent group, as well as other protocol items.

Table 2–4
Item Correlations with Summed Seriousness of Intent Scores

Item	Pearson *r*
Timing of the attempt to reduce intervention	.43
Precautions against discovery	.44
Acts of self-preservation	.46
Final acts in preparation for death	.50
Suicide note left	.43
Attempter perception of lethality of attempt	.57
Intent expressed at time of the attempt	.60
Length of premeditation before attempt	.49
Attempter motivation 24 hours after attempt	.38
Emergency room response required	.21

Table 2–4 summarizes Pearson *r* correlations with seriousness-of-intent sums. Item correlations with the total seriousness-of-intent scores ranged from .21 to .60 and were each significant ($p < .01$).

Table 2–5 summarizes the comparative statistics between the adolescent and adult attempter groups. Seven out of the 10 items used to calculate the total seriousness-of-intent score indicated no significant differences between adolescents and adults. Three of the items were significant at the $p < .01$ level using the χ^2 test of significance.

Comparative Analyses of Data

Cross tabulations and analysis of variance studies yielded other significant trends among the attempters.

When comparing the sexes, females tended to be living more at home with family at the time of the attempt. In comparison to their male counterparts, they tended to attempt more from 2 p.m. to midnight, to use

Table 2–5
Summary of Items Indicating Significant Differences between Adolescents and Adults N = 194

Item	χ^2 Probability	Pearson *r*	Description
Community of residence	.02	.13	More adults from "traditional" community (50%).
Sex differences attempts	.04	.14	Female adolescents to male adolescents attempt ratio 3.1:1. Female adults to male adults ratio 1.6:1.
Time of attempt	.01	.16	6 p.m. to midnight (41%) and noon to 6 p.m. (32%); adults attempt more 6 p.m. to midnight (37%) and midnight to 6 a.m. (35%).
Time of admission after attempt	.01	.22	Adolescents more from 6 p.m. to midnight (47%); adults more from midnight to 6 a.m. (38%).
Transportation to emergency room	.01	.20	Adults mostly transported by ambulance (80%); adolescents transported both by ambulance (45%) and by family (35%).
Behavior at time of admission	.02	.11	Adolescents tended to be more quiet (88%) than adults (71%).
Cooperative attitude at admission	.05	.14	Adolescents tended to be more cooperative (83%) than adults (71%).
Drug/alcohol consumed by attempter in 4-hour period previous to attempt	.01	.46	Adolescents tended to use nothing (70%), compared to adults (24%).
Number of previous attempts	.01	.38	A greater number of adolescents had no previous attempts (69%) than adults (38%).
Notification of others about attempt	.10	.15	Fewer adolescents told no one (18%) than adults (31%). More adolescents told someone (81%) than adults (69%).
Patient recovery 24 hours after attempt	.02	.22	More adolescents indicated they did not wish todie (62%) 24 hours after attempt than adults (41%).
Emergency room response required	.01	.15	Adults tended to require more serious life-saving procedures (16%) than adolescents (6%).

Table 2–5 (Continued)
Summary of Items Indicating Significant Differences between Adolescents and Adults N = 194

Item	χ^2 Probability	Pearson *r*	Description
Stressors prior to attempt	.01	.18 to .34	Adolescents indicated more frequent "problems with family" (63%) than adults (50%). Adults indicated more problems in relationships (54%) than adolescents (27%)
History of alcohol use by attempters	.01	.43	Adults tended to more chronic use of alcohol. More adolescents indicated alcohol non-use (20%) than adults (4%).
History of marijuana use by attempters	.01	.35	Fewer adults tended to have a history of any marijuana use (65%) than adolescents (34%). But more adults tended to use marijuana daily (10%) than adolescents (1%).
Perceived motivation for attempters by evaluator	.01 to .07	.14 to .24	More adolescents appeared motivated to "escape" (46%) than adults (33%); more appeared "impulsive" (16%) than adults (2%); more adults appeared motivated to end his/her life (27%) than adolescents (9%); and more adults appeared to suffer from mental confusion (13%) than adolescents (2%).

Items where no significant differences were observed between adults (20-60 years old) and adolescents (12–19 years old) included:

1. Day of attempt
2. Location of attempt
3. Method of attempt
4. Someone else present at time of attempt
5. Intervention timing of attempt*
6. Precautions against discovery*
7. Final acts in preparation for death*
8. Suicide note left*
9. Patient-perceived lethality of attempt*
10. Patient-verbalized motivation for attempt*
11. Premeditation before attempt*
12. Number of follow-up contacts with mental health professional
13. Previous (1 month) participation in violent episodes
14. Overall seriousness when comparing adolescent groups (ages 12-19) to the adult group (20–60). The subgroup ages 15–19 was the second largest in overall seriousness of intent. The group 12–14 was significantly lower than other groups

* Note. *Indicates items used in calculating seriousness-of-intent scores. No significant defferences were calculated between adolescents and adults for 7 out of 10 items used to calculate serioness of intent.

pills more as a method of attempt; to have more problems with family, to be victims of previous violent episodes, to exhibit less chronic use of alcohol, and to have slightly more frequent use of marijuana ($\chi^2 = p < .02$).

Males tended to take fewer active precautions against being discovered ($p < .01$). Males also tended to feel more certain their actions would cause their death ($p < .06$), to consume alcohol/drugs within the 4-hour period prior to the attempt ($p < .01$), and to use more frequently the "lethal means" in their attempts (e.g., knife, gun, or hanging) ($p < .01$).

Cross-tabulations of all items by living arrangements of the attempters were completed. Single persons over the age of 20 tended to use more alcohol/drugs prior to the attempt and tended to have more previous attempts. Persons under the age of 19 and living with family tended to have family transport them more frequently to emergency services; appeared to be more impulsive in their attempt decisions, and tended to list more problems with their families. Single and divorced or separated persons tended to have the highest overall seriousness-of-intent score.

Other trends were noted in the data. Those who tended to be more noncooperative at the time of admission to the emergency room also were more likely to have consumed alcohol or drugs, employed lethal methods, made definite or partial plans prior to the attempt, regretted being alive 24 hours after the attempt, and had higher perceived motivation to end his or her life.

Generally, persons using more lethal methods in their attempts tended to be at greater risk or scored higher on each of the items indicating seriousness.

Generally, persons with more than one suicide attempt tended to score higher on each of the individual seriousness-of-intent items as well as on their total seriousness-of-intent score with each subsequent suicide attempt. (A greater number of attempts tended to suggest greater seriousness of intent.) Repeat attempters were also perceived by emergency room personnel as less cooperative and more agitated at the time of admission. About three fourths of the attempting population tended to increase their overall seriousness-of-intent score with each subsequent attempt, but the remaining one fourth of repeat attempters stayed the same or appeared to decrease their overall seriousness with each subsequent attempt.

The motivation for the one third with decreased seriousness with each attempt appeared to be less to end their lives and more to perhaps create an effect, increase personal power, or to manipulate others.

Generally, persons using substances tended to be less quiet, more agitated, more noncooperative with emergency room personnel, and more likely to score higher on each of the seriousness-of-intent items. Persons who thought their method of attempt would result in their death tended to score higher on each of the seriousness-of-intent items.

Table 2–6 compares the eight near completions to the four completed suicides within the 5-year period studied. (Near completions were defined as suicide attempts where circumstances existed that should have resulted in death.) Results indicated a high degree of similarity between the profiles of near completions to completions. The overall average seriousness-of-intent score for the near completion group was 21.2, slightly less than the completion group at 22.

One hundred percent of the completion group was considered serious (score of 16–30), 87.5% of the near completion group were serious, and 40.1% of the total group were scored as serious with intent.

Discussion

Attempter Characteristics

The 5-year study of suicide attempts for the reservation yielded results similar to those of the general U.S. population. However, the 5-year annual attempt rate average of 38.8 attempts per year (1,021 per 100,000) is at least twice the national average (Indian Health Service, 1988). The descriptive data on attempts suggested the age group with the most frequent attempts was ages 15-19; adolescents were nearly double that of any other age group. Female attempters outnumbered male attempters by a ratio greater than 2:1. These data are consistent with Shore's (1975) findings that females tend to attempt more frequently than males. The communities perceived at opposite ends of the continuum of traditionality had significantly higher attempt rates per population. Of the four communities, the community labeled most traditional (consistent with historical Ojibway life-styles) tended to have the majority of adult attempts, while the least traditional (most acculturated and cross-culturally influenced) possessed the greatest number of adolescent attempters. This is consistent with tribal elders' discussions that blame cultural confusion for self-destructive behavior among adolescents. Likewise, following Durkheim's (1951) theory of anomie, it suggests a separate class of suicide victims who simply could not adjust to social changes and perhaps had a sense of chronic alienation. Amount of formal education did not appear to be an influential factor.

When examined by living arrangements, the most frequent attempt group was adolescents living with a parent, followed by single adults. Historically, single adults are at highest risk of suicide. Adolescents appeared to rival single adults in this setting.

The greatest portion of attempts occurred on a Saturday, with 41% recorded between three days prior to the end of the month and the first five days of the month. This period coincides somewhat with the receipt of monthly welfare checks.

Table 2–6
Comparison of Suicide Completions to Near Completions

Item	ResponseCategories	Suicide Completions	Near Completions
Total		4	8
Age range in years		20–43	14–43
Mean age		35.35	27.88
Sex	Males	75%	75%
	Females	5%	25%
Location of attempt	Patient's home	50%	75%
	Outdoors, within community	50%	12.5%
	Outdoors, away from community	0%	12.5%
Drugs/Alcohol consumed within 4 hours previous	Alcohol only	50%	50%
	None	0%	37.5%
	Pills only	25%	0%
	Alcohol & marijuana	25%	12.5%
Primary method used	Rx pills	25%	0%
	Non-Rx pills	0%	0%
	Combination of pills	0%	0%
	Sharp instrument	0%	12.5%
	Gun	25%	37.5%
	Auto	0%	0%
	Hanging	50%	37.5%
	Other (jumping)	0%	12.5%
Others present at time of attempt	Yes	25%	75%
	No	75%	25%
Attempt timing for possible interruption by others	Intervention probable	25%	0%
	Intervention unlikely	75%	100%
Precautions against discovery	None	0%	12.5%
	Passive	25%	50%
	Active	75%	37.5%
Actions for self-preservation	Notified at least one person	0%	50%
	Notified no one	100%	50%

Table 2–6 (Continued)
Comparison of Suicide Completions to Near Completions

Item	ResponseCategories	Suicide Completions	Near Completions
Final acts in preparation for death	None	25%	50%
	Definite/partial plans	75%	50%
Suicide note left	None	25%	75%
	Destroyed or found	75%	25%
Lethality	Thought would not cause death	Not determinable	0%
	Uncertain	Not determinable	25%
	Thought would cause death	Not determinable	75%
Stated intent by attempter	Didn't want to die	Not determinable	12.5%
	Uncertain	Not determinable	25%
	Wanted to die	Not determinable	62.5%
Premeditation	Less than 1 hour	Not determinable	50%
	Less than 1 day	Not determinable	50%
	More than 1 day	Not determinable	0%
Postattempt reaction 24 hours later	Glad to be alive	Not determinable	75%
	Uncertain	Not determinable	25%
	Regrets being alive	Not determinable	0%
ER response required	Minor medical procedures	0%	25%
	Serious lifesaving procedures	100%	75%
Patient stressors	Relationship problem with partner	50%	50%
	Relationship problem withfamily	25%	37.5%
	Mental confusion	50%	37.5%
Substance abuse history	Dependent alcohol use	75%	100%
		25%	0%
Perceived motivation of attempter	To end one's life	75%	87.5%
	To punish/get back	25%	50%
	To gain power/control	12.5%	25%
	Impulsive decision	0%	12.5%
	Mental confusion	12.5%	12.5%
Range of 10-item seriousness scores		16–26	13–26
Mean overall seriousness score		22	21.2

Emergency Room Characteristics

The study yielded several insights relevant to emergency room personnel. The most frequent mode of transportation to emergency room facilities was by ambulance. Attempter behavior at the time of emergency room admission suggested a generally compliant patient population. The majority of attempters appeared quiet (nonagitated and nonaggressive) at the time of admission. Seventy-seven percent were perceived by emergency room personnel as cooperative. The majority of attempters required only minor medical procedures (e.g., bandages, sedation, stomach pump, Ipecac syrup), while nearly 11% required serious lifesaving medical procedures (e.g., immediate transport to another facility, surgical procedures to stop bleeding, resuscitation, life support, or neutralizing IVs).

Attempt Characteristics

A majority of suicide attempts took place in the individual's home. A bimodal distribution was evident in terms of drug or alcohol use in the 4-hour period prior to the attempt. The largest group did not use any substances (46.1%). Such a high rate of *nonusage* of alcohol or drugs prior to the attempt is much *greater* than suggested by previous studies (Thompson & Walker, 1990).

The most frequent method of suicide attempt involved the use of pills; this is largely consistent with results found in the general population. The "other category" representing atypical methods of attempts is significantly higher than previous research suggests; these methods (e.g., eating glass, ingesting caustic substances, jumping from heights) are not certain to result in death and may increase the risk of elongated, painful, or debilitating consequences. Selection of these methods could suggest a clear desire to punish oneself or could reflect an ambivalence in one's motivation to die. This group also may illustrate Menninger's (1938) "wish to kill group, where rage takes the extreme form of aggression turned ultimately on the self."

Slightly over half of attempters had no history of previous attempts, while one fifth had a history of two or more previous attempts. Those with one or more previous attempts were slightly higher than indicated by Claymore (1988).

When the number of previous attempts increased and were correlated with overall seriousness scores, a splitting of groups tended to occur. Seriousness of some of the attempts appeared to increase as the number of previous attempts increased. This does not hold true for a substantial segment (about 24%) of the study population. The latter group may illustrate the motivation identified by Shore (1975), suggesting that

43% of attempters appeared action-directed at altering an important interpersonal relationship.

More than 80% of the subjects in this study had at least one other person present (within the house or the immediate vicinity) at the time of the attempt. Thirty-four percent indicated a parent/guardian was present or in the vicinity at the time. These data suggest either a motivation (unconscious or conscious) to have someone intervene and prevent their death or a bias because of the large number of adolescent attempts within their own home. The large percentage of adolescents attempting suicide suggest simply having parents more available, or it may reflect attempts to send an important message to parents. These data tend to support Klagsburn's (1976) notion of suicide as an attempt at communication, perhaps directly aimed at parents.

Relationship problems with family members made up the largest category of stressors prior to the attempt. The second largest category was relationship problems with a partner of the opposite sex. Family or relationship stressors appeared to clearly precede attempts for the majority of attempters. Family disruption or lack of family connectedness (Durkheim, 1951; Haim, 1970; Patros & Shamoo, 1989) are common to the circumstances reported by individuals in this study.

Nearly one fourth of the attempters indicated participation, as either a victim or a perpetrator, in a violent episode within the 1-month period prior to the attempt. These data support the existing literature that characterizes the suicide act as a continuation of self-oppression. A mindset of or previous experience with victimization may encourage the self-perpetration described by Menninger (1938). Conversely, the low percentage of attempters who perpetrated violence may suggest the presence of unique, internalized suicide prèvention or protective resources requiring further study.

Attempter motivations were complex and multifaceted. The most frequently perceived motivation was to "get away," or escape, from stressors, similar to reports by Schneidman (1985). This was followed by the perceived need to punish, or "get back" at someone else, to gain power or control, and to gain attention, help, or nurturance (manipulation) (Shore, 1975). Only 18% of attempters were perceived as actually having motivation to "end his/her life."

After the recorded attempt, nearly 40% of the attempters failed to show up for preset appointments with support personnel. This suggests that suicide attempters are a difficult and perhaps avoidant patient population for mental health professionals. Noncompliance with therapy contacts could suggest the employment of defense mechanisms (repression, suppression, or denial), embarrassment with or avoidance of the suicide event, or "continued constriction" (Schneidman, 1985), serving to further avoid therapy as an acceptable alternative. The need for new and more

creative follow-up therapeutic strategies in contacting attempters is evident in current postintervention efforts.

Hypothesis I

Ten attempter characteristics were examined and summed to determine an overall seriousness-of-intent score. The total population yielded an average score of 15, which is within the moderately serious range. More than 40% of the attempters achieved scores in the extremely serious range. Item-to-total seriousness scores correlated significantly ($p < .05$), with a Pearson r ranging from .21 to .60.

The characteristics least predictive of overall seriousness of intent were emergency room response required (Pearson $r = .21$) and attempter reaction 24 hours after the attempt ($r = .38$).

The items that most strongly predicted overall seriousness of intent were verbalized motivation (intent) at the time of the attempt ($r = .60$) and perceived lethality of the attempt ($r = .57$).

Nearly three fourths of the attempters told someone about their actions during or after the attempt. The large majority of attempts included no final acts in preparation for death. More than 90% did not leave a suicide note. Those telling no one or leaving a note tended to have greater overall seriousness-of-intent scores.

More than two thirds of the attempters stated that they were uncertain if the attempt would actually result in their death. About one fifth thought the attempt would not result in death. The data regarding perceived lethality suggests much misinformation or ambivalence regarding attempt outcomes. These behaviors could be a function of the lack of understanding regarding lethality of method (primarily drug dosage levels and toxicity), self-designed ambivalence as a means of shedding responsibility (casting one's fate to the wind), or passively protecting the self. It could reflect the presence of conscious or unconscious dynamics that cognitively avoid or constrict, thereby protecting the attempter from harsher, more lethal methods. Those certain of the lethality of their suicide attempt method tended to have higher seriousness-of-intent scores.

For the majority of the study group, suicide attempts appeared largely impulsive, with three fourths contemplating the attempt for less than 1 hour prior to taking action. Generally, the longer the period of contemplation, the greater the overall seriousness of intent. The attempter with shorter premeditation time poses difficulties for mental health providers because of the reduced "window of opportunity," or time period to prevent the suicide attempt.

An overall seriousness-of-intent score was summed from the variables of patient motivation (a) not to die, (b) uncertain, or (c) wish to die. Motivation of the attempter at the time of the attempt expressing a "wish to die" appeared to have the highest correlation with the overall

seriousness-of-intent sum of all of the variables (r = .60). Nearly two thirds reported uncertainty about wanting to die; over one fourth did not wish to die. However, those stating that they "wished to die" tended to have the highest correlation with and the highest overall seriousness-of-intent score. Other variables at the time of the attempt need to be studied.

A "cooling off" period as brief as 24 hours appears to provide some opportunity to reduce overall seriousness of intent for those who are ambivalent about dying. However, it does not appear to affect significantly those initially motivated to "want to die." The persistence of the "wish to die" illustrates the narrowness and rigidity of thinking of suicide as a solution (as postulated by Klagsburn, 1976, and Schneidman, 1985).

Individuals' responses 24 hours after a suicide attempt was the second *least predictive* variable of overall intent. Mental health professionals should realize that an apparent spontaneous, self-protective rebound in motivation does not necessarily suggest a reduction in future risk for suicide. Without change in other predisposing factors, a self-protective rebound may be only short-lived, thus continuing the risk of future suicide attempts.

Required emergency room procedures appeared to be *least predictive* of overall seriousness of intent. These data serve notice to therapists that the emergency or medical responses required after a suicide attempt do not predict as accurately as other variables an attempter's overall seriousness of intent. The need for only minimal or no medical procedures *should not* encourage mental health professionals to become relaxed regarding future suicide attempts.

Generally, as attempter characteristics were rated more extreme or severe, the greater the association became with the overall seriousness of intent. Each of the 10 variables correlated positively and significantly with overall seriousness of intent. Hence, this hypothesis was supported.

Hypothesis II

The second hypothesis that guided this study sought to determine if significant differences existed among various dimensions of seriousness of intent for adolescent and adult attempters. Comparisons of all variables between these two age groups yielded both differences and similarities. Because many separate variables were tested and yielded significant differences, it should be noted that some of the differences may be due to chance.

Nearly half of all the suicide attempts in the 5-year study were by adolescents (ages 12–19). This represented a substantial increase for teenage attempts within the reservation community when compared to previously documented hospital records. The adult American Indian male

population within the reservation studied appears more prone to suicide attempts than the population nationwide.

Adolescents appeared to be more bound by time constraints during the waking hours of the reservation community, indicated by the large number of attempts occurring during typically awake hours. The period of time with the least risk for both groups was 6 a.m. to noon. Time of admission for emergency assistance followed similar intervals for both groups.

Of the 10 items used to calculate overall seriousness of intent, the adolescents did not significantly differ from adults on 7. No differences between the age groups were found in regard to timing for possible intervention, precautions against discovery, final acts in preparation for death, leaving a suicide note, attempter perception of lethality of the attempt, attempter verbalized motivation (intent) for the attempt, and period of contemplation (premeditation) before the attempt.

There were differences between the age groups regarding notification of others about the attempt: More adolescents told someone than did adults. Adolescents appeared to recover more quickly after the attempt. This may be a function of adolescents having a history of fewer previous attempts. The data suggest that adolescents may have been more impulsive at the time of the attempt than adults or that the gravity of consequences became clear to adolescents only after the attempt. Within the 24-hour period after attempt, adolescents may progress more rapidly from naïveté to an understanding of the finality of their own death and the culture's disapproval of taking their own lives (as referred to by Haim, 1970). Conversely, the adolescents simply may be engaging in another reactive, impulsive, or naive manipulation of their world that now suggests, temporarily, suicide is not an alternative. They may be mirroring the nonapproval of suicide projected by family or helping professionals with a sense of noninternalization or pseudomaturity. Mental health personnel must regard with caution the stability of adolescent contentions that they are "glad to be alive," particularly if the contention is not internalized or if there is an absence of internal mechanisms of self-control.

Adolescents required significantly fewer serious, lifesaving emergency room procedures than adults. Overall seriousness-of-intent scores did not differ between adolescents (ages 12–19) and adults (ages 20–60). The 15- to 19-year-old group appeared as serious in their intent as the 20–34 adult age groups. The 20- to 34-year-old group tended to possess many suicide characteristics similar to the 15- to 19-year-old adolescents. This suggests the possibility of adolescent developmental delay extending into adulthood. Consequently, the second hypothesis was not supported by these findings. There appeared to be few significant differences between American Indian adolescents and adults in this study regarding seriousness of intent. Overall, gender appears to introduce greater differences in this regard than does age.

Additional Differences Between Adolescents and Adults

Previous studies have tended to report a strong association between drug or alcohol use and increased risk of suicide attempts for the American Indian/Alaska Native population. However, this study suggested that a substantial number of adults (38%) and a majority of the adolescents (70%) consumed *neither* in the 5-hour period prior to the attempt. The notion perhaps existed that the thought processes of those who attempt suicide, including American Indians and Alaska Natives, are confused or disinhibited by drugs or alcohol. As a result of this past logic, chemical dependency treatment has been the most common and frequently the only follow-up plan of treatment for attempters. It is important for mental health professionals to note that many adults and most adolescents may be sober and not under chemical influence when deciding to attempt suicide. Strategies to understand the factors in attempter decision making must be developed if effective prevention of suicide is to occur.

Relationship problems were key stressors for both age groups prior to suicide attempts. These data reflected important information for mental health professionals. Relationship skills (e.g., listening, asserting, problem solving, resolving conflict, nurturing, parenting, and evaluating family systems) appear critical to a comprehensive prevention or follow-up effort.

A final area of significant differences between the age groupings is evident in the motivation for the suicide attempt. More adolescents appeared motivated to escape from stressors than adults. Adolescents appeared more impulsive "without considering consequences" than adults. Adults appeared more motivated "to end his/her life" than adolescents and appeared to suffer more from mental confusion than adolescents. Overall, adolescents appeared both more impulsive and avoidant in their motivations, while adults appeared more motivated to end their lives.

Gender Differences

This study revealed that adolescent females made up the substantial majority of the reservation population that attempted suicide. Significant differences in attempter characteristics emerged between females and males. More females attempted suicide than males. Females tended to be living at home more with family at the time of the attempt than males; this suggests the possibility of unique female developmental frustrations, family difficulties in connectedness, or communication problems within the family. Females tended to list "problems with family" more than males. Their self-destructive acts occurred most frequently from 2 p.m. to midnight. They also tended more than males to be victims in previous violent

episodes. While females tended to indicate less chronic use patterns of alcohol, they tended to have slightly more frequent use of marijuana.

Males tended to be more serious in their suicide attempts than females; they outnumbered females both in completions and near completions by a ratio of 3:1. Males tended to take fewer active precautions against discovery of their attempts but tended to feel more certain their actions would result in death. Males tended to use slightly more frequently the more lethal methods in their suicide attempts (e.g., knife, gun, or hanging) and were more likely to consume alcohol or drugs in the 4-hour period prior to their attempts. The gender-related trends must be considered in an effective follow-up therapeutic effort. Each gender group tends to possess unique variables that may render each uniquely vulnerable to future attempts.

The large portion of adolescent attempters, specifically adolescent females, underscores the need for further research into the developmental issues of adolescence (e.g., biochemical, psychosocial, and psychosexual) that appear substantially different from adults. Further investigation into the status of adolescent females (e.g., self-worth, sexual worth, belonging, power, victimization, and future opportunities) also is warranted. Suicide attempts, indeed, may be a frustrated effort to communicate, to reconnect, or to redefine relationships.

Four Theoretical Suicide Types

Factor analysis (using a PC totaled factor matrix format) of the attempters within this 5-year study revealed the following four theoretical sets of suicide characteristics. The variables included in the factors are illustrated in Table 2–7:

Table 2–7
Factor Analysis of Seriousness of Intent Variables*

Variables	Factor 1	Factor 2	Factor 3	Factor 4
Final acts	.82			
Premeditation	.73			
Suicide note	.68			
Consumed substances	.40		–.35	
Lethality		.71		
Stated intentions		.69		
Motive/end life		.61		
Emergency room		.51		–.39
Attitude 24 hours later		.36	–.35	
Cooperative/ER			–.81	

Table 2–7 (Continued)
Factor Analysis of Seriousness of Intent Variables*

Variables	Factor 1	Factor 2	Factor 3	Factor 4
Aggressive/ER			–.76	
Precautions				–.72
Interventions				–.66
Preservation acts				–.51
Eigen values:	2.63	1.97	1.43	1.28
Pct. variable	17.5%	13.2%	9.5%	8.6%

* Note. Factor analysis was completed using the PC factor rotation extraction method. Any variable with a correlation of less than .30 was eliminated.

Group 1: "The Ruminating Planners" characterizes attempters with a focus on planning in preparation for death, premeditating for more than 1 day, writing suicide notes, and self-medicating with alcohol or drugs prior to the attempt. This group tends to include more young adults, ages 20-44, with very serious intent scores. It also includes individuals whose thoughts prior to the attempt appeared to focus heavily on suicide as both a solution and as a communication to others, as suggested by Klagsburn (1976).

Group 2: "The Want to Dies" are those with the greatest overall seriousness of intent. Their characteristics include high lethality of attempt (belief that the attempt would cause death), the stated intent to want to die, motivation perceived by mental health professionals to end life, the requirement of serious lifesaving medical procedures to preserve life after the attempt, and continued regret or uncertainty 24 hours after the attempt. This group tends to include adults ages 20-44. This highest risk group perceives death narrowly as a solution (Klagsburn, 1976) and is the most resistant and oppositional to postintervention efforts by mental health personnel. Some of the best security efforts (e.g., inpatient settings, involuntary commitment) are in order for this group but may prove ineffective. These persons appear to have made the fundamental decision to die and to accept death as a solution. They have completed a process that isolates them from others and have distanced themselves from the future. After a failed attempt, they may appear hollow, empty, frustrated, and without purpose. The therapy process would by necessity need to be highly structured and lengthy yet has the poorest prognosis for favorable outcome.

Group 3: "The Confused Reactives" encompasses suicide characteristics that include no substance use prior to the attempt, passivity, nonagitated emotions or nonaggressive behaviors, cooperation with emergency room personnel after the attempt, more minor emergency

room procedures required, and a feeling of "glad to be alive" 24 hours after the attempt. This group is largely female and adolescent, ages 15-19. These persons tend to be naive, impulsive, and ambivalent about dying. They may have not thought through suicide consequences clearly. They appear uncertain about and not committed to suicide as a solution; many experience both relief and confusion after the attempt. Survival of the attempt may produce its own future deterrent if family or mental health personnel do not inappropriately reward the attempt behavior. This group appears most willing to pursue therapy; with the lowest seriousness of intent, such individuals appear to have the best prognosis of all.

Group 4: "The Manipulating Ambivalents" combine the characteristics of willingness to have the attempt discovered by others, timing so that intervention is likely, actions to notify during or after the attempt, and only minor emergency room procedures needed after the attempt. This group also tends to have a lower overall seriousness-of-intent score, to be female and to involve others to rescue or to intervene. There is much potential for this type to manipulate and experience rewards for their behavior, such as punishing others, receiving immediate nurturance from others, or gaining power and control. Because of such incentives, it is more difficult to predict a positive prognosis through prevention therapy. The mind-set of this type is "apparent victim" with clear opportunities prior to and during the attempt for others to rescue the "victim." This individual may attempt to gain something by initiating more future attempts. She/he is likely to be noncompliant or avoidant of therapy, noncommunicative, and generally resistant to intervention efforts. These persons may refuse to forgo suicide as an alternative unless more appropriate nurturance, control, or bonding alternatives are acknowledged.

Comparisons of Attempts to Completion and Near Completion Group

Postmortem reviews of medical/psychological files and interviews with family members and friends were conducted for the four suicide completions in the 5-year study. This effort was greatly limited by the small sample size. Results indicated a high degree of similarity between the completion (n = 4) and the near completion (n = 8) groups. The completion group (r = .83) and the near completion group (r = .81) correlated much higher with the seriousness-of-intent score than did the overall sample (N = 194; r = .45) in the study. These data support the construct validity of the seriousness-of-intent variables as they pertain to suicide completions. The designed protocol and methodology appear to have good predictive validity for suicide completions.

General Conclusions

Implications for Postintervention Professionals

Medical and mental health professionals developing treatment plans need to take into consideration the variability and variety of characteristics and behaviors of attempters prior to and after each suicide attempt. These variables may predict which type of prevention strategy will have the greatest degree of success. For example, attempters with low seriousness of intent, lack of cooperation, and a high degree of manipulation (e.g., motives to punish, control, gain attention) might be restricted to an inpatient setting without significant positive reinforcers (e.g., family visits, friend visits, overnurturance from medical staff, entertainment privileges) to reduce the cognitive/behavioral connection with rewards for suicide attempts.

In another example, individuals with a high seriousness-of-intent score who use lethal methods and who regret being alive may require a more highly structured, extended, and secured inpatient setting, therapy focus on rapport building, loosening of cognitive constrictions, and continuous preventive intervention.

This study indicates that American Indians and others who attempt suicide can be evaluated on a continuum reflective of seriousness of intent. It also suggests at least four groups of "suicide types." These types, along with near completions and completions, may exist at different locations along the continuum previously noted. Figure 2–1 summarizes possible locations on this continuum as related to motivation and rewards for the attempt.

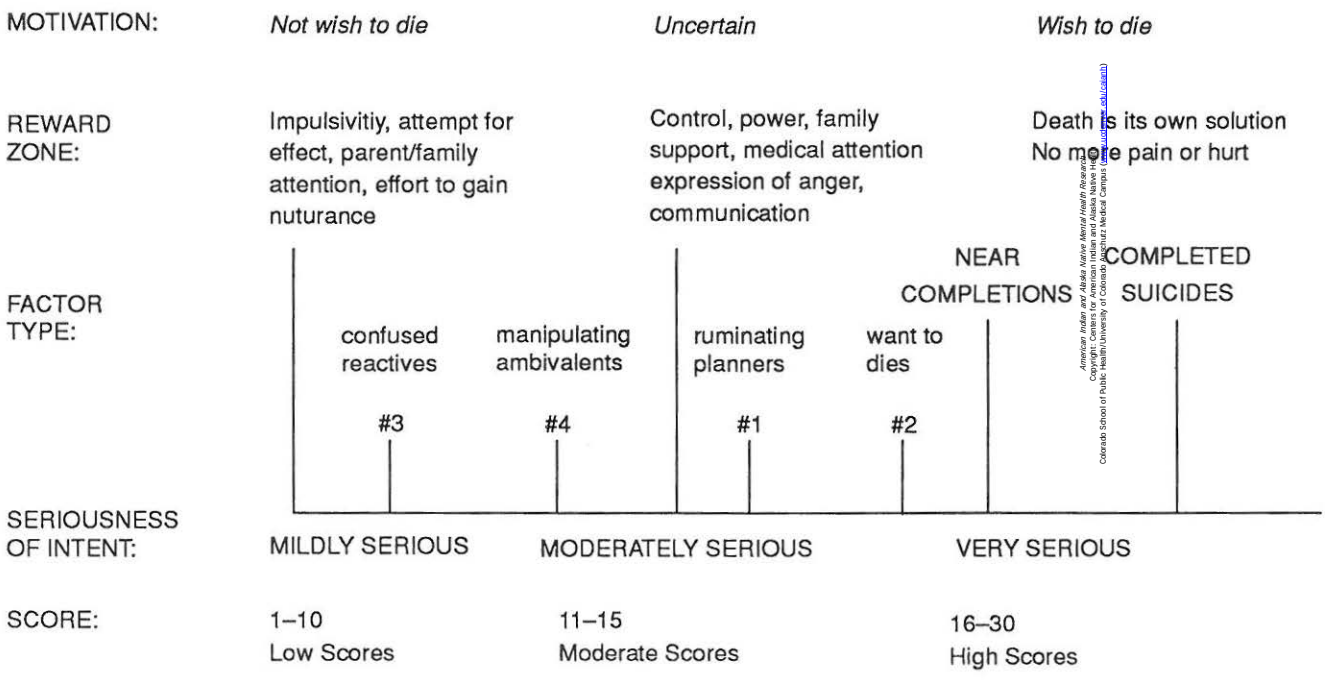
Clearly, near completions must be handled with strategies different from those used with other attempts. These persons expected to die, were resigned to die, and perceived their death as a solution. They may be in shock or angry with themselves or others for their failed attempt; they may be psychologically "empty."

With moderately or mildly serious attempters, postintervention personnel must communicate. Rewards and incentives must be removed to reduce the likelihood of future attempts, and the individual must be taught skills to achieve positive reinforcements in more acceptable ways.

As scores increase on the seriousness continuum, attempters appear to accept death as its own solution, constrict or deny life-sustaining alternatives, and may experience some degree of "psychic numbing" regarding the fear, pain, or unacceptability of death.

Mildly serious attempters may be more confused, more willing to be rescued, and less motivated to experience death. Moderately serious attempters possibly are in the strongest position to manipulate or receive rewards for their attempts.

Figure 2–1
Seriousness of Intent Continuum



Limitations of the Study

This study has several limitations. The sample represents suicide attempt behaviors on a single reservation and may be generalized only with caution to other American Indian communities. Selected behavioral definitions (e.g., emergency room cooperation by attempters, precautions against getting caught, notification of others) lack accurate and measurable specificity.

Much of the information, despite being recorded in an abbreviated time period after the attempt, was dependent on attempter report (e.g., substance use histories, motivations). Other selected items were dependent on evaluator judgment.

The data primarily were limited to ordinal or interval categories that could not be subjected to more rigorous analysis statistics. Finally, some of the items required retrospective review and, therefore, were subject to greater evaluator error.

Recommendations for Further Study

In addition to continued evaluation of the characteristics of individual suicides, mental health personnel must continue to examine the reservation system in general for factors that may predispose, precipitate, and deter risk of suicide.

Religion and spirituality must be investigated further as a potential protective factor. The presence of, absence of, or confusion with a belief system may have a critical impact on individual willingness to consider suicide.

Attempter motivations in regard to dying and lethality of methods appear to be the strongest correlates of seriousness of intent. They require further verification.

The process of psychic numbing — the acceptance of suicide as a dissociative solution — deserves further evaluation. Researchers must focus specifically on determining the existence of psychic "cues" that may protect or inhibit the individual from suicide completion, seemingly without personal insight.

The reservation community may have evolved with fewer deterrents to suicide in its own institutions (e.g., family, school, law enforcement), and ironically, the reservation plight may have established reinforcement of the potential for suicide. A reservation system of denial could provide tacit and unintentional acceptance of suicide behaviors.

Political frustrations, unemployment, economic dependency, and generalized symptoms of depression may serve as important predispositions to suicide. Acceptance of the notion of victimization as a result of years of oppression may be instrumental in continuing a sense of

hopelessness. Victimization shifts the locus of power from individuals and appears to increase suicide potential.

Family disruption variables also deserve further investigation. A substantial number of attempters reported previous family suicide attempts, family conflicts, chemical dependency, and sexual abuse with alarming frequency. The lack of family connection, ill-defined or inconsistent parenting styles, and the absence of family/relationship conflict resolution alternatives appear to be fundamental to adolescent and young adult suicide attempts. The role of victimization in violent incidents may possess some predisposing relationship to suicide and demands further study.

Adolescents, especially, require attention. The adolescent attempters within this study appeared to lack a clear sense of identity and seemed to experience failure in their impact on the present or on their destiny.

Many adolescent interviewees in this study felt powerless and expressed psychosocial and psychosexual shame and frustration. Suicide attempts appeared to be an effort, albeit a confusing one, to redefine self, to reconnect with others, to communicate, to define limits, or to experience death as closely as possible in order to appreciate living or to feel alive again. Many other adolescent behaviors, such as risk taking with an automobile or using substances to excess, could be similar experiments to redefine the self or personal limitations or just simply to feel more alive through stimulus enforcement. Other adolescents may be seeking just the opposite of stimulus (usually negative) reduction, particularly if they are attempting to avoid a painful reality.

Evaluators observed a high percentage of young adult and adolescent attempters with substantial self-inflicted tattoos. Such tattoos could be a symptom of the self-hate, depression, or powerlessness found in many suicide victims. It was not determined if this rate was greater than that of the general population. The phenomenon warrants further inquiry.

For all attempters there appeared to be both a generally low level of tolerance for frustration and an inability to delay immediate need gratification. Mechanisms to work through disappointments often were not available; frustrations were all-consuming and overwhelming. Effective coping strategies to manage or redirect frustrations must be identified and strategies developed by which to deliver them as part of therapy plans.

This study did not provide adequate explanation for the disproportionately higher rates of suicide attempts for the American Indian study population as compared to the U.S. population in general. Errors continue to be committed by mental health personnel, who assume that attempters are "sick" or "weak." Cultural differences or cultural identity conflicts loom as significant contributing variables but remain difficult to study.

The close alignment of descriptive characteristics between the near completions and the suicide completions provides incentive for

future study. These high-risk groups must be further assessed in regard to their decision-making processes as well as other characteristics.

The data indicate that dying was *not a clearly defined outcome* for many attempters; other motivations for such attempts must be considered. For some it may be a subcultural survival tactic as simple as a rejection of life as it currently exists, a refusal to choose in a "no win" situation (disenchantment with either traditional or nontraditional cultures), or relief from the psychogenic pain of prejudice, disharmony, loneliness, failure, or psychological death.

Mental health professionals must regard postattempt outcomes as meaningful to individuals, not simply as rewards. Some attempters never attempt again and appear to (a) reconnect with family, (b) positively redefine their lives, (c) alter their perceptions of stressors, (d) reduce psychogenic pain, (e) successfully displace or disempower stressors that once overwhelmed them, and (f) find self-definition and direction.

Mental health professionals can learn from individuals who improve subsequent to a suicide attempt *frequently without* mental health intervention. Better understanding of the improved patients provides important data for a more effective postintervention model.

Recommendations for Postintervention Strategies

1. Develop crisis intervention training for all significant personnel involved with suicides. This study indicates that the following professionals play crucial roles in any reservation suicide attempt response:

   a. hospital emergency room personnel
   b. hospital inpatient personnel
   c. ambulance personnel
   d. law enforcement personnel
   e. mental health personnel

2. Develop emergency room and inpatient strategies that do not reinforce the potential for inappropriate rewards or manipulation with the suicide attempt (e.g., family or friend visitation, overattention by staff, presentation of television/recreation or other privileges).

3. Include traditional elders or practitioners as part of the treatment team in order to accommodate traditional belief systems as a natural deterrent to future suicide attempts.

4. Suicide attempts appear complex and multifaceted. Professionals must evaluate each attempt according to the unique, individual characteristics of the attempter and the seriousness of intent. Avoid providing the same response to all suicide attempters.

5. A suicide attempt appears to have many symptoms related to individual or family dysfunction. Many therapy techniques and strategies already employed for the multisymptomatic individual should not be abandoned in favor of a more "pure" suicide focus in therapy. Each therapy technique previously employed may serve, directly or indirectly, to reduce suicide potential.

6. Recognize the apparent attitude of patient cooperation soon after the attempt. Long delays after attempts and before initial contact with professionals may reduce the opportunity for rapport building and trust. At the time of crisis, individuals may be in the best possible mind-set for therapeutic assistance.

7. Develop tighter observation and security strategies for attempters who continue to verbalize outcome "uncertainty" or the "wish to die." These persons appear still at high risk for immediate or future attempts.

8. Develop suicide prevention strategies as a regular component in existing parenting and foster parenting classes to help family members identify symptoms of concern.

9. Problems appear to exist after attempts in patient follow-up, with individuals avoiding continuing therapy contacts. A tracking system should be developed, with contracts for a minimum number of therapy sessions.

10. Paraprofessional personnel could be trained to provide therapy for some attempters who resist or are embarrassed by contact with mental health professionals.

11. Provide reservation-wide training on the lethality of pills (prescription and nonprescription) and their medical complications when combined with other pills or alcohol. Ambivalence about lethality combined with ignorance of medications can prove deadly.

12. Develop therapeutic strategies that encourage the reduction of attempters' "victim" status in favor of more problem-solving or task-oriented behaviors. Individuals need to be restored as their own control agents.

13. Evaluate the effectiveness of the all-too-frequent use of inpatient chemical dependency treatment as the primary means of preventing repeat suicide attempts.

14. Therapy should mandate some degree of family or relationship counseling to remedy the attempters' verbalized problems with family or relationships.

15. Continue the development of treatment strategies as they respond to each of the apparent suicide "types."

16. Continue to regard attempters as complex, bringing unique characteristics with them to postintervention therapy.

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Discussion

Dr. Sack: Over a 5-year period, 194 individuals were systemically evaluated after making a suicide attempt in an Indian Health Service emergency room on a Northern Plains American Indian reservation. Two hypotheses guided this work. First, 10 attempter characteristics would significantly correlate with the seriousness of the suicide attempt. This hypothesis was supported by the data. Second, significant differences would be apparent when adolescent attempters were compared to adult

attempters. This was not borne out. Gender, rather than age, appeared to be the more important variable.

I am pleased to be able to discuss this important work. It adds much needed empirical information about suicide events on a reservation site, while defining and examining a wide range of presenting clinical characteristics that can easily be applied in other settings. This study demonstrates that high-quality, clinically informative research can be carried out by Indian Health Service staff in nonurban settings.

This study confirms many findings shown in previous Caucasian adolescent suicide efforts (for instance, adolescent females make more suicide attempts, but males make more serious attempts), however, there were some noteworthy surprises. First, the rising magnitude of Indian adolescent suicide attempts itself is certainly disquieting. Second, a majority of adolescent suicide attempts showed no immediate prior use of drugs or alcohol even though their attempts were often rated as impulsive. Third, overall seriousness-of-intent scores for adolescents were not significantly different than the adult group. Fourth, despite vigorous intervention efforts, this sample proved particularly difficult to engage theoretically subsequent to the attempt.

The carefully measured features of this study admonish the emergency room clinician to appreciate the widely varying factors that underlie an act of this type, not to be hasty in making premature snap judgments about suicide rationale, and not to stereotype any patient by reason of race, gender, or age alone.

In addition to highlighting the need for more creative ways to intervene clinically once an attempt occurs, this study also points backward in time to issues of prevention. Could we detect some of this sample before they resort to this act? I hope that in their future work the authors will attempt to link suicide attempts in Caucasian studies (Myer et al., 1991; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). This is encouraging because one can then detect and treat depression in adolescents effectively (Clarke et al., 1992). Also, one would have liked to know how often the patients in the sample had a relative or family member who had made a suicide attempt. In a national survey about 11% of Indian youth report this experience (Blum, Hanson, Harris, Bergueson, & Resnick, 1992). Would such findings have any predictive value?

In summary, the authors have applied their clinical questions to an appropriate methodological framework. They are aware that a study in which this many comparisons are made is always vulnerable to Type 1 errors. In future works, efforts to both look back more vigorously into the lives of this group for preventive clues and to look forward in a systematic follow-up to their outcomes over time will illuminate greatly our clinical understanding and ability to intervene in an empathic and knowledgeable fashion.

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Appendix A
Seriousness-of-Intent Checklist

Item Description

__ 1. Timing of the attempt so that intervention by others would occur: (a) timed for probable intervention, (b) timed for possible intervention, (c) timed so intervention is unlikely.

__ 2. Precautions against discovery of attempt by others: (a) no precautions taken (attempt in presence of others), (b) minor or passive precautions against discovery, (c) clear, active precautions against discovery of the attempt.

__ 3. Actions patient took for self-preservation during/after the attempt: (a) maximum effort to get help and neutralize the attempt, (b) passive efforts to get help or assistance after the attempt, (c) no attempt at getting help.

__ 4. Final acts in preparation for death: (a) none, (b) partial or incomplete plans, (c) definite or completed plans.

__ 5. Suicide note: (a) none, (b) written, but destroyed, (c) note found.

__ 6. Lethality of method perceived by attempter: (a) thought method would not result in their death, (b) uncertain, (c) clearly believed method employed would result in death.

__ 7. Expressed intent of attempter at the time of attempt: (a) did not want to die, (b) uncertain, (c) wanted to die.

__ 8. Premeditation: (a) considered attempt less than one hour, (b) considered attempt for less than a day, but more than an hour, (c) considered for more than a day.

__ 9. Postattempt reaction 24 hours after the attempt: (a) glad to be alive, (b) uncertain, (c) regrets being alive.

__ 10. Emergency room response after the attempt: (a) no admittance; no medical procedures required, (b) minor medical procedures required (e.g., Ipecac syrup, stomach pump, minor sedation, bandages, minor stitches), (c) serious lifesaving medical procedures required (e.g., immediate transport to another life support hospital, major surgical procedures, resuscitation/machine support for survival, neutralizing IVs).

___ Sum of 10 items above.

Part 2

Clinical and Developmental Considerations

INDIAN ADOLESCENT SUICIDE: CLINICAL AND DEVELOPMENTAL CONSIDERATIONS

DONALD W. BECHTOLD, M.D.

In what has become a macabre trend, authorities discovered the body of an Indian suicide victim Saturday — the eighth suicide victim in seven weeks on the reservation. The body of a 24-year-old male was found Saturday morning in the man's bedroom said the county coroner. The coroner said it appears the unidentified man used a leather strap to hang himself from a doorknob in his bedroom. The man's death is the latest in a series of suicides that began in mid-August. The coroner has said the deaths have left the community frustrated in its attempts to understand the incidents. "We don't know what's going on and we don't know how to combat it," the coroner said. "The whole community is frustrated." He added the suicides are especially distressing because they have involved young people "who have not begun to live yet." The first suicide occurred when A., 20, hanged himself in the city jail. He had been jailed for intoxication. Four days later, B., 16, committed suicide (also by hanging). Four days later, the body of C., 14, was found hanging from a tree. C. and B. had been close friends. Twenty-eight days later, 23 year old D. was found hanged with a coat hanger in a closet in his parents' home. D. also was friends with B., who was said to be one of the most popular students at his school on the reservation. One day later, E., 22, hanged himself with a cord tied to a beam in the basement of his home. Four days later, F., 19, hanged himself from a cross-bar in his cell at the city jail (where A. first committed suicide), where he had been placed on intoxication charges. The body of G., 14, was found the next day hanging from a corral panel at the family ranch. Reservation residents were burying F. Saturday and still planning G.'s funeral for Tuesday when they received word of the latest suicide. (Denver Post, Sunday, September 29, 1985)

For the ninth time in less than two months, an Indian male on the reservation has committed suicide. The latest victim was a 25-year-old man, who hanged himself Monday night in a closet using a sweatshirt drawstring, said the county coroner. The victim's sister found him Tuesday morning. The rash of suicides has left the community deeply frustrated and searching for answers. (Rocky Mountain News, Wednesday, October 2, 1985)

This community was unique in neither its frustration nor its lack of answers concerning the growing problem of adolescent suicide. What happened in this community provides an in vivo example of a number of characteristics of adolescent suicide. Many of these characteristics relate to the phenomenon of suicide among adolescents in general. Others relate to the cultural specificity of adolescent suicide, in particular to American Indian young people. Still others serve to illustrate the characteristic pattern of cluster suicide among adolescents. Finally, the contribution of developmental processes to suicidal behavior is exemplified. Each of these areas will be considered in more detail.

The Demographics of Adolescent Suicide

From 1900 to 1955 the suicide rate for 15- to 24-year-old individuals remained consistent at about half the rate for all American age groups combined. Beginning in the mid-1950s, however, the rate began to increase rapidly and had nearly tripled by 1980. By 1984 suicide moved from the third to the second leading cause of death among adolescents, following only accidental deaths (Saltzman, Levenson, & Smith, 1988). By the 1980s more than 5,000 suicides among American adolescents were being reported annually. This increase in suicide rate among American adolescents was made further pronounced when compared with the overall reduction in suicide rates in those older than 30 during the same period of time (Centers for Disease Control, 1986). Firearms remain the most common method of suicide in the adolescent age group. In fact, increases in the suicide rate attributable to firearms far exceeds increases attributable to any other method of suicide (Boyd & Moscicki, 1986).

In considering the demographics of adolescent suicide, a number of additional factors should be discussed. Regarding gender, the suicide rates for adolescent boys are approximately five times those for adolescent girls in the United States. While the male preponderance occurs in nearly all American cultures and ethnic groups, data suggest that this 5:1 ratio may be relatively higher or lower in various groups (Shaffer, Garland, Gould, Fisher, & Trautman, 1988).

Regarding age, completed suicide is uncommon prior to the age of 12. Suicide becomes more common after puberty and increases throughout the teen years. While suicide rates among young people peak during their early 20s, suicide rates in adolescence remain less than in later adulthood (Shaffer et al., 1988).

A geographic profile can be described for adolescent suicide as well, with the highest rates occurring in western states, including the state of Alaska (Shaffer et al., 1988).

Many of these demographic characteristics can be observed in the series of suicides described at the beginning of this paper. They occurred in 1985, a time in which adolescent suicide rates were near their

peak. They reflected (in this case, exceeded) the characteristic gender profile, occurring exclusively among males. In fact, in this community there were no suicides among females during this period of time, nor were there any subsequent suicides among females in the ensuing 5 years. With an age range of 14 to 24 years, the suicides reflected the characteristic age profile for adolescent suicide. The method of suicide was consistent with national trends. Although firearms were the most common method of suicide among adolescents, hanging is the second most common method among adolescent males. Finally, this series reflected the characteristic geographic trend, having occurred in a western state where suicide rates are among the highest.

It would be clinically naive, however, to assume that this characteristic profile was applicable, without modification, across cultures. In considering adolescent suicide within a particular culture, culture-specific suicide rates must be observed and culturally sensitive risk factors considered. Clearly, such is the case among American Indian populations, where it has been shown that suicide rates vary greatly, with some in excess of 20 times the national average, and others well below the national average. Shore (1975) has effectively laid to rest the stereotype of "the suicidal Indian."

In considering risk factors for Indian adolescent suicide, the same demographic variables explored across cultures should also be explored within American Indian cultures. Regarding gender specificity, the male predominance of suicide among American Indians has been shown to exceed the male predominance of suicide across all subsets of the population as a whole (Ogden, Spector, & Hill, 1970). The age-specific pattern of suicide among American Indians also is culturally specific and especially important when considering the adolescent subset of the population. Contrary to age-specific rates across cultures, which peak in the 55- to 64-year age range, the suicide rate for American Indians peaks in the 15- to 24-year age range, at which time the American Indian rate is several times that of the national rate across cultures (Ogden, et al., 1970). In returning again to the community first described, it can be seen that the male exclusivity and the age range of the suicide victims were consistent with these culturally specific patterns of Indian adolescent suicide.

"Suicide Clustering"

Not only does the series of suicides described reflect the characteristic pattern of adolescent suicide in general and the cultural specificity of American Indian adolescent suicide in particular, but it also reflects characteristics of a phenomenon known as "suicide clustering." Concurrent with the increase in the base rate of adolescent suicide has been the observation of its increasing tendency to occur in clusters (which may be

considered as a series of suicides approximated in time and place and etiologically linked with the other suicides in the series; Coleman, 1986). Since 1966, clusters have been reported among adolescents in geographically and socioculturally diverse locales across the United States (Coleman, 1987).

Though much remains to be learned about the phenomenon of cluster suicides, three important factors are apparent at the present time. One, the phenomenon appears largely limited to adolescence. Suicide clusters have not been prominent among older age groups in recent times (Phillips & Carstensen, 1986). Two, females appear more susceptible to the effects of clustering than do males. Three, in spite of the usual male preponderance of completed suicide, females are more likely than males to successfully commit suicide in the midst of a cluster (Phillips & Carstensen, 1986).

Imitative behavior appears to be a major etiologic link between serial suicides in a cluster. This process of imitation may be spurred either by personal knowledge in a small, relatively closed community or by media coverage across a large segment of the population. Teenage suicides have been reported to increase in number and to cluster after television news stories about suicide, television soap opera suicide stories, television movies that dramatize suicide, and front page newspaper reports of suicide (Gould & Shaffer, 1986; Phillips, 1979; Phillips, 1982; Phillips & Carstensen, 1986). Though some recent attempts (Kessler, Downey, Milavsky, & Stipp, 1988; Phillips & Paight, 1987) have failed to replicate this early work concerning the link between media coverage and adolescent suicide, the fact remains well documented that adolescent suicide may cluster following media coverage in certain times, places, and under certain given circumstances. Clearly, more research is needed to delineate those specific characteristics of media coverage that fuel the contagion of adolescent cluster suicide from those that do not.

Many of these characteristics of adolescent cluster suicide were also observable in the series of suicides first described. The nine suicides clustered in time over an approximately 7-week period. They clustered in place, on a geographically remote and isolated Indian reservation of approximately 6,000 residents. The etiologic link of imitation was present as well, insofar as all of the suicide victims were young, male and of the same tribe and chose the same method of suicide. Evaluation postmortem revealed substantial interpersonal connections and interrelatedness among the victims (Bechtold, 1988).

Developmental Risk Factors

The foundation for the clinical assessment of suicide risk among adolescents is not complete until developmental risk factors for suicide have been considered as well. Although suicide is a rare event prior to the

age of 12, it has been shown that among early adolescents, precocious physical and intellectual development is a risk factor for suicide. It has been suggested that conceptual maturity in which death is viewed as permanent, final, and irreversible is a developmentally significant antecedent to suicide. In short, there are data that demonstrate that physical, cognitive, and conceptual immaturity afford some protection against suicide (Shaffer, 1974). In this vein, as adolescent development progresses, so also does the risk of suicide.

In later adolescence, two main tasks of development must be negotiated. The first of these is the formation and consolidation of a sense of personal identity. Cultural identity is an important component of this sense of belonging and identification of the child. It is not surprising, then, that culture transition conflicts such as failing to adhere to traditional ways of living and traditional religions while also failing to assimilate successfully within the dominant culture have been described as risk factors for Indian adolescent suicide (Berlin, 1987; Rotheram, 1987). Some view these conflicts between traditional and dominant cultures as an example in which a mismatch is established between a youth and the environment that has a negative impact on his/her ability to successfully negotiate adolescent identity issues.

The second major task confronting adolescents is that of separation and emancipation from the family of origin and development of the capacity to live in a self-supporting, productive, and autonomous fashion. Instability of home environment and family relationships frequently have been reported as risk factors for Indian adolescent suicide. These characteristics may serve as risk factors in a variety of ways. Clearly, they undermine an adolescent's ability to observe and integrate autonomous functioning from adult role models (Dizmang, Watson, Mays, & Bopp, 1974; Shore, Bopp, Waller, & Dawes, 1972). Similarly, socioeconomic disadvantages such as poverty and unemployment may inhibit the development of the adolescent as a self-supporting and autonomous individual (Curlee, 1972; Resnik & Dizmang, 1971). Finally, suicide may be viewed as an attempt, albeit a pathologic one, on the part of the adolescent to separate from a dysfunctional family. "Suicidogenic" messages are those that communicate the sense of the child as a burden and as expendable. In these circumstances, suicide may be viewed as the response of the adolescent to the desire of the parents that he or she not exist (Teicher, 1979).

Summary of Risk Factors

Indian adolescent suicide has been conceptualized thus far in terms of its general demographic profile, culturally specific patterns, and developmental underpinnings, as well as in terms of the particular characteristics of adolescent cluster suicide. Out of this discussion, a list of risk

factors for suicide among young people can be developed. While applicable to youth in general, this list is sensitive to culture and equally applicable to Indian youth, insofar as various risk factors may be assigned differing relative weights across various cultures, as has been discussed. This list of culturally sensitive risk factors includes the following:

1. Male gender
2. Age greater than 12
3. Physical and intellectual developmental precocity in young adolescents (ages 12 to 14)
4. Conceptual maturity regarding death
5. Conceptual familiarity with suicide through the suicide of a family member or of a peer or through specific media exposure to suicide
6. Substance abuse, depression, antisocial behavior, or any other psychopathologic condition
7. Previous suicide gestures or attempts
8. Cultural mismatch between the youth and the environment
9. Suicidogenic messages from family, especially from parents
10. Family disruption and dysfunction, including parental psychopathology
11. Availability of lethal means, especially firearms

Prevention of Adolescent Suicide

This list suggests numerous applications in the evaluation and treatment of suicidal Indian youth. Clearly, the first step in tertiary prevention is the assessment of current, overt suicidal ideation. When active ideation is observed, the data suggest that the greater the number of risk factors present and the stronger their predictive value, the greater the suicide risk of that particular adolescent. Risk factors such as male gender, advanced age, exposure to/familiarity with the phenomenon of suicide, and concurrent psychopathology are among the strongest in terms of predictive value. Equally important is assessment regarding the availability of lethal means, particularly firearms. Research has shown that reducing access to the means of suicide can significantly reduce the suicide rate (Shaffer et al., 1988). Similarly, insofar as teen suicide is frequently an impulsive act accomplished under the influence of chemical toxins known to impair impulse control, limitation of access to alcohol and other such substances might also be expected to prevent youth suicide in certain cases.

Secondary preventive interventions are suggested by this list of risk factors as well. Secondary interventions are those in which risk factors are treated prior to the emergence of frank symptomatology or in which the symptomatic individual is treated before the symptomatology has caused significant suffering and dysfunction. Such conditions as substance abuse disorders, affective disorders, anxiety disorders, and conduct and antisocial behavior disorders have been reported to occur at high frequencies among cohorts of Indian adolescents (U.S. Congress, 1990). Similarly, high rates of various forms of family disruption and dysfunction have repeatedly been documented among Indian populations. Included in this category would be such variables as child abuse and neglect, parent loss through death or abandonment, and parental substance abuse or other forms of parental psychopathology (U.S. Congress, 1990). All of these individual and family variables already have been shown to be risk factors for adolescent suicide. It follows, then, that intervention and treatment at the level of these risk factors might serve to reduce suicide rates among Indian and Native youth.

Primary prevention is aimed at avoiding the development of risk factors and mitigating the impact of unavoidable environmental stressors. Toward this end, interventions that foster the normal progression of childhood and adolescent development uncomplicated by substance abuse, psychopathology, or family disruption or dysfunction are rightly considered as suicide prevention. So also are those aimed at the development of effective coping strategies, stress reduction techniques, and a healthy adaptive capacity. Similarly, the maintenance and intergenerational transmission of traditional Indian/Native ways and values within the broader context of the dominant culture serves a role of primary prevention.

At all levels of suicide prevention, community-based interventions also are applicable and necessary. Minimization of media coverage of suicide, particularly those forms that sensationalize, romanticize, rationalize, or justify youth suicide are clearly indicated. Communities must establish clear and nonambivalent moral proscriptions against suicide in which suicide is unequivocally understood to be deviant and pathological. In Indian communities, these moral proscriptions must be culturally relevant and consistent with traditional values. As an example, they may be delivered with maximum meaning and effect when intertwined within a traditional, Indian/Native religious ceremony and when actively reinforced by tribal elders.

Conclusion

In closing, it is appropriate to reiterate and emphasize that suicide among Indian and Native young people is a significant and growing problem. Further research should be guided by a number of pertinent questions that have yet to be completely and satisfactorily answered. Do data

regarding social, demographic, and developmental risk factors for suicide obtained from a sample of suicide attempters (noncompleters) adequately predict completed suicide? How may our current understanding of risk factors be expanded, and which additional risk factors remain to be identified? Which risk factors have the strongest predictive value for the outcome of suicide in an at-risk population? What are the specific aspects of media programming that serve as risk factors for suicide? Conversely, is there a positive role for the media in terms of suicide prevention? Given the potentially negative impact of publicity regarding suicide, how does a community establish unequivocal, moral proscriptions against suicide without calling undue attention to or focus on the phenomenon of suicide? Would restriction of access to firearms, the most common means of teen suicide, reduce adolescent suicide rates? Similarly, would restriction of access to drugs and alcohol reduce adolescent suicide rates? Can we delineate generalizable, culturally relevant risk factors for Indian people, or is Indian culture so heterogeneous that culturally specific risk factors must be delineated within each subculture (tribe)? Is such tribal-specific suicide research methodologically feasible, given that it requires an already low frequency event to be studied in a small population? Can prospective suicide research be designed and implemented, or does the presence of death as an outcome variable ethically preclude this avenue of investigation?

While much remains to be learned, gains are presently possible when the current knowledge bases derived through the study of adolescent development, suicide epidemiology, and the special phenomenon of adolescent cluster suicide are integrated and applied within a culturally sensitive and relevant framework. Such has been the model discussed here. Intervention can occur not only at the individual level but also at the levels of systems and communities. Furthermore, these interventions should address not just tertiary issues but primary and secondary ones as well. Careful application of current and culturally sensitive technology will result in demonstrable gains, which though apparently small and slow in coming are directly translatable in terms of human life in the case of suicide among American Indian youth.

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DEPRESSIVE AND SUICIDAL SYMPTOMS IN INDIAN SCHOOL CHILDREN: FINDINGS FROM THE *FLOWER OF TWO SOILS*

WILLIAM H. SACK, M.D., MORTON BEISER, M.D., GLORIA BAKER-BROWN, M.A., and ROY REDSHIRT, B.S.

A recent review indicates that Indian adolescents have disturbingly high rates of both depression and suicide (Office of Technology Assessment, 1990). Although a number of known risk factors for white adolescent suicide have now been defined, their relevance for Indians has yet to be established (May & Van Winkle, see this issue). Brent, Kolko, Allan, and Brown (1990) and Kashani, Rosenberg, and Reid (1989), studying inpatient and community samples of white youth, have shown that prior depression is a powerful predictor of later suicide. However, adolescents attempting suicide and those completing suicide are probably distinct populations, each with its own pattern of risk factors (Shaffer & Fisher, 1981). Berlin (1986), Shore (1974), and Office of Technology Assessment (1990) have shown that Indian suicide rates vary widely by tribe and location. Thus, cultural factors must play some role in the development of this form of psychopathology.

Given that prior depression is an important risk factor, at least in adolescent suicide attempters, and that Indian adolescents are at high risk for affective disorders, suicide attempts, and suicide completion, a number of obvious questions follow: Are such symptoms also more prevalent in Indian latency-aged children than in their white counterparts? If present, do depressive symptoms persist? Do such symptoms erode the functional capacities of these children? Do Indian children report more symptoms of suicidal ideation in latency than white children? These questions caused us to re-examine for data generated by a large-scale study entitled the *Flower of Two Soils* in an attempt to find answers.

Methods

The *Flower of Two Soils* was an epidemiological study funded by the National Institute of Mental Health (NIMH) (MH5-R01-MH 36678-04) and the National Health Research Development Program (Health and Welfare of Canada) and the W. T. Grant Foundation (563.1179). M. Beiser, Principal Investigator, focused on the academic performance, cognitive ability, and mental health of Indian children in both the United States and Canada. Data collection occurred on four reservation/reserve and several non-Indian comparison sites from 1983 through 1992. The origi-

nal study design was intended to examine the contribution that emotional and cognitive factors make to declining academic achievement scores over time in Indian children (Sack et al. 1987).

The sample consisted initially of 973 children, roughly half of whom were in Grade 2 and the other half Grade 4, who live in culturally diverse reservation sites. These children were evaluated at three points in time (waves) by self-report, parental report, and teacher report. Following these two cohorts of children allowed us to chart children's progress from Grades 2 through 6. Study measures include both positive mental health and culturally relevant variables such as traditionality and psychopathology (Beiser, 1989; Beiser, Lancee, Crotowjec, Sack, & Redshirt, in press). Panels of community members from each locale carefully reviewed the instrument package and made useful suggestions for deletions, additions, and revisions.

Table 4–1 lists the sites from which our sample was drawn. Most major Indian cultural traditions are represented, from the northern woodlands in Canada to the desert cultures of the southwestern United States.

Table 4–1
Study Sites, Sample Size, and Attrition Rates

	Overall Attrition %	T^1	T^2	T^3
Northern Woodlands I (Manitoba)	24.6%	167	149	126
Northern Woodlands II (Manitoba)	5.8%	21	23	20
Northern Woodlands Comparison (Manitoba)	20.3%	128	110	102
Plains (South Dakota)	44.2%	249	167	139
Plains Comparison (South Dakota)	28.7%	87	72	62
Coastal (British Columbia)	29.1%	103	91	73
Desert (Arizona)	18.6%	220	199	179
Total		973	821	701

Table 4–2 depicts the depression scale, derived from the Student Observation of Self (SOS) instrument, a measure patterned after the Youth Self-Report Scale (Achenbach & Edelbrook, 1983). Similar depression scales also were constructed from the parent (Child Assessment by a Parent, CAP) and teacher report forms (Teacher Interview Form, TIF), which likewise paralleled the parental and teacher versions of the Child Behavior Checklist (CBCL) (Achenbach & Edelbrook, 1983). Scales for conduct disorder, attention deficit disorder, and anxiety disorder were generated from each of these sources as well. Their psychometric properties are similar to those of the depression scale summarized in Table 4–2 (Beiser, 1989).

Table 4–2
Psychometric Properties of SOS Depression Scale N = 973

	Item	Corrected Item/Total Correlation			
1.	I am unhapppy	.35			
2.	I am cranky and grumpy	.37			
3.	I feel lonely	.44			
4.	I feel I'm no good at all	.37			
5.	I feel that no one loves me	.36			
6.	I think a lot about people getting killed or in accidents	.23			
7.	I feel bad, as if I've done something wrong	.34			
8.	I'd rather be alone than with others	.26			
9.	I feel overtired	.27			
10.	My family would be better off without me	.22			
11.	I cry a lot	.33			
		Alpha Coefficients			
1.	Overall	.67			
2.	By sex:	Males	.61	Females	.68
3.	By grade	Gr. 2	.66	Gr. 4	.70
4.	By site:				
	Plain	.73			
	Desert	.56			
	Northern Woodlands I	.49			
	Plains comparison	.75			
	Northern Woodlands II	.74			
	Northern Woodlands comparison	.70			
5.	By ethnicity				
		Indian	.64	Non-Indian	.74

To render the study as culturally relevant as possible, measures of positive mental health constructs also were developed, notably in regard to community-mindedness, competitiveness, home atmosphere, school atmosphere, instrumental competence, and social competence. Their psychometric properties also have been described previously (Beiser, 1989).

Extensive demographic developmental and health information was obtained from an annual parent interview referred to as the "Biodemographic Interview." This interview was conducted in the home by research assistants hired from the community and trained by project staff.

The Biodemographic interview included a stress scale modified after one developed by Coddington (1972) but adapted for this population.

Finally, in the first year of the study, the Diagnostic Interview Schedule for Children (DISC) and DISC-P were administered at several of the sites. The DISC and DISC-P are structured interview protocols designed to be used by lay interviewers and to generate DSM-III-R diagnoses. We used the original version of the instrument constructed by Anthony Costello and his group (Costello, Edelbrook, Duncan, Kalas, & Klance, 1984). In this paper, only the items from the depression section of the DISC are reported.

While the focus of the *Flower of Two Soils* was not on depression per se, depressive symptomatology was assessed using the above instruments. Because different numbers of children comprise the samples described in the tables, the relevant totals are always included in each table described herein.

Results

Table 4–1 shows the sample size and attrition rates over the three waves of data, each one year apart, collected at the sites.[1] Attrition varied greatly across sites. At the Plains site, for example, the high attrition rate reflects the fact that families move frequently and often place their children in different schools from year to year. For reasons of confidentiality, no across-site comparisons were done. There are no differences in the composite scores of self-report, parental report, and teacher report on the anxiety and depression scales for children who dropped out and those who remained in the study at wave three. This suggests that the data from second and third waves are reasonably representative of the total sample (Beiser, 1990).

Stability of Measures

Symptoms in children are known to be less stable than in adults and vary greatly with the setting in which they are measured (Young, O'Brien, Gutterman, & Cohen, 1987). Table 4–3 summarizes the stability coefficients from year one to year two for the various scales described above. Scores for the other self-ratings of psychopathology (conduct disorder, attention deficit disorder, and anxiety) were as stable as described for depression. Stability coefficients are a bit higher among older children as compared to younger and among non-Indian as compared to Indians.

These data suggest that children with depressive symptoms do not quickly resolve over time.

Table 4–3
T2 Stability N = 821
SOS (Child Report) Stability Coefficients

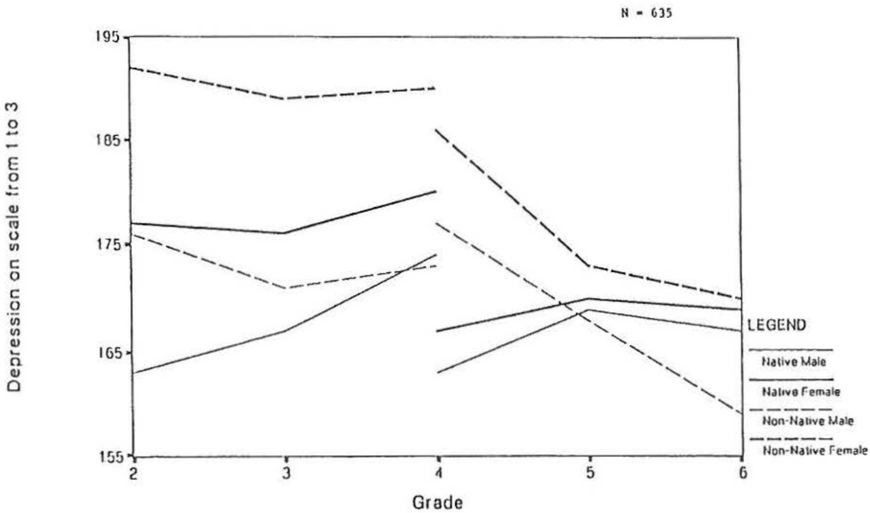
	Sex		Age		Ethnicity		Average
	Boys	Girls	Gr. 2	Gr.4	Indian	Non-Indian	
	r change	*r* change	*r* change	*r* change	*r* change	*r* change	*r* change
I. *Psychopathology*							
A. Externalizing							
1. Conduct Disorder	.36	.30	.38	.29	.34	.38	.34
2. Attention Deficit/Hyperactive	.36	.43	.35	.44	.35	.53	.39
B. Internalizing							
1. Depression	.36	.37	.36	.41	.34	.40	.38
2. Anxiety	.33	.37 I*	.33 I*	.41	.235	.39	.37
II. *Coping*							
A. Social Competence	.40	.45	.35*	.50	.38*	.60	.42
B. Instrumental Competence	.48*	.33 D*	.29*	.52	.34*		
III. *Cultural*							
A. Community-Mindedness	.34	.30	.26*	.39	.28 I*	.34	.32
B. Competitiveness	.33*	.50	.43 D***	.35	.39 D**	.42 D*	.42 D***
IV. *Other*							
A. Class Atmosphere	.32	.24	.18*	.39	.24*	.48	.28
B. Home Atmosphere	.37	.29	.27*	.40	.29*	.51 I*	.33

* $p<.05$ **$p<.005$ *** $p<.001$ D = decrease I = increase

Depressive Symptoms by Gender, Ethnicity, and Time

In order to answer questions regarding the effects of gender, ethnicity, and age on depressive symptoms, a 2x2x2x3 MANOVA was completed for the measures of depression from the SOS, TIF, and CAP. Figure 4–1 depicts mean scores on the SOS depression scale over time.

Figure 4–1
Self-rated Depression
(SOS)



Significant main effects for gender, ethnicity, and age are evident. Girls reported more depressive symptoms than boys (F (1,467) = 7.42, p < .001). Symptoms tend to decline with age, as children in Grade 2 exhibit F higher rates than those in Grade 4 (F (1,467) = 5.72, p = .017). Although there were no significant interaction effects, examination of the curves suggests that the decline with age is marked among non-Indian children, while scores tend to remain more consistent among Indian children. By Grade 6, scores for Indian children (both boys and girls) approach those of non-Indian girls.

When teacher ratings (TIFs) on these children are examined, an almost opposite profile emerges, as shown in Figure 4–2. Teachers perceive boys to be more depressed than girls (F (1,414) = 5.18, p < .03) and Indian children to be more depressed than non-Indians (F (1,414) = 4.08, p < .05). There is evidence of a halo effect. Correlations between teacher ratings of conduct disorder symptoms and anxiety symptoms (constructs that one would not expect to be highly correlated) were twice as high on the TIF as they were on the CAP. This suggests that teachers tend to rate students as all positive or all negative more often than parents.

Finally, the parents' ratings of their children's depressive symptoms show a more complex picture that is intermediate in configuration to the self-report and teacher report. Here a significant interaction effect between ethnicity and gender (F (1,2978 = 7.33, p < .005) is apparent. That is, parents report that non-Indian females show more depressive symptoms than non-Indian males, while Indian males are rated as more depressed than Indian females.

Figure 4–2
Teacher-rated Depression

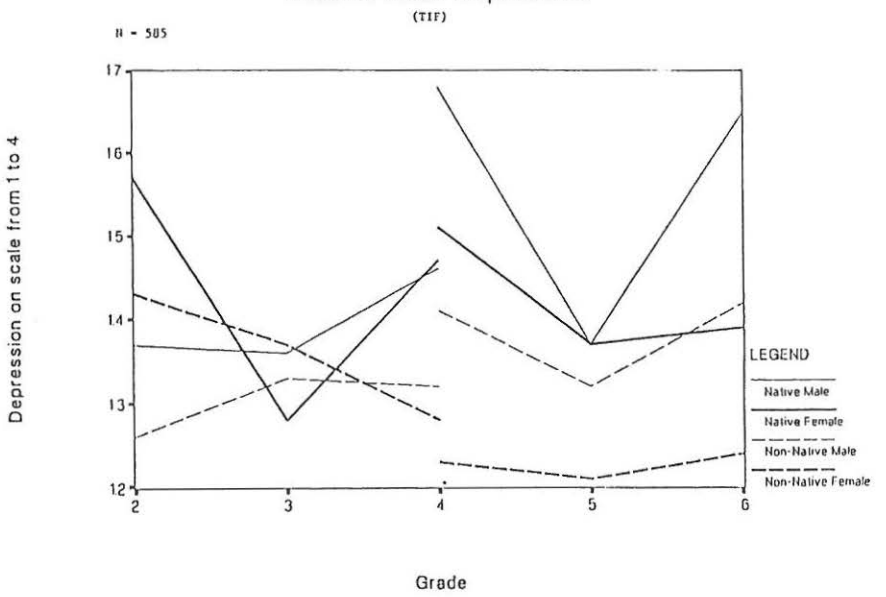


Figure 4–3
Parent-rated Depression

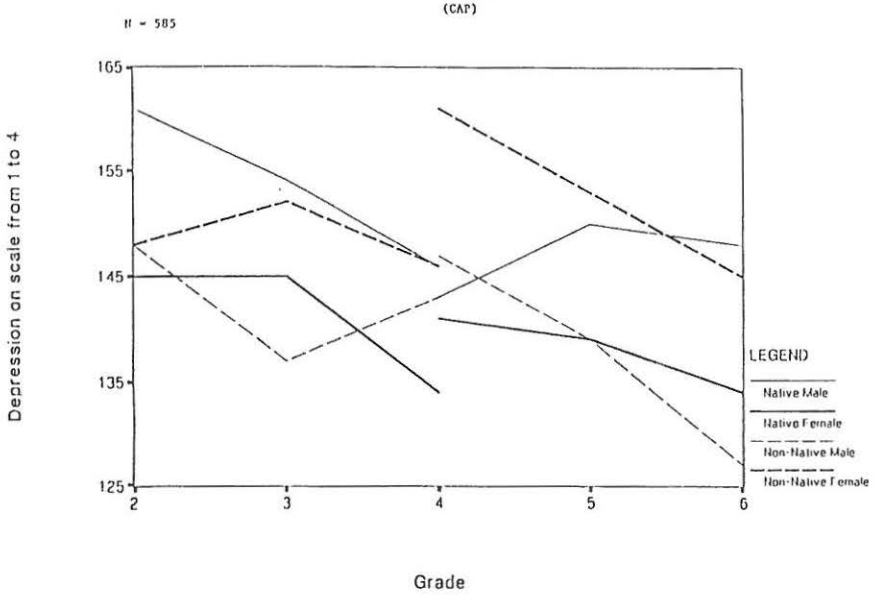


Table 4–4
Persistent Depression

	χ^2	*p* level
Sex	6.6	0.01
Background Factors: Parent		
Biological mother is primary caregiver	–3.9	0.01
Mother did not breast feed	–2.4	0.035
Mother went to a boarding school	–2.88	0.005
Hospitalization of a parent	–2.6	0.01
Complications during pregnancy	–2.07	0.046
Problems with alcohol during pregnancy	–2.48	0.02
Father went to a boarding school	–3.20	0.002
Change in father's job — less time at home	–4.43	0.000
Home Atmosphere Scale: W_1	–2.2	0.04
W_2	–2.32	0.03
W_3	–2.24	0.03
Stress Scale:		
Number of stressful events in period preceding Wave 2	3.19	0.002
Total stressful events across all 3 waves	3.19	0.002
Death of subject's pal	3.25	0.002
Child hospitalized	2.38	0.002

Predictors of Depressive Symptoms

Which developmental, family, and stress variables predict depressive symptoms in this sample? Ninety-nine children (13% of the sample) scored in the top 20% on two of the three SOS ratings. This group was labeled as a "persistently depressed" subsample. A univariate analysis of variance was then performed on a range of factors that might potentially relate to depression. Table 4–5 summarizes those variables that correlated at a significance of at least $p = 0.05$ with assignment to this "persistently depressed" subsample. (The hazard of Type 1 errors is a real threat to this kind of analysis, but the preliminary and exploratory nature of the process was felt to justify its use.)

A logistic regression analysis was then performed. Only two variables were significant at the 0.05 level of significance: low scores on the home atmosphere scale and failing a grade at school on the stressor scale (two-tailed test). These variables accounted for only 7% of the

Table 4–5
Functional Correlates of Persistently Depressed Children Versus Nondepressed Children N = 585

	Depressed	Nondepressed
Teacher's ratings of instrumental competence over 3 waves	2.72*	2.90
*$\chi^2 = 7.40$, $p = < 0.01$		
Teacher's rating of social competence over 3 waves	2.98*	3.09
*$\chi^2 = 8.41$, $p = < .03$		

variance. Such findings suggest that depressive symptoms at this age are multiplicatively determined and seem to include themes of loss, failure, and aversive home circumstance. No particular pattern predominates. It also should be pointed out that the causal *direction* of these relationships is not established by this kind of analysis.

Functional Correlates of Depressive Symptoms

Do persistently depressed children show evidence of poorer functional status than those who report fewer symptoms or for shorter duration? This question was examined by looking at how teachers rated the social and instrumental competence of students who scored as persistently depressed on the SOS. The results are shown in Table 6.

Teachers rated persistently depressed children lower than the nondepressed group in both spheres.

Finally, in addition to symptoms of depression, the extent to which latency-age children experience suicidal thoughts and feelings was sought as well. The information obtained in regard to this issue derives from the SOS and the DISC. The latter was administered at wave one on two of the reservation sites and one comparison site. The SOS asks the child to indicate the extent to which he/she has had the following thought: "I think about killing myself." A significantly greater percentage of Indian than non-Indian children endorsed this item (see Table 4–6).

To the DISC interview question, "Do you think life is not worth living?" 20% of the Indian sample endorsed this question "sometimes" or "often." The questions concerning suicidal thoughts or attempts on the DISC protocol were not asked at the comparison site because of the anxiety of the lay interviewers, who refused to pose such questions. As shown in Table 4–6, 4% of Indian children indicated they had suicidal thoughts, but less than 1% (0.7%) indicated they had actually attempted suicide.

Table 4–6
DISC Depression and Suicide Items by Ethnicity

	Indian	Non-Indian
A. SOS		
I think about killing myself	109/515	35/171
$\chi^2 = 8.02$, $p = .005$		
B. DISC		
Do you think life is not worth living?	65/313	0/44
$\chi^2 = 9.8$, $p = .002$		
Have you thought about killing yourself?	12/296	—
Have you tried to kill yourself?	2/296	—

Discussion

It is important to distinguish children with depressive symptoms from those with clinical depression as defined by either DSM-III or DSM-III-R. The focus of this paper has been on the former. Data from the year-one administration of the DISC at several reservation sites yielded a diagnosis of clinical depression below 1%, a prevalence rate compatible with other studies in white populations, which typically varies from 1 to 3% (Fleming & Offord, 1990).

Since Indian adolescents have been shown to have high rates of depression (Ackerson, Dick, Manson, & Barón, 1990), suicidal attempts (Grossman, Milligan, & Dayo, 1990), and completed suicides (May & Van Winkle, see this volume), one might also expect higher rates of depressive symptoms in the latency-age group. This was not borne out. White females exhibited the highest rates of self-reported depressive symptoms, which then dropped with increasing age. Since most other studies of depression in white children have not used a longitudinal design, it is difficult to compare these findings with those. Using a cross-sectional design, Kashani et al. (1989) found no differences in rates of depressed children between 8 and 12 years of age in a sample of white children from Missouri.

The aforementioned findings are not as reassuring as they might seem at first, since several suicidal items were consistently endorsed by some Indian children. That 20% of the Indian children endorsed (either "sometimes" or "often") the item "Life is not worth living" is a sobering preliminary finding that needs to be explored and confirmed by subsequent studies. This work suggests that Indian children evidence *less* depressive symptoms but *more* suicidal thoughts than do similar white children.

Most reports describe an increase in the prevalence of depression from childhood to adolescence (Fleming & Offord, 1990). In Figure 1, the slopes of the curves for the self-report data from the SOS suggest that rates of depressive symptoms for Indian children may overtake the rates of their white counterparts with age. This trend will be examined more closely with follow-up data collected from one Indian sample at the Plains reservation site in 1991.

Teachers rated students very differently than students rated themselves. Measurement problems continue to plague this area of inquiry, as a variety of self-report and interview instruments have been used by investigators over the past decade (Fleming & Offord, 1990). Many previous studies have shown wide variance between teacher, parent, and student self-report, regardless of the parameter studied (Young et al., 1987). Angold (1988) has noted that the borders of clinical depression, as opposed to unhappiness, remain fuzzy and uncertain, with the result that great differences in the reported rates of depression are found from studies that employ different instruments and criteria. More recently, Nurcombe and associates (1989) challenged the meaning and utility of diagnosing depression in this age group. Their data suggest that depression is a continuous spectrum of symptoms rather than a diagnostic entity per se in the latency period.

This data suggest that teachers might not be particularly good case finders when it comes to selecting children with depressive symptoms for additional assistance. Depressive symptoms during this developmental stage tend to remain hidden from the significant adults in the child's life. Yet it also is apparent that persistently depressive symptoms in these children are related strongly to how teachers rate such children in terms of their social and academic skills. Thus, future efforts at improving the education of Indian children will need to consider the less obvious consequences of depression that may plague this group of children.

Despite the lack of diagnostic consistency noted in the literature, this study suggests that depressive symptoms are not transient. The persistence of depressive symptoms also has been noted in a Dutch epidemiologic study using the CBCL (Verlhulst, Akkerkius, & Althaus, 1985). In a study of early adolescents, Garrison, Jackson, Marsteller, and McKoewn (1990) found that the best predictor of subsequent scores on the Center for Epidemiologic Studies Depression Scale (CES-D) is the previous year's score.

The univariate and logistic regression analysis conducted in this study yielded a variety of risk factors that resemble those reported in the literature for depressed children and adolescents. Numerous studies have shown family dysfunction and stressful life events to be associated with depressive symptoms (Fleming & Offord, 1990). The Home Atmosphere Scale (as reported by the child) was the most potent (if modest) predictor of depressive symptoms in our study (see Table 4). A multiplicity

of other variables associated with persistently depressed children suggests themes of loss, low self-esteem, stress, and family dysfunction. A great deal of shared variance among these variables precludes the identification of more specific predictors in the study.

Finally, this study's findings in regard to suicidal symptoms are presented as preliminary. Future efforts should seek to provide more definitive prevalence rates for such symptoms in this age group. Data on suicidal ideation from the *Flower of Two Soils* includes only two reservation sites (one Canadian and one American). The overall prevalence of 4% of Indian children endorsing suicidal thoughts i.e., "Have you thought of killing yourself?" in this study is consistent with other studies in the literature, which range from 2% to 12% (Pfeffer, 1986).

Conclusion

The *Flower of Two Soils* epidemiologic study examined the relationships among cognition, academic achievement, and psychosocial variables in culturally varied groups of Indian children from five reservations and non-Indian children from adjacent locales (Beiser, 1990). This investigation included measures of depressive symptoms as noted by parents, teachers, and students themselves. Two cohorts of children were followed for 3 years, yielding data that spans Grades 2 through 6.

Self-reports of depressive symptoms in Indian children actually were lower than those among their white counterparts. However, this pattern appears to reverse as they enter puberty and adolescence. Even though the overall rates of depressive symptoms were lower in Indian children, a subsample of Indian children consistently endorsed suicidal items at high rates.

Symptoms of depression were rated quite differently by parents, teachers, and the students themselves. Teachers' ratings appeared to be influenced by halo effects. Depressive symptoms tend to persist over time, despite greater reporter variance.

Risk factors for depressive symptoms at this age appear to be multifaceted and nonspecific. They include loss, stress, family dysfunction, and low self-esteem and resemble those previously reported in studies of white adolescents.

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Notes

1. Sites are referred to as only in their general geographic and cultural identity in order to preserve confidentiality.

Discussion

Dr. Berlin: One of the issues when talking about cluster suicides is, What does the community and the local school do with what is happening? It's very clear that the school can take an active role. It can actually identify some of the youths who seem to be vulnerable. Another critical factor is the reverberating role of modeling. There aren't very many adults for the adolescent to identify with. The thing we hear over and over on various reservations is, "What is an effective adult Indian?"

Another developmental issue is the socialization process in latency-age groups. It becomes important for the child to begin to make friends and to learn how to negotiate his/her way in the world of their own peers. Peer group influence in the adolescent society is critical.

Dr. Shaffer: I want to discuss the controversial media studies. The opportunity to study media effects in a systematic fashion arose during the height of concern about suicide prevention. We studied four TV network docudramas about adolescent suicide that were all released over a 3-month period. They were shown once only during the period under study on well-recorded dates and times. We were, therefore, able to accurately date and time an exposure by a large population to a particular stimulus.

Three of the four films were immediately followed by a statistically significant increase in suicidal deaths compared to the same period of time in previous years. There was a parallel increase in suicide attempts referred to an emergency room. When these findings were written up, they generated a lot of publicity. A replicative study was undertaken on statewide data by another investigator who had also been an advisor to one of the programs in question. This study failed to replicate our findings. That led us to undertake an additional replication in different geographic areas, where we obtained a partial replication. An explanation for the partial replications could be that there is a dose/response relationship between media exposure and imitative suicide. The broadcasts that we studied were given different emphases and different levels of publicity in different regions and, therefore, represented a range of doses. Our inability to obtain a perfect replication does not rule out a media effect.

I would like to move to the question of cultural differences in the incidence of youth suicide. There are several possible explanations for these. First, a society may have some cultural attribute that promotes suicide. Cultural attributes are, by definition, shared by a large proportion of a culture. Because suicide is rare in all countries and cultures, one must assume that if there is a culture-specific enhancing effect, it must still operate by facilitating suicide in at-risk individuals rather than operating on its own. Otherwise, the suicide rate would be much higher.

The second possibility is that a culture fails to inhibit suicide. For example, it could be that certain cultures view suicide as a sign of insanity or cowardice. These values would likely deter a suicidal person at the time of despair. If those proscriptions were not present, it would be easier for that person to commit suicide.

A third possibility is that a culture neither praises nor denigrates suicide. However, there is a confound between culture and geography, and if within a particular geographical area, suicide has become quite prevalent, the increased prevalence sustains itself. This would be because having an acquaintance who has attempted or completed suicide itself increases suicide risk and, by definition, in an area of high incidence, there are more people who have completed or attempted suicide to know.

The importance of these variations in suicide incidence regardless of whether they are culturally or geographically determined is that belief systems and exposure to suicide are likely to influence suicidal

behavior in ways that we do not yet understand. This means that we must think very carefully about what we say about suicide to young people.

I personally believe that we should be very open about the relationship between mental disturbance and the distortions of perception and understanding that are the essence of mental illness and suicidal behavior. This will help us to avoid describing suicide in terms that might encourage admiration or imitation.

Addressing Dr. Sack's and Morley Beiser's findings, it seems to me that the main thing is, you find more depression in the non-Indian than in the Indian population. You know, our studies certainly suggest that depression, at least as defined by DSM-III and DSM-III-R, is not the major risk factor for suicide. I don't think it's an inconsistent finding. I do think that there are big problems with scales most commonly used in measuring depression. Transient moments of depression are so common in adolescents and may actually mean so little that it's just a very difficult area to deal with using these kinds of measures. It has to be tethered to some measure of impairment before you know whether you're obtaining meaningful data.

Dr. Guilmet: If you try to think of culture as cognitive, you can start thinking in terms of relations between shared value structures and the individual. You also need to think about cognitive dissonance. Another way you can conceptualize the culture concept is to look at just plain modeling behavior. Can one conceptualize culture just as modeling behavior? That could work with regards to the cohort modeling phenomenon.

If we define culture in terms of values, one must consider how a particular belief influences an individual's behavior. We can be environmentalists and still pollute things. We can be religious and not act religiously.

I think of suicide as a symbolic act. How does the culture define that symbolic act? Is it negative or positive? What does it mean? What's the meaning of that act? Lastly, is it possible that there's a level of anger that can be directed inwardly or outwardly? Can culture shape how we direct anger, thereby influencing suicide and homicide rates?

Dr. Shaffer: The evidence is against that. It looks as if most suicide victims are both aggressive to others and to themselves.

Dr. Berlin: Addressing the issue you raised that suicide is a variable of mental illness, there is in certain Indian reservations a high rate of mental illness. One could therefore postulate that suicide is simply one of the variables.

Dr. Shaffer: If it reflects a high base rate of that risk factor, yes.

Part 3

Programmatic Efforts

THE ZUNI LIFE SKILLS DEVELOPMENT CURRICULUM: A COLLABORATIVE APPROACH TO CURRICULUM DEVELOPMENT

TERESA D. LaFROMBOISE, Ph.D. and BETH HOWARD-PITNEY, Ph.D.

This article describes the development, implementation, and pilot evaluation of a skills-based suicide prevention curriculum for the Zuni Pueblo. The Zuni Life Skills Development curriculum takes a skills training approach to reduce the risk factors for suicide among Zuni adolescents. This article presents some background information about skills training and its applicability to Indian cultures and suicide prevention. The process by which curriculum development was initiated and maintained is described, with an emphasis on the collaborative efforts between the Zuni community and Stanford researchers and the challenges faced by each to develop a culturally sensitive, effective curriculum. Results of the process and outcome evaluation of a pilot test are described in detail as background for the reasoning behind modifications made in a revised curriculum and evaluation design that met the needs and concerns of the community, school, and researchers. An overview of additional efforts in the community to develop a more comprehensive approach for suicide prevention that moves beyond a curriculum-only intervention is presented.

Skills Training Focus

Skills training, a personalized intervention based on social-learning theory (Bandura, 1977), has gained widespread acceptance as an

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We would like to thank the Henry J. Kaiser Family Foundation and the Zuni Public School District for supporting this research. We especially thank Hayes Lewis, Ruby Wolf, and the Zuni High School administration for facilitating our involvement there. We appreciate Carolyn Harris, who provided the first suicide prevention workshop at Zuni; Pat Allen, Stephanie Anton, and Mara Minewegen, who taught the curriculum with Malcolm Bowekaty, Ron Cox, and Bill Pearson of the community resource team; and the students who contributed a great deal to the refinement of the curriculum. Mary Jiron Belgrade gave extensive input in the initial version of the curriculum. We extend our appreciation to the research team at Stanford Health Promotion Resource Center — Benedette September, Mike Johnson, and Mike Basil — who helped in developing and evaluating the ZLSD curriculum. Finally, we also thank Balvindar Sohi and Donna Bee Gates for helping in the preparation of this manuscript.

alternative to traditional therapy. A skills training approach is based upon the view that people learn both effective and ineffective behavior patterns by experiencing the consequences of their actions and by observing the behavior of others.

The behaviors that become recurring aspects of people's repertoires are those that are socially reinforced in a manner meaningful to their phenomenology (Eisler & Frederickson, 1980). People who observe ineffective models or who are reinforced for nonadaptive behavior are unlikely to develop the skills necessary for effective living. Similarly, those whose environment does not reinforce or permit the development of adaptive behavior — as in the case of cultural oppression — will lack fundamental skills.

The skills training model for teaching new adaptive behavior relies on four fundamental components: (a) providing a person with information about the helpful or harmful effects of certain behaviors, (b) modeling target skills, (c) rehearsing behavior for skills acquisition, and (d) providing feedback for skills refinement.

This model lends itself to numerous applications (Hollin & Trower, 1986), and extensive studies over the past 20 years have demonstrated its high degree of versatility and effectiveness with diverse groups. Skills training has been used by counselors and educators to help ethnic minority groups and women achieve greater influence over their lives and their environment (see the work of Engels, 1984; Jansen & Meyers-Abell, 1981; and Schinke, Holden, & Moncher, 1989). Such programs focus on enhancing cognitive and behavioral skills necessary for coping effectively with affective arousal, stress, and negative states (Felner & Felner, 1989).

Counselors and researchers have found skills training useful in working with American Indian adolescents to reduce drinking behavior (Bach & Bornstein, 1981; Carpenter, Lyons, & Miller, 1985; Gilchrist, Schinke, Trimble, & Cvetkovich, 1987; Schinke et al., 1988) to reduce tobacco use (Schinke, Moncher, Holden, Botvin, & Orlandi, 1989; Schinke, Schilling, Gilchrist, Ashby, & Kitajima, 1987), and to aid in recovery from sexual abuse (Ashby, Gilchrist, & Miramontez, 1987). It has helped Indian adults improve parenting practices (Bigfoot, 1989), assertion skills (LaFromboise, 1983a; LaFromboise & Rowe, 1983) and other skills related to the professionalization process (e.g., self-esteem enhancement, career planning, and financial management).

Skills training has several features that facilitate intervention with American Indians that stem from the flexibility of the approach and its inherent potential to offer interventions that are culturally appropriate in both style and content. The approach lends itself to collaboration between community members and intervention developers to determine socially appropriate goals for the intervention (this could include the maintenance of certain indigenous beliefs and skills as well as the acquisition of select mainstream skills). Skills training allows the community to define the

target problems to be solved (e.g., suicide attempts, substance abuse, child neglect) and the type of behaviors deemed appropriate for each situation (e.g., coping and helping skills, refusal skills, parenting skills). Skills training also lends itself to prevention efforts because it can be used to develop skills and competencies prior to the manifestation of behavioral problems or deficiencies (Schinke, Schilling, Palleja, & Zayas, 1987). Specific appropriate aspects of skills training with American Indian clients include the extensive use of (a) modeling in small group settings, which is compatible with Indian styles of helping; (b) role modeling, which is a major source of learning in Indian cultures; and (c) community gatekeepers in the design and implementation of training programs, which is consistent with and supportive of the cultural structure.

In recent years, skills training has been applied to nonclinical areas such as education, business, and communications and has expanded beyond the acquisition of a few targeted behaviors to the maintenance of social competence across the whole life span. Examples of successful, educationally based social competence training programs include Interpersonal Cognitive Problem-Solving Training (Shure & Spivack, 1982), the Yale-New Haven Social Problem Solving Program for Young Adolescents (Weissberg, Caplan, & Bennetto, 1988), and the Yale Child Study Center Primary Prevention School Project, developed by James Comer (1980). Although these programs were initiated to address the needs of a particular age group or skill area, they eventually were implemented across the education curricula from preschool through high school. Programs of this nature have been related positively to gains in intellectual capabilities and healthy adjustment in school settings (Cartledge & Milburn, 1980; Cauce, Comer, & Schwartz, 1987; Deluty, 1985).

Personal and social skills training programs recently have been applied to diverse adolescent prevention programs, especially in school-based settings. These programs have focused primarily on the enhancement of competence (e.g., coping skills, problem-solving skills) or on the reduction of at-risk behaviors (e.g., smoking, unsafe sex). Outcome data from these preventive interventions have been promising, with some positive effects reported for every program (Compas, Phares, & Ledoux, 1989).

Adolescent suicide prevention is one area in which the skills training approach has not been applied in a classroom setting. Most suicide prevention curricula or school-based programs focus primarily on teaching information about suicide, detecting risk factors, referring at-risk students, and developing crisis intervention techniques. Few, if any, strive to change the risk factors related to suicide through personal and social skills enhancement. The success of the skills training approach in other adolescent risk behaviors suggests that it may be an effective approach for suicide prevention as well. This evidence of effectiveness coupled with the compatibility of skills training to Indian culture makes this approach