



Culture & Mental Health Research Unit

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**Risk Factors for Attempted Suicide Among Inuit Youth:
A Community Survey**

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SUMMARY

In 1992, we conducted a survey of 100 Inuit young people aged 14-25 years, residing in a community on the Hudson Bay Coast in Northern Quebec, in order to estimate the prevalence and risk factors for suicide attempts. The interview questionnaire was adapted from a self-report instrument used in the 1988 Adolescent Health Survey of the Indian Public Health Service in the United States (Grossman, Milligan & Deyo, 1991). We focused on a community rather than a school-based sample and used both bivariate and multivariate statistical methods to study risk factors. Our sample of 100 youth represented about 40% of the target population.

Thirty-four percent of survey respondents reported a past suicide attempt, and 20% had attempted suicide more than once. In terms of severity, a suicide attempt resulted in injury for about 11% of the persons surveyed. Prevalence of suicidal ideation and exposure to suicide were also very high: 43% reported past thoughts of suicide (26% in the month before the survey) and over 40% had friends who had attempted or completed suicide in the past. Suicidal ideation was highly associated with having a friend who had attempted or completed suicide. The strongest risk factors for suicide attempts were male gender, having a friend who had attempted suicide, experience of physical abuse, a history of solvent abuse, and having a parent with an alcohol or drug problem. Older age and a family history of having received treatment for a psychiatric problem were protective factors.

These findings indicate that individuals at high risk for suicide in the community can be identified for help; however, a broader emphasis on family health and well-being is also essential in preventive measures.

Our study also explored the prevalence of substance use, patterns of help-seeking, prevalence of worries and health problems, and interest in activities and programs. For several potential problems (e.g., anger, friendship break-up), many youth could not identify persons to whom they would go for help. These findings point to the need for effective treatment programs for alcohol and substance abuse, skills training to aid in interpersonal problem solving and dealing with life events, and development of social programs and activities for young people in the community.

This study, as well as recent review of the suicide literature with an emphasis on Aboriginal peoples, supports interventions targeted at the community and political level as well as at the level of the family and the vulnerable individual. In all cases, measures to prevent suicide by improving mental health must be culturally sensitive and broadly based, including sociocultural and spiritual dimensions of well-being.

Résumé

En 1992, nous avons fait une enquête auprès de 100 jeunes Inuits, âgés entre 14 et 25 ans, demeurant dans une communauté sur le littoral de la Baie d'Hudson, au nord du Québec, afin d'évaluer la prévalence et les facteurs de risque associés aux tentatives de suicide. Le questionnaire de l'entrevue est basé sur un instrument qui a été utilisé aux États-Unis en 1988 par le *Indien Public Health Service* ("Adolescent Health Survey," Grossman, Milligan & Deyo, 1991). Nous nous sommes concentrés sur une échantillon provenant de la communauté plutôt que du milieu scolaire et avons utilisés à la fois des analyses statistiques bivariées et multivariées afin d'étudier les facteurs de risque. Notre échantillon de 100 jeunes représente environ 40% de la population cible.

Trente-quatre pour cent des participants ont rapporté une tentative de suicide dans le passé et 20% ont rapporté avoir tenté de se suicider plus d'une fois. En terme de sévérité, la tentative de suicide a entraîné une blessure pour environ 11% des personnes questionnées. La prévalence des idées suicidaires ainsi que le taux d'exposition au phénomène du suicide étaient également très élevés: 43% témoignent avoir eu des idées suicidaires dans le passé (26% au cours du mois qui précède l'enquête) et plus de 40% avaient des ami-e-s qui avaient tenté ou s'étaient suicidés dans le passé. Les idées suicidaires étaient grandement associées au fait d'avoir un-e ami-e qui avait tenté ou s'était suicidé. Les facteurs de risque les plus importants associés aux tentatives de suicide étaient le fait d'être un homme, d'avoir un-e ami-e ayant tenté de se suicider, d'avoir été victime d'abus physique, l'abus de solvants et le fait d'avoir un parent ayant des problèmes d'alcool ou de drogues. Le fait d'être plus âgé et d'avoir une histoire familiale de consultations psychiatriques étaient des facteurs de protection.

Ces résultats signifient que les individus ayant un risque élevé de suicide dans la communauté peuvent être identifiés afin d'être aidés; toutefois, une emphase sur la santé et le bien-être de la famille est également essentielle comme mesure préventive.

Notre étude explore également la prévalence d'usage de drogues et d'alcool, les styles de recherche de soins, la prévalence d'inquiétudes et de problèmes de santé ainsi que les intérêts dans les activités et les programmes. Dans le cas de nombreux problèmes possibles (e.g., colère, rupture avec un-e ami-e), plusieurs jeunes étaient incapables d'identifier des gens vers qui ils pourraient se tourner pour obtenir de l'aide. Ces résultats démontrent le besoin de traitements efficaces pour l'abus de drogues et d'alcool, d'entraînement afin d'aider la résolution de problèmes interpersonnels et d'aider à faire face aux événements de la vie, et le développement de programmes sociaux et d'activités pour les jeunes dans la communauté.

Cette étude, ainsi que les revues récentes de la littérature s'intéressant aux autochtones, est en faveur des interventions visant le niveau communautaire et politique de même que le niveau de la famille et de l'individu vulnérable. Dans

tous les cas, les mesures de prévention du suicide, telle que l'amélioration de la santé mentale, doivent être sensibles à la culture et basées sur un ensemble de dimensions telles que les dimensions socioculturelle et spirituelle de bien-être.

INTRODUCTION

Across Canada, Aboriginal youth suffer from high suicide rates. Many reasons have been advanced for this including socioeconomic disadvantage, geographic isolation, rapid culture change with attendant acculturation stress and the oppressive effects of a long history of internal colonialism (Kirmayer, 1994). Few studies among Aboriginal peoples, however, have used multivariate statistics to examine the relative contribution of personal and social factors to the risk for suicide attempts.

This study was undertaken to estimate the prevalence and risk factors for suicide attempts and ideation among Inuit youth of Nunavik. We conducted a community survey of 100 youth in an Inuit settlement on the East Coast of Hudson's Bay. Prior to this survey, the study community had suffered from a cluster of suicides and suicide attempts among youth. This cluster occurred despite the availability of medical and psychiatric consultation, suggesting the need for research to identify high risk groups who were not coming to medical attention as well as social factors not addressed by conventional psychiatric models. The present research aimed to identify contributing factors to this high incidence of attempted suicide and provide information to guide preventative measures.

The survey methods were adapted from the Adolescent Health Survey undertaken in 1988 by the Indian Public Health Service in the United States (Grossman, Milligan & Deyo, 1991). The American study used a self-report questionnaire administered to students in high school. Since we wished to reach youth who were not attending school and could not depend on a uniform level of literacy, we adapted the self-report measure to a face-to-face interview format. In this report we will summarize the methodology, findings and conclusions of the study.

METHOD

Sample

The study subjects were Inuit adolescents and young adults between the ages of 14 and 25 years at the time of interviewing, residing in a village on the East Coast of Hudson's Bay (population approximately 1000). A list of all youth born between 1966 and 1978 was obtained from hospital vaccination records, supplemented with the community housing list (N=259). From these sources a random sample of 100 subjects was drawn. Research assistants then attempted to locate the individuals and invite them to participate in the study. If the individuals refused, another name was chosen randomly from the list to replace them. However, because many subjects were camping and hunting out on the land during the summer months of the study, this randomization scheme was not successful and a convenience sample of 100 available subjects was obtained instead. Thirty-six persons in this group were from the random sample. Of those in the random sample who were not ascertained for our study (N=64), three

persons were deceased, four were known to be away from the area, five were called but not obtained for the survey, nine refused to participate, and 43 persons could not be contacted. Of those individuals on the population list who were not part of the random sample and were not ascertained for our survey (N=95), four were deceased, six were away from the area, 16 were called but not obtained for the study, one refused to participate, and 68 could not be contacted. While it is possible that youth who were better integrated into their families and into traditional camp life were under-represented in our sample because of the time of year of the survey, it is also possible that the most disaffected youth made themselves 'scarce' or refused to participate. We cannot determine whether there was any systematic bias in our sample but its demographic characteristics (mean age and percentage of males) do not differ significantly from those of the community age cohort as a whole. With respect to mean age and gender, there were no significant differences between the 36 subjects recruited according to the randomization procedure and the survey sample as a whole (N=99); nor were there any significant differences between the 99 surveyed individuals between 15 and 25 years and the 154 non-participants in the age cohort during the time of interviewing (including the deceased, persons away, those called but not obtained, refusals, and those not contacted). Because the estimated size of the population of 15-25 year olds at the time of the survey was 246, our study contained about 40% of the eligible population.

Measures

The survey questionnaire was adapted from a self-report questionnaire used in a 1988 study of high school students on the Navajo reservation in the Southwestern United States (Grossman, Milligan & Deyo, 1991) . We adapted the self-report measure to an interview format. Our questionnaire was translated into Inuktitut, back-translated to English, and checked by bilingual speakers (who had not seen the original English questionnaire) at Inuulitsivik Hospital in June of 1992. English and Inuktitut versions of the questionnaire and the English consent form are presented in Appendix A1. In the course of translating and using the questionnaire several problems were encountered which are summarized in Appendix A2. During some interviews, interviewers translated a few items into French when needed to further clarify a question.

Judgment of what constitutes a suicide 'attempt' varies widely among individuals, and in many cases suicidal 'gestures' of little or no lethality are counted as attempts. To estimate the prevalence of 'serious' suicide attempts in our study population, we asked whether respondents were injured in an attempt, saw a doctor, or were admitted to a hospital (Meehan, Lamb, Saltzman & O'Carroll, 1992).

Alienation. The scale used to measure alienation by Grossman, Milligan & Deyo (1991) in their Navaho survey contained nine questionnaire items and had a Cronbach's alpha coefficient of 0.85 (N=7,241). One item in this scale, which referred to alienation from school people, was not used for the alienation scale in our study, because we focused on a community rather than a school sample. Our scale included the remaining eight items in which subjects were asked to indicate

how much they felt certain groups cared about them (including elders, parents, church leaders, and neighbours), and how much their family had fun with them, cared about their feelings, and understood and paid attention to them. A higher score indicated greater feelings of alienation from these groups. Internal consistency of our eight item alienation scale was high, with a Cronbach's alpha coefficient of 0.8 (N=86). This scale is described further in Appendix B1, and will be denoted in the following sections of this report as the "Alienation Scale (8 items)".

Factor analysis (principal components followed by varimax rotation) of the Alienation Scale (8 items), identified two factors which seemed to represent perception of level of caring by others (elders, parents, neighbours, and church leaders) and perception of contentment in the family (family understands, cares about his/her feelings, pays attention and has fun with him/her). Accordingly, two separate four-item scales (the Lack of Caring and Family Discontentment scales) were generated for analysis with our survey data. The Cronbach's alpha coefficients for these four item scales were 0.72 (N=90) and 0.74 (N=94), respectively (see Appendices B2 and B3). Finally, our Alienation Scale was augmented to a ten-item scale with the addition of two questionnaire items which may indicate feelings of isolation and/or alienation and were coded in the same manner as the other eight items in the scale (i.e., score for each item varied from 1-7). These two questions asked the respondent to indicate how strongly he/she wanted to leave home and how often he/she got upset at home. The Cronbach's alpha coefficient for this Alienation Scale was 0.78 (N=83). The two additional items were indicated by factor analysis with varimax rotation to be measuring a third factor, which seemed to correspond to 'feelings at home' (see Appendix B4 for more details). This scale will be denoted as the "Alienation Scale (10 items)" in the following sections of this report.

Substance Use. An additional risk factor for suicidal ideation and/or attempt was formed as an indicator of substance abuse, using available questionnaire items and a close approximation of the DSM-IV criteria for substance abuse. To be classified as a possible substance abuser, the respondent had to indicate having used alcohol or other substances in his/her lifetime and had to report incidents resulting from alcohol or drug use from at least two of the following groups of experiences:

- (1) failure to carry out role obligations at school or work (specifically, studies suffered and/or a teacher was treated unfairly, or the respondent was fired from work)
- (2) use of substances in hazardous situations (specifically, the respondent had an accident or injury while under the influence, or drinks and drives)
- (3) legal problems (specifically, he/she has been sent to jail or a detention center)
- (4) social or relationship problems (specifically, he/she argued with family, lost friends, separated from boy- or girlfriend, or became violent)

Based on the above criteria, 40% (40/99) of the study participants were possible substance abusers (more details about the indicator variable and its components are presented in the section on substance use).

Emotional Distress. A series of 17 items in our questionnaire assessed the respondent's level of emotional distress in the previous month. The Cronbach's alpha coefficient for this scale was 0.81 (N=92) in our study. Factor analysis with varimax rotation extracted five underlying components; however, only the first three were possible to interpret. A three-component solution was forced and indicated that depression, fatigue, and "generalized dysphoria" factors were being measured. This scale is described further in Appendix B5.

Interview Procedure

A group of 14 interviewers/translators conducted the interviews singly or in pairs. Interviews took place from June through October 1992, and were conducted in the respondents' home, the hospital nursing station, or at work or school. Interviews were conducted in Inuktitut and/or English, and French translations were occasionally provided to clarify a question. Respondents were encouraged to use whichever language was most comfortable for them and often switched languages during the interview to clarify a question or response.

Data Analysis

The study data was analyzed with SPSS for Windows statistical software version 6.0 on an IBM compatible computer. Differences in means and proportions were tested with t test and chi-square statistics, respectively. The Fisher's exact test was used for bivariate 2 x 2 contingency table analysis in which the expected number of persons in any cell was less than five. Because of the exploratory nature of this study, the lack of previous suicide research in the study population, and the importance of maintaining adequate analytical power, a p value of .10 was used to indicate a significant difference for statistical tests in the bivariate analysis (Grove & Andreasen, 1982). A borderline significant result was indicated by a p value between .10 and .15.

Logistic regression was conducted with suicide attempt as the dependent dichotomous variable and a variety of continuous and dichotomous independent variables, in addition to age and gender. The independent variables selected for analysis depended on which of the four full models were used (see later descriptions of Models A-D). Backward stepwise selection was carried out on each of the full models with variable addition and removal p values of .05 and .10, respectively, in order to find the most parsimonious models for the prediction of suicide attempt. Forward stepwise selection was also used to confirm the results of the backward selection, with the same p values as above as well as with more lenient p values of .10 for both the addition and removal of variables. Variables were included in the final, reduced models if their p values were approximately .05 or less, or they were thought to be possible confounding variables (such as age and gender).

RESULTS

A total of 101 interviews were conducted. Two interviews were not usable: one was a repeat interview and one was of a 26 year old subject. Thus, there were 99 usable interviews for this study.

The language(s) used during the interviews were Inuktitut in 69%, English in 54%, and French in 12%. There was no significant effect of language of interview on reports of suicidal ideation. However, the use of English during the interview was associated with a higher rate of reporting suicide attempts (of those using English in the interview, 43% reported a suicide attempt versus 22% of those not using English; $\chi^2=4.21$, $df=1$, $p=.04$). There was no effect of time of interview (summer versus winter) on reported frequency of suicidal ideation or attempts.

In general the questionnaire was well tolerated, with few respondents reporting it as upsetting. Suicide attempters did not find the questionnaire more upsetting than did non-attempters (mean \pm SD: 2.0 ± 1.6 versus 2.0 ± 1.4 , respectively; score varied from 1-7). The length of time required to administer the questionnaire was 1-2 hours.

Sociodemographic Characteristics

Table 1 presents the sociodemographic characteristics of the study sample. The sample was about half male and the mean age was approximately 19 years (mean \pm SD: 19.4 ± 2.9). Most subjects were single; none were divorced or widowed. One-third of the subjects were students and 32% were working full or part-time; 24% were unemployed but less than half of these were looking for work. The majority of respondents were Anglican; only 1% reported themselves as Pentecostal, and 1% as “no religion”. Fully 15% stated they did not know their religious affiliation; this may reflect uncertainty or agnosticism, or simply difficulty understanding the question. As an index of religiosity, regular church attendance (at least every Sunday) was reported by 37% of respondents.

Table 1. Sociodemographic Characteristics of Sample (N=99)

	%
Male gender	48
<i>Marital status</i>	
single	73
married or common-law	26
<i>Occupational status</i>	
student	33
working full- or part-time	32
homemaker	12
unemployed	24
welfare	4
disabled	1
<i>Religion</i>	
Anglican	74
Catholic	9
Pentecostal	1
no religion	1
don't know	15
<i>Religiosity</i>	
attends church at least every Sunday	37

Family and Household Characteristics

Table 2 presents family and household characteristics of the study sample. Most often, the parents of respondents were together (74%) and the respondents were living with their biological parent(s) (67%) and/or full siblings (76%). Eighty-six percent of participants had been brought up by the same people all their life. Sixteen percent (15/95) indicated that they had been separated from their parents before age 16 because of hospitalization or problems in the family. For 28%, someone in the family had been treated for a psychiatric or emotional problem, most often a brother for either depression or substance abuse. The modal number of people in the household was six.

Table 2. Family History and Household Composition of Sample (N=99)

	%
Adopted	16
<i>Parents</i>	
together	74
separated or divorced	11
one or both parent(s) deceased	13
<i>Household, living with</i>	
biological mother and/or father	67
adoptive mother and/or father	15
guardian	3
grandparent(s)	8
brother and/or sister	76
step-siblings	5
other children, not related	11
common-law partner, boy- or girlfriend	30
own children	29
Living in a boarding home	3

Suicide Attempts

Table 3 summarizes the prevalence of suicide attempts in the sample. Ninety-one respondents replied to the questions on suicide attempts. One-third of these had made a suicide attempt in their lifetime; 20% of the 91 respondents had made more than one attempt. For 32% of the attempters, the suicide attempt was serious enough to have resulted in some injury. Sixteen percent of attempters saw a doctor as a result and 13% were admitted to hospital. The questions about seeing a doctor and hospitalization were only asked of those who had been injured in an attempt. Thus, about 11% (10/91) of the youth surveyed had made a serious suicide attempt (resulting in injury) at some point in their life.

Table 3. Prevalence of Suicide Attempts Among Inuit Youth

	Proportion	%
Any suicide attempt	31/91	34
Attempted more than once	18/91	20
Attempted more than twice	11/91	12
Of attempters,		
injured in an attempt	10/31	32
saw a doctor as a result	5/31	16
admitted to hospital as a result	4/31	13

Suicidal Ideation

Table 4 presents the prevalence of suicidal ideation in the sample. Almost all subjects replied to the questions on suicidal ideation. Forty-three percent of the respondents reported a history of suicidal ideation and 27% had suicidal ideation in the last six months. Suicidal ideation varied widely in intensity; while 26% reported any degree of suicidal ideation in the last month, only 5% reported intense suicidal ideation, indicating that they felt like committing suicide “at the first opportunity.”

Table 4. Suicidal Ideation Among Inuit Youth

	Proportion	%
Ever had thoughts of suicide	42/98	43
Thoughts in the last six months	25/94	27
Thoughts in the last three months	17/93	18
Suicidal ideation in last month		
any	26/99	26
intense	5/99	5

Of those with suicidal ideation in the last month, 68% (17/25) indicated they had made a past or recent suicide attempt compared to 21% (14/66) of those without suicidal ideation in the last month ($\chi^2=17.67$, $df=1$, $p<.001$).

41%

27%

NS

Tables 5A & 5B present the 30 comparisons made between the respondents who have had suicidal thoughts in their lifetime and those who have not had such thoughts.

**Table 5A.
Comparison of Youth With
and Without a History of
Suicidal Ideation**

Thought of Suicide
(N=42)*Never Thought of
Suicide
(N=56)*Result of
Significance

Test *Sociodemographic
characteristics* Age**19

.3 ± 2.9 19.6 ±

2.8 NS Gender (%)

male) 52% 45% NS Not
attending

school 76% 59% $\chi^2=3.20$, $df=$
1, $p=.07$ Working, full or part-
time

Church attendance (at least
every Sunday) 19% 50% $\chi^2=9.89$, $df=1$, $p=.002$

Living in a boarding home 7% 0% Fisher's exact; $p=.08$

Adopted 22% 13% NS
(9/41)

Family history

Family history of treatment for a
psychiatric problem 27% 31% NS
(11/41) (16/52)

Brought up by same people
all his/her life 83% 88% NS

Exposure to suicide

Relative attempted or completed suicide	32% (13/41)	23%	NS
Friend attempted suicide	63% (26/41)	38%	$\chi^2=6.36, df=1, p=.01$
Friend completed suicide	62% (24/39)	29% (16/55)	$\chi^2=9.83, df=1, p=.002$
<i>Worries about...</i>			
death	41%	16%	$\chi^2=7.33, df=1, p=.007$
body developing	52%	22% (12/55)	$\chi^2=9.77, df=1, p=.002$
looks	29%	5%	$\chi^2=9.98, df=1, p=.002$
what friends think	36%	21%	$\chi^2=2.45, df=1, p=.12$

* unless otherwise indicated

**mean \pm SD.

NS indicates a result with a p value > .15

Table 5B.
Comparison of Youth With and Without a History of Suicidal Ideation.

	Thought of Suicide (N=42)*	Never Thought of Suicide (N=56)*	Result of Significance Test
<i>Personal feelings</i>			
Gets bored** †	4.46 ± 1.8	3.69 ± 1.8	t=2.09,df=96,p=.04
Alienation Scale (8 item)**	22.3 ± 6.9 (N=35)	20.3 ± 6.9 (N=50)	NS
Lack of Caring scale**	12.5 ± 3.9 (N=37)	11.1 ± 4.1 (N=52)	t=1.55,df=87,p=.12
Family Discontentment scale**	9.8 ± 4.1 (N=40)	9.2 ± 3.8 (N=53)	NS
Alienation Scale (10 item)**	28.0 ± 8.0 (N=35)	25.1 ± 7.5 (N=47)	t=1.69,df=80,p=.10
<i>Other characteristics</i>			
Ever thought of moving South	38%	18%	$\chi^2=5.04,df=1,p=.02$
Poor health §	24% (10/41)	25%	NS
Personal or mental health problem in past year	41%	9%	$\chi^2=13.72,df=1,p<.001$
Alcohol used at least once a week	7%	5%	NS
Solvents used at least every couple of months	10%	4%	NS
Indicator of substance abuse	50%	34%	$\chi^2=2.57,df=1,p=.11$
Physical abuse	36%	20% (11/54)	$\chi^2=2.82,df=1,p=.09$
Sexual abuse	17% (7/41)	11% (6/54)	NS
More than three fights in past year	17% (7/41)	4%	Fisher's exact; p=.02

* unless otherwise indicated

**mean ± SD

† higher score, has feeling more often; score varies from 1-7

§ Poor health defined as a 'not good' or 'could be better' response to the question "how is your state of health?"

NS indicates a result with a p value > .15

In Tables 5A and B, those who reported suicidal ideation were significantly less likely to attend church on a regular basis, and a significantly greater proportion were worried about body features and dying, had a friend who had attempted or completed suicide, and reported a personal or mental health problem in the past year ($p < .01$). Those with suicidal ideation tended to be not attending school, living in a boarding home, were more likely to worry about what their friends thought, were bored more often, had greater feelings of lack of caring by others, and tended to have a greater score (more alienation) on the ten item Alienation Scale, indicating that they wanted to leave home or got upset at home more often ($p < .15$). A greater proportion of those with suicidal ideation were possible substance abusers and reported physical abuse ($p < .15$).

When the Emotional Distress scale was used to compare those who reported having suicidal thoughts in the past month ($N=25$) with those who did not ($N=67$), mean level of distress in the past month was significantly higher among those with suicidal ideation (mean score \pm SD: 55.72 ± 19.3 versus 44.31 ± 12.1 , respectively; $t=3.39$, $df=90$, $p=.005$). This finding is an indication of the construct validity of the Emotional Distress scale.

Age Differences

Tables 6A & 6B present comparisons between respondents aged 14-19 years and those aged 20-25 years for 20 factors, including suicide attempts, suicidal ideation, and characteristics that may be risk factors for suicidal thoughts and action. The younger age-group was significantly more likely to report multiple suicide attempts, suicidal thoughts in the past six months, and having used solvents at some point in their lifetime ($p < .05$). Other trends that were observed were greater feelings of alienation and family discontentment among the younger respondents ($p < .15$) and a greater proportion of respondents reporting sexual abuse among the older age-group ($p < .15$).

Gender Differences

Tables 7A & 7B present comparisons between male and female respondents for the 20 factors studied in Table 6. With respect to results with p values of .15 or less, males tended to report a past suicide attempt more often, and were more likely to have had a friend who completed suicide and to have used solvents in their lifetime. Males were also more likely to be possible substance abusers ($p < .05$). On the other hand, females more often reported having been sexually abused and having a relative who had attempted or completed suicide ($p = .05$).

Table 6A.
Age Differences in Suicide Attempts, Ideation and Risk Factors

	Age 14-19 (N=58)*	Age 20-25 (N=41)*	Result of significance test
<i>Suicide attempts</i>			
Ever attempted	35% (19/54)	32% (12/37)	NS
Injured in an attempt	9% (5/54)	14% (5/37)	NS
Two or more attempts	28% (15/54)	8% (3/37)	$\chi^2=5.35, df=1, p=.02$
<i>Suicidal ideation</i>			
Ever thought of suicide	47%	38% (15/40)	NS
Suicidal ideation in last six months	36%	11% (4/36)	$\chi^2=7.17, df=1, p=.007$
<i>Exposure to suicide</i>			
Relative attempted or completed suicide	26% (15/57)	27%	NS
Friend attempted suicide	53% (30/57)	42%	NS
Friend completed suicide	46% (25/54)	37%	NS

* unless otherwise indicated

NS indicates a result with a p value > .15.

Table 6B.
Age Differences in Suicide Attempts, Ideation and Risk Factors

	Age 14-19 (N=58)*	Age 20-25 (N=41)*	Result of significance test
<i>Personal features</i>			
Ever used solvents	49% (27/55)	20% (8/40)	$\chi^2=8.42, df=1, p=.004$
Solvents used at least every couple of months	8.6%	2.4%	NS
Alcohol used at least once a week	3.4%	9.8%	NS
Indicator of substance abuse	41%	39%	NS
Parent(s) with a drinking or drug problem	36% (19/53)	41% (16/39)	NS
Physical abuse	23% (13/56)	32%	NS
Sexual abuse	9% (5/55)	20%	$\chi^2=2.18, df=1, p=.14$
Personal or mental health problem in past year	22%	24%	NS
Alienation Scale (8 items)**	22.0 ± 6.9 (N=46)	19.9 ± 7.0 (N=40)	t=1.46, df=84, p=.15
Lack of Caring scale**	12.0 ± 3.8 (N=50)	11.1 ± 4.3 (N=40)	NS
Family Discontentment scale**	10.0 ± 4.0 (N=53)	8.7 ± 3.9 (N=41)	t=1.61, df=92, p=.11
Alienation Scale (10 items)**	27.4 ± 7.5 (N=45)	24.7 ± 8.2 (N=38)	t=1.54, df=81, p=.13

* unless otherwise indicated

**mean ± SD

NS indicates a result with a p value > .15.

Table 7A.
Gender Differences in Suicide Attempts, Ideation and Risk Factors

	Male (N=47)*	Female (N=52)*	Result of significance test
<i>Suicide attempts</i>			
Ever attempted	43% (19/44)	26% (12/47)	$\chi^2=3.15, df=1, p=.08$
Injured in an attempt	16% (7/44)	6% (3/47)	NS
Two or more attempts	25% (11/44)	15% (7/47)	NS
<i>Suicidal ideation</i>			
Ever thought of suicide	47%	39% (20/51)	NS
Suicidal ideation in last 6 months	22% (10/45)	31% (15/49)	NS
<i>Exposure to suicide</i>			
Relative attempted or completed suicide	17% (8/46)	35%	$\chi^2=3.71, df=1, p=.05$
Friend attempted suicide	46% (21/46)	50%	NS
Friend completed suicide	50% (23/46)	35% (17/49)	$\chi^2=2.28, df=1, p=.13$

* unless otherwise indicated
NS indicates a result with a p value > .15.

Table 7B.
Gender Differences in Suicide Attempts, Ideation and Risk Factors

	Male (N=47)*	Female (N=52)*	Result of significance test
<i>Personal features</i>			
Ever used solvents	46% (21/46)	29% (14/49)	$\chi^2=2.97, df=1, p=.09$
Solvents used at least every couple of months	8.5%	3.8%	NS
Alcohol used at least once a week	4.3%	7.7%	NS
Indicator of substance abuse	51%	31%	$\chi^2=4.22, df=1, p=.04$
Parent(s) with a drinking or drug problem	39% (16/41)	37% (19/51)	NS
Physical abuse	22% (10/46)	31% (16/51)	NS
Sexual abuse	6.5% (3/46)	20% (10/50)	$\chi^2=3.72, df=1, p=.05$
Personal or mental health problem in past year	17% (8/47)	29%	NS
Alienation Scale (8 items)**	21.7 ± 7.4 (N=40)	20.5 ± 6.6 (N=46)	NS
Lack of Caring scale**	11.8 ± 4.3 (N=41)	11.4 ± 3.9 (N=49)	NS
Family Discontentment scale**	9.6 ± 4.3 (N=45)	9.2 ± 3.7 (N=49)	NS
Alienation Scale (10 items)**	26.7 ± 8.2 (N=40)	25.7 ± 7.7 (N=43)	NS

* unless otherwise indicated

**mean ± SD

NS indicates a result with a p value > .15.

Exposure to Suicide

As can be seen from Table 8, 27% of the respondents have had a relative who attempted or completed suicide. Almost half have had friends who attempted or completed suicide. These high rates of exposure are to be expected in a small community where any suicide impacts directly on a high proportion of the population; such high rates may contribute to the risk of suicide clusters.

Table 8. Exposure to Suicide (N=98)

	%
Relatives ever attempted or completed	27
Relatives attempted or completed in last year	18
Friends attempted	48
Friends completed	42 (40/95)

Risk and Protective Factors for Suicide Attempts

Tables 9A & 9B compare respondents who reported past suicide attempt(s) with those who have not attempted suicide with respect to 31 potential suicide risk factors. The factors considered include variables found to be significant in a logistic regression model in the U.S. study of Navajo youth (Grossman, Milligan & Deyo, 1991; these factors are indicated by 'G'). On the basis of the bivariate analysis in these tables, suicide attempters were significantly more likely to report parent(s) with a drinking or drug problem, having friends who had attempted or completed suicide, ever having used solvents, and having had personal or mental health problems in the past year ($p < .01$). Suicide attempters were also more likely to have used solvents at least every couple of months, and were less likely to regularly attend church ($p < .05$). There was a trend for suicide attempters to be male, not attending school, first born, living in more crowded households, physically abused, bored more often, and to have used mouth wash or cough syrup to get high ($.05 < p < .15$). With respect to the alienation scales, the difference in mean scores between attempters and non-attempters were particularly significant when the ten item scale was used, which included questions about wanting to leave home and getting upset at home. When these items were considered on their own, the suicide attempters were significantly more likely to report wanting to leave home ($t=2.94, df=46.9, p=.005$) and getting upset at home ($t=3.66, df=88, p<.001$). The results with the two four item scales (Lack of Caring and Family Discontentment), which together form the eight item Alienation Scale, indicate that it is the perception of lack of caring by others, rather than the respondent's feelings of discontentment with the family, that is more strongly associated with suicide attempt.

Table 9A.
Comparison of Suicide Attempters versus Non-Attempters

	Attempted (N=31)*	Never attempted (N=60)*	Result of significance test
<i>Sociodemographic characteristics</i>			
Age**	18.9 ± 2.9	19.7 ± 2.9	NS
Gender (% male) (G)	61%	42%	$\chi^2=3.15, df=1, p=.08$
Not attending school	74%	58%	$\chi^2=2.22, df=1, p=.14$
Working, full or part-time	39%	30%	NS
Church attendance (at least every Sunday)	23%	43%	$\chi^2=3.81, df=1, p=.05$
Adopted	20% (6/30)	17%	NS
<i>Family and Household characteristics</i>			
First born	40% (12/30)	22% (13/58)	$\chi^2=3.0, df=1, p=.08$
Parents separated or divorced	13%	8%	NS
One or both parents deceased	10%	15%	NS
Crowding index** †	1.77 ± 0.47	1.58 ± 0.48	$t=1.85, df=89, p=.07$
<i>Family history</i>			
Family history of treatment for a psychiatric problem	27% (8/30)	31% (18/57)	NS
Parent(s) with a drinking or drug problem	61% (17/28)	26% (15/57)	$\chi^2=9.47, df=1, p=.002$
<i>Exposure to suicide</i>			
Relative attempted or completed suicide (G)	32%	25% (15/59)	NS
Friend attempted suicide (G)	65%	37% (22/59)	$\chi^2=6.05, df=1, p=.01$
Friend completed suicide	62% (18/29)	32% (19/59)	$\chi^2=7.12, df=1, p=.008$

* unless otherwise indicated

** mean ± SD

† Crowding index was defined as number of people in house divided by number of bedrooms

(G) indicates a factor (or its equivalent) found to be significant by Grossman et al. (1991)

NS indicates a result with a p value > .15

Table 9B.
Comparison of Suicide Attempters versus Non-Attempters

	Attempted (N=31)*	Never attempted (N=60)*	Result of significance test
Substance use			
Ever used solvents	58%	23% (13/56)	$\chi^2=10.6, df=1, p=.001$
Solvents used at least every couple of months	13%	2%	Fisher's exact; $p=.04$
Ever used cough syrup or mouth wash to get high	19%	5.1% (3/59)	Fisher's exact; $p=.06$
Alcohol used at least once a week (G)	3.2%	8.3%	NS
Indicator of substance abuse	45% NS	35% NS	$\chi^2=2.45, df=1, p=.12$
Other characteristics			
Brought up by same people all his/her life	84%	88%	
Poor health §	32% (12/59)	20% NS	
Personal or mental health problem in past year	42% (G)	12% NS	$\chi^2=10.9, df=1, p=.001$
Physical abuse	36% (12/59)	20% NS	
Sexual abuse (G)	13% (4/30)	14% (8/59)	NS
Grade point average B	50% (5/10)	96% (27/28)	Fisher's exact; $p=.003$
Personal feelings			
Gets bored** ‡	4.48 ± 1.8	3.74 ± 1.8	$t=1.84, df=89, p=.07$
Alienation Scale (8 items)** (G)	23.6 ± 6.6 (N=25)	20.1 ± 6.9 (N=54)	$t=2.07, df=77, p=.04$
Lack of Caring scale**	12.9 ± 3.6 (N=26)	11.1 ± 4.2 (N=57)	$t=1.92, df=81, p=.06$
Family Discontentment scale**	10.3 ± 4.2 (N=30)	9.3 ± 3.9 (N=56)	NS
Alienation Scale (10 items)**	30.0 ± 8.2 (N=25)	24.5 ± 7.2 (N=52)	$t=3.02, df=75, p=.003$

* unless otherwise indicated

** mean ± SD

§ Poor health defined as a 'not good' or 'could be better' response to the question "how is your state of health?"

‡ higher score, has feeling more often; score varies from 1-7

(G) indicates a factor (or its close equivalent) found to be significant in logistic regression by Grossman et al. (1991)
NS indicates a result with a p value > .15

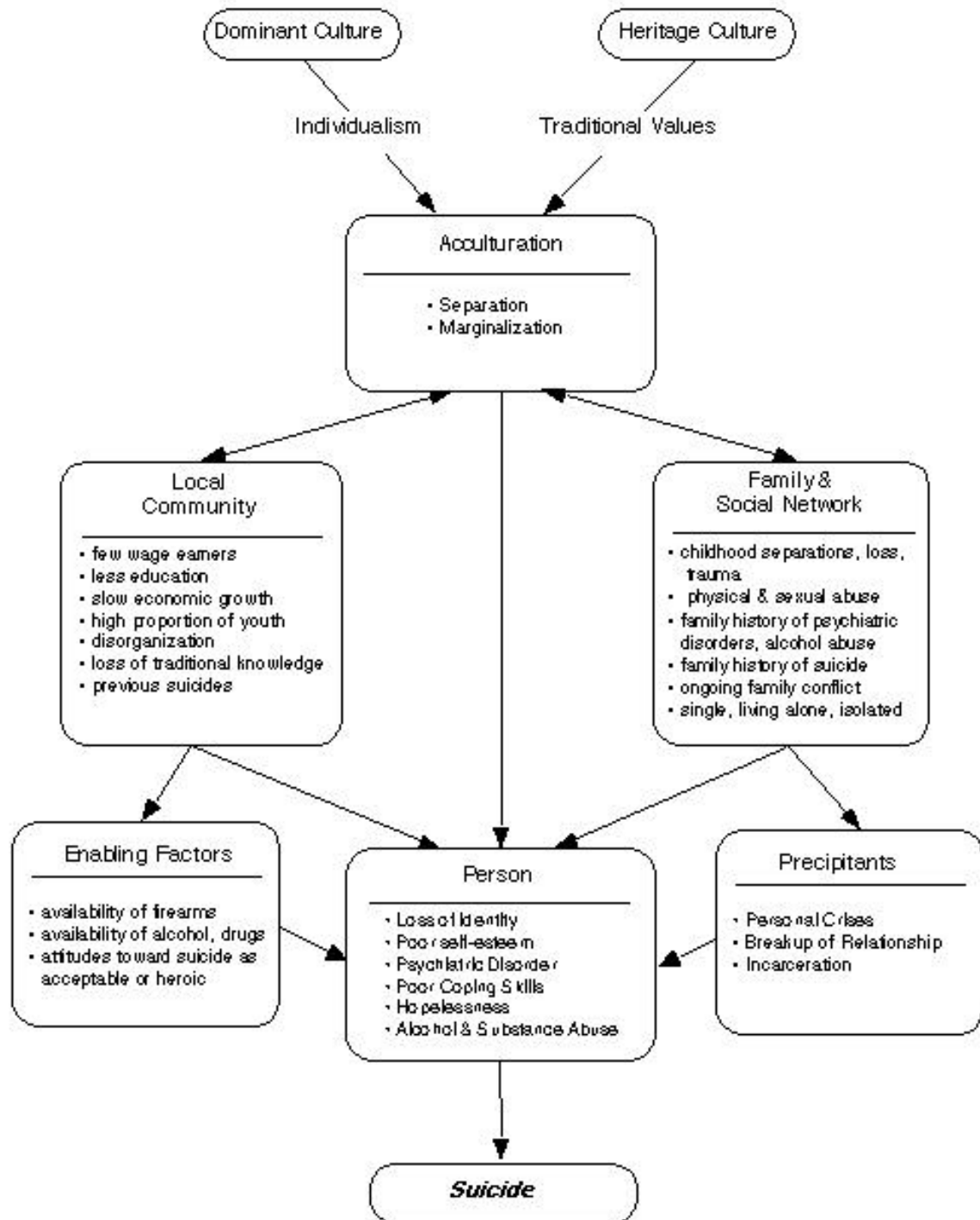
A number of factors found to be significant in other studies or expected to be associated with suicide attempt did not prove to be significant in our bivariate analysis. The factors which were not significantly associated with attempt in Table 9A included the following: age, unemployment, having been adopted, having separated or deceased parent(s), having a relative who has had treatment for a psychiatric problem, or having a relative who attempted or completed suicide. Other non-significant factors in Table 9B included weekly alcohol use, indication of substance abuse, not being brought up by the same people all one's life, self-perception of poor health, and having experienced sexual abuse.

We conducted logistic regression analyses to determine the independent contribution of risk factors to prediction of the suicide attempt outcome, controlling for the effects of sociodemographic variables (age and gender) and other independent variables in the model. Four full models were studied with stepwise logistic regression and are described below. For all models, backward and forward stepwise selection was used to find the most parsimonious model for the prediction of suicide attempt (that is, retaining in a reduced model only those variables with significant, independent contribution to the prediction of attempt).

Model A included age and nine variables which were defined in a similar manner to those found to be significant risk factors for suicide attempts among Navajo students in logistic regression analysis by Grossman and colleagues (1991). These nine variables were gender, sexual abuse, physical abuse, the Alienation Scale (8 item), friend attempted suicide, relative attempted or completed suicide, perception of poor health, regular alcohol use (at least once a week), and ever having had a psychological problem.

For Model B, the variables considered were selected from a model of the factors contributing to suicide among Aboriginal peoples, based on an extensive literature review (Kirmayer et al., 1994). The summary model of factors was derived particularly from the work of Thorslund (1991) on Inuit in Greenland, and is presented in Figure 1. Many of these factors affect whole communities and others were not assessed in our questionnaire, and so could not be studied with our data. Nine variables in our survey which approximated those in the suicide model and did not concern entire communities were entered in the full regression model, in addition to age and gender. The variables included the following "family and social network" factors: physical abuse, sexual abuse, family history of treatment for a psychiatric problem, parent(s) with a drinking or drug problem, relative attempted or completed suicide, friend attempted suicide, friend completed suicide, and the Alienation Scale (10 items). The indicator variable for substance abuse was entered as a "person" factor which may increase the odds of suicide attempt.

Figure 1. A Model of Factors Contributing to Suicide Among Aboriginal Peoples.*



* Based in part on Thorslund (1991, p. 90).

For Model C, the Bonferroni correction for multiple comparisons was applied so that only variables with p values of .003 (.10/31) or less in the bivariate analysis of our study sample (Table 9) were entered into a full regression model. These three variables were parent(s) with a drinking or drug problem, ever having used solvents, and the ten item Alienation Scale (which included questions about getting upset at home and wanting to leave home). Despite the strong association of a personal or mental problem in the past year with reported suicide attempt, this variable was not entered in Model C because the problem itself may have resulted from previous attempt. The full model also included age and gender as possible confounders of the association between the risk factors and the attempt outcome, as well as two interaction variables: age x parent(s) with a drinking or drug problem and age x the ten item Alienation Scale. Age was hypothesized as an effect modifier of the relationship of the two risk factors with suicide attempt.

For Model D, the eight variables that remained significant in the final, reduced versions of Models A, B, and C were entered in a full model, in order to examine which of these variable(s) were the best predictors of suicide attempt when considered in the same model. These variables included gender, friend attempted suicide, the Alienation Scale (8 items; derived from Grossman, Milligan & Deyo, 1991), age, family history of treatment for a psychiatric problem, physical abuse, ever having used solvents, and parent(s) with a drinking or drug problem. Because the number of persons with missing responses to some of these items was not negligible, the three variables in the reduced version of Model D were then entered in a model (along with age and gender as control variables), in order to estimate the adjusted odd ratios for these factors on a larger proportion of our study sample.

Table 10A displays the crude and adjusted odds ratios for the variables which were present in the reduced versions of Models A, B, and C. In Model A, male gender and having a friend who attempted suicide were both significantly associated with an increased likelihood of suicide attempt, when adjusted for the effects of the other variables in the final model. Males were nearly four times more likely to have made a suicide attempt, and having a friend who attempted suicide was associated with a 3.4 times greater odds of attempt. Although not quite significant at the $p = .05$ level, greater feelings of alienation, as measured by the eight item scale, were associated with greater odds for suicide attempt in the final model. These odds can be interpreted in the following manner: for each five additional points scored on the Alienation Scale, odds for attempt were 1.5 times greater.

Table 10A.
Logistic Regression of Risk Factors for Suicide Attempts among Inuit Youth

Variables in final model	Bivariate Analysis Crude Odds Ratio (95% confidence interval)	Logistic Regression Adjusted Odds Ratio* (95% confidence interval)	Significance level in final logistic regression model
MODEL A		N=77	
Male gender	2.2 (0.91, 5.4)	3.7 (1.2, 11.4)	p=.02
Friend attempted suicide	3.1 (1.2, 7.6)	3.4 (1.1, 10.4)	p=.03
Eight item Alienation Scale		1.1 (0.99, 1.2)	p=.055
MODEL B		N=69	
Male gender	2.2 (0.91, 5.4)	8.2 (1.8, 38.0)	p=.006
Friend attempted suicide	3.1 (1.2, 7.6)	5.9 (1.4, 25.3)	p=.014
Age		0.75 (0.58, 0.97)	p=.024
Family history of treatment for a psychiatric problem	0.79 (0.3, 2.1)	0.14 (0.02, 0.8)	p=.024
Physical abuse	2.2 (0.82, 5.7)	4.2 (0.95, 18.7)	p=.053
MODEL C		N=69	
Has used solvents	4.6 (1.8, 11.8)	6.1 (1.7, 22.2)	p=.004
Ten item Alienation Scale		1.1 (1.0, 1.2)	p=.037
Parent(s) with a drinking or drug problem	4.3 (1.7, 11.3)	3.6 (1.0, 13.1)	p=.046

* adjusted for the other independent variables in the final model

In Model B, male gender and having a friend who attempted suicide were highly significant risk factors associated with about 6-8 times greater odds of attempt, whereas older age was a significant protective factor. Family history of treatment for a psychiatric problem was also a significant protective factor, perhaps indicating that the recognition and treatment of the problem was beneficial for the respondent in terms of odds for suicide attempt. The experience of physical abuse was a risk factor for attempt, although this variable had a p value slightly greater than .05 in the final model.

In Model C, two significant risk factors increased the odds of a suicide attempt about 4-6 fold, including having parent(s) with a drinking or drug problem and

ever having used solvents, respectively. Greater feelings of alienation, as measured by the ten item scale, were also significantly associated with higher odds for attempt. An increase of five points on this scale was associated with 1.6 times greater odds for suicide attempt.

Table 10B presents the odds ratio estimates and p values for the variables found to be significant, independent risk factors following stepwise reduction of Model D, controlling for age and gender (N=80). Of the significant risk and protective factors identified in Models A, B, and C, the strongest predictor of suicide attempt was ever having used solvents, which was associated with 7.6 times greater odds of attempt. The two other most important risk factors were having parent(s) with a drinking or drug problem (odds ratio = 5.9) and having experienced physical abuse (odds ratio = 4.9).

Table 10B.
Combined Regression Model of Risk Factors for Suicide Attempts

Variables in reduced Model D	Adjusted Odds Ratio* (95% confidence interval)	Significance level
Has used solvents	7.6 (2.0, 29.4)	p=.003
Parent(s) with a drinking or drug problem	5.9 (1.7, 20.2)	p=.004
Physical abuse	4.9 (1.2, 20.4)	p=.025

* adjusted for age, gender, and the other independent variables in the final model

Multiple Suicide Attempters

Previous research work and clinical experience suggest that those who make multiple suicide attempts differ from those who make single attempts in level or type of psychological disturbance. Accordingly, we compared those with a history of a single suicide attempt to those with multiple attempts for 21 factors (Tables 11A and B).

Table 11A.
Comparison of Single versus Multiple Suicide Attempters

	Single attempt (N=13)*	Multiple attempts (N=18)*	Result of significance test
<i>Sociodemographic characteristics</i>			
Age**	20.6 ± 3.1	17.7 ± 2.2	t=3.01,df=29,p=.005
Gender (% male)	62%	61%	NS
Unemployed, not looking for work	0%	28%	Fisher's exact; p=.06
Ever arrested	15%	56%	$\chi^2=5.13,df=1,p=.02$
<i>Substance use</i>			
Ever used solvents	15%	89%	$\chi^2=16.8,df=1,p<.001$
Solvents used at least every couple of months	0%	22%	Fisher's exact; p=.12
Alcohol used at least once a week	0%	6%	NS
Indicator of substance abuse	46%	44%	NS
<i>Consequences of suicide attempts</i>			
Injured in attempt	39%	28%	NS
Talked to a relative about attempt	23%	0%	Fisher's exact; p=.06
Talked to best friend about attempt	8%	61%	$\chi^2=9.08,df=1,p=.003$

* unless otherwise indicated

**mean ± SD

NS indicates a result with a p value > .15

Table 11B.
Comparison of Single versus Multiple Suicide Attempters

	Single attempt (N=13)*	Multiple attempts (N=18)*	Result of significance test
<i>Personal features</i>			
Physical abuse	46%	28%	NS
Sexual abuse	17% (2/12)	11% (2/18)	NS
Involved in more than three fights in the past year	8%	24% (4/17)	NS
Personal or mental health problem in past year	31%	50%	NS
Family history of treatment for a psychiatric problem	8% (1/12)	39%	Fisher's exact; p=.10
Alienation Scale (8 items)**	24.3 ± 7.5 (N=11)	23.0 ± 6.1 (N=14)	NS
Lack of Caring scale**	13.3 ± 3.9 (N=11)	12.6 ± 3.5 (N=15)	NS
Family Discontentment scale**	10.2 ± 4.6	10.3 ± 3.9 (N=17)	NS
Alienation Scale (10 items)**	30.5 ± 9.5 (N=11)	29.6 ± 7.4 (N=14)	NS
Parental expectations** †	5.17 ± 1.9 (N=12)	3.56 ± 1.3 (N=18)	t=2.77, df=28, p=.01

*unless otherwise indicated

** mean ± SD

† higher score, parents expect more; score varies from 1-7

NS indicates a result with a p value > .15

In Tables 11A and B, the most significant risk factors associated with multiple suicide attempt ($p < .05$) were younger age, ever having been arrested, ever having used solvents, and lower parental expectations. Other variables associated with multiple attempt ($.05 < p < .15$) were unemployment, use of solvents at least every couple of months, and family history of treatment for a psychiatric problem. With respect to the consequences of suicide attempt, there was a non-significant trend ($p > .15$) for multiple attempters to sustain less injury. None of the multiple attempters indicated having spoken to a relative about their attempts, whereas they were significantly more likely to have spoken to their best friend when compared to single attempters ($p < .01$).

Substance Use

The prevalence of substance use is summarized in Table 12. Fully 86% of respondents smoke cigarettes daily. Although 29% reported they do not use alcohol, 31% drink once a month or more, 40% indicated that they had been drunk in the last month (39/98), and 18% had been drunk in the last week (18/98). About 27% had never been drunk (26/98). When the study participants were asked how much they drink at one time, 18% reported that when they drink, they drink “until it is all finished” (18/98). Almost 40% of the respondents indicated drinking and driving. Cannabis (“grass, hash, or marijuana”) is used once a month or more by 27% of respondents. Eleven percent (11/97) reported having used cough syrup or mouth wash to get high and 37% (35/95) have sniffed solvents at some time in their lives. Alcohol, cannabis, and solvents were most likely to be used with friends.

When the consequences of substance use are studied one at a time, about one-fifth of those surveyed have experienced arguments with family, detrimental effects on school studies, loss of friends, accident or injury, or has become violent due to alcohol or drug use. Although the numbers of persons involved in the comparisons were quite small, those who indicated that they went to jail or a detention center or became violent due to substance use tended to be suicide attempters rather than non-attempters (N=91, attempters: 26%, non-attempters: 7%, Fisher’s exact, $p=.02$ and N=90, attempters: 33%, non-attempters: 13%, $\chi^2=5.0, df=1, p=.03$, respectively). There was a trend for a greater proportion of the suicide attempters to report having experienced a physical or emotional reaction which caused them to seek help or arguments with the family as a result of drinking or drug use (N=91, attempters: 26%, non-attempters: 10%, Fisher’s exact, $p=.07$ and N=91, attempters: 32%, non-attempters: 10%, $\chi^2=2.9, df=1, p=.09$, respectively). Experience of these consequences of substance use was used in the construction of the indicator variable for substance abuse. Figure 2 shows the distribution of the number of outcomes experienced as a result of substance use in the study sample. Thirty-one percent of those surveyed had not experienced any of the consequences of substance use listed in the questionnaire and do not drink and drive. Fifty-three percent of the respondents have experienced one or two of the consequences, whereas 16% have experienced three or more.

With regard to treatment for substance use, 23% of those surveyed have tried to quit use of alcohol or drugs three or more times and about 8% have been in a treatment center or program for a drug or alcohol problem. Both of these experiences were reported more often among suicide attempters than non-attempters; the difference in proportions was particularly significant with respect to treatment for substance abuse (treated for abuse: N=85, attempters: 19%, non-attempters: 2%, Fisher’s exact, $p=.009$; tried quitting three or more times: N=85, attempters: 32%, non-attempters: 17%, $\chi^2=2.76, df=1, p=.10$). In terms of absolute numbers, all except one of the respondents who reported having treatment for substance abuse had made a suicide attempt. With respect to parental substance use, fully 35% of the respondents reported a parent with a drug or alcohol

problem, but only about 40% of these have spoken to someone about the problem.

Table 12. Frequency of Substance Use (N=99)

	%	Proportion (if N < 99)
<i>Tobacco</i>		
Smokes daily	86	
<i>Alcohol</i>		
Doesn't drink	29	
Drinks once a month or more	31	
Drinks once a week or more	6	
When drinks, does so with friends	90	60/67
Drinks and drives	39	32/83
<i>Cannabis</i>		
Doesn't use	48	
Uses once a month or more	27	
Uses once a week or more	18	
When uses, does so with friends	90	54/60
<i>Solvents</i>		
Never uses	63	60/95
Uses once a month or more	4	
Used in last month	5	
When uses, does so with friends	95	19/20
<i>Consequences of alcohol/drug use</i>		
Family arguments	23	
Tried quitting three or more times	23	21/93
School studies suffered	21	21/98
Became violent	21	20/97
Lost friends	18	18/98
Had an accident or injury	17	
Separated from boy- or girlfriend	16	16/98
Went to jail or detention center	13	
Treated for abuse	8	7/93
Fired from work	8	8/97

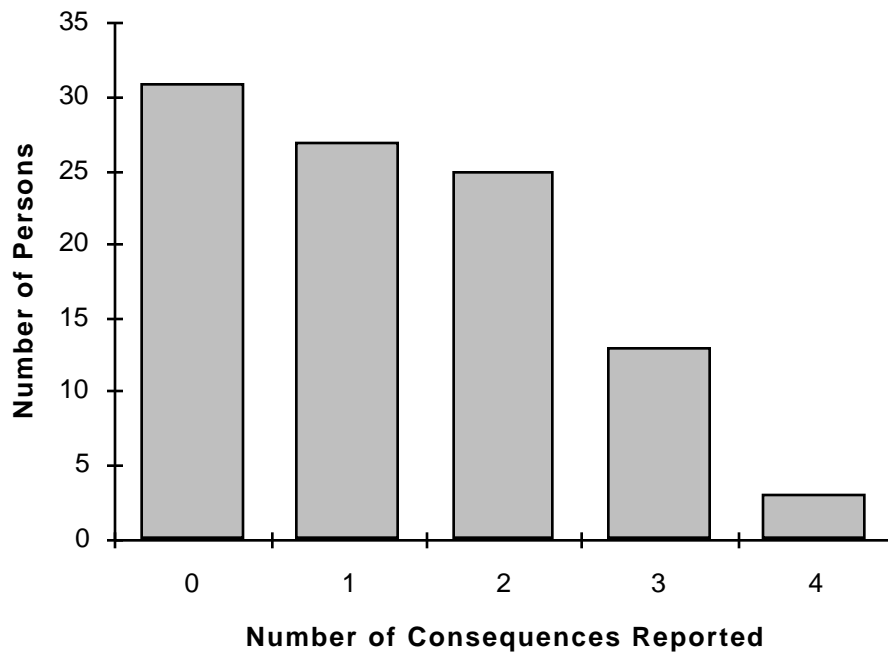


Figure 2. Distribution of Consequences of Substance Use (N=99)

Symptomatology

The prevalence of specific worries and health problems is presented in Tables 13A and 13B. The interviewers read lists of 27 specific worries and 14 illnesses and asked the study participants if they had experienced any of them.

For the worries listed in Table 13A, significant and borderline significant ($p < .15$) age or gender differences were seen in the proportion of respondents worried about what drunk people will do (N=99, ages 14-19: 59%, ages 20-25: 76%, $\chi^2=3.07, df=1, p=.08$); good jobs not being available in the future (N=98, ages 14-19: 39%, ages 20-25: 54%, $\chi^2=2.19, df=1, p=.14$); shortage of money in the community (N=97, males: 48%, females: 29%, $\chi^2=3.48, df=1, p=.06$); getting unfair treatment as a young person (N=97, ages 14-19: 43%, ages 20-25: 24%, $\chi^2=3.55, df=1, p=.06$); school performance (N=63, males: 17%, females: 38%, $\chi^2=2.8, df=1, p=.09$); being abused by a parent or partner (N=98, ages 14-19: 30%, ages 20-25: 17%, $\chi^2=2.1, df=1, p=.15$; males: 17%, females: 31%, $\chi^2=2.36, df=1, p=.12$); alcohol abuse by parents (N=99, males: 17%, females: 31%, $\chi^2=2.54, df=1, p=.11$); and parents getting divorced (N=88, ages 14-19: 21%, ages 20-25: 8%,

$\chi^2=2.61, df=1, p=.11$). A significantly greater proportion of females rather than males were worried about drug use by parents (N=98, males: 13%, females: 31%, $\chi^2=4.86, df=1, p=.03$).

When respondents who had attempted suicide in the past were compared to those who had not, the suicide attempters worried more about proper body development and looks (N=90, attempters: 55%, non-attempters: 27%, $\chi^2=6.72, df=1, p=.01$ and N=91, attempters: 29%, non-attempters: 10%, $\chi^2=5.38, df=1, p=.02$, respectively), what their friends thought (N=91, attempters: 42%, non-attempters, 20%, $\chi^2=4.94, df=1, p=.03$), and getting unfair treatment as a young person (N=90, attempters: 50%, non-attempters: 27%, $\chi^2=4.82, df=1, p=.03$). The greatest differences between suicide attempters and non-attempters with respect to specific worries were observed in the proportion worried about death (N=91, attempters: 45%, non-attempters: 18%, $\chi^2=7.38, df=1, p=.007$) and being teased by peers (N=91, attempters: 45%, non-attempters: 15%, $\chi^2=9.84, df=1, p=.002$).

Table 13B orders by rank the occurrence of particular health problems in the study sample. The only significant age difference was a greater proportion of older respondents who reported limited range of vision (N=99, ages 14-19: 14%, ages 20-25: 32%, $\chi^2=4.61, df=1, p=.03$). Males were more likely to report allergies or hayfever (N=98, males: 23%, females: 6%, $\chi^2=6.13, df=1, p=.01$), learning disabilities (N=97, males: 36%, females: 16%, $\chi^2=5.15, df=1, p=.02$), hearing problems (N=98, males: 26%, females: 12%, $\chi^2=3.09, df=1, p=.08$), and stuttering (N=99, males: 23%, females: 8%, $\chi^2=4.74, df=1, p=.03$). When suicide attempters and non-attempters were compared with respect to these problems, attempters tended to be more likely to have experienced learning disabilities (N=90, attempters: 37%, non-attempters: 20%, $\chi^2=2.92, df=1, p=.09$), short attention span (N=91, attempters: 36%, non-attempters: 13%, $\chi^2=6.07, df=1, p=.01$), psychological problems (N=91, attempters: 26%, non-attempters: 12%, $\chi^2=2.97, df=1, p=.08$), and asthma (N=91, attempters: 19%, non-attempters: 7%, Fisher's exact, $p=.08$). A significantly greater proportion of suicide attempters reported having experienced headaches (N=91, attempters: 87%, non-attempters: 60%, $\chi^2=7.05, df=1, p=.008$).

Table 13A.
Specific Worries in the Study Sample, Rank Ordered (N=99)

	%	Proportion (if N < 99)
<i>Worries about...</i>		
community violence	70	
what drunk people will do	66	
a parent dying	62	
getting a sexually transmitted disease	58	
getting AIDS	57	
getting someone/self pregnant	49	47/97
no good jobs being available for him/her when he/she is older	45	44/98
family not having enough money	39	
community being short of money	38	37/97
getting unfair treatment as a young person	35	34/97
body developing properly	35	34/98
friends getting him/her into trouble	33	
obesity	33	32/98
not being liked by best friend	31	
school performance	30	19/63
what friends think	28	
sexual harassment	28	
death	26	
infertility/sterility	26	25/98
being abused by a parent or partner	25	24/98
being teased by peers	24	
alcohol abuse by parents	24	
drug use by parents	22	22/98
getting beat up at school	17	12/71
parents getting divorced	16	14/88
his/her looks	15	
not being a real Inuk	7	7/98

Table 13B.
Health Problems in the Study Sample, Rank Ordered (N=99)

	%	Proportion (if N < 99)
<i>Health problems (ever had...)</i>		
headaches	70	
stomach problems	26	
learning disabilities	26	25/97
sexually transmitted disease	21	
limited vision	21	
short attention span	21	21/98
hearing problems	18	18/98
psychological problems	15	
stuttering problem	15	
allergies, hayfever	14	14/98
asthma	11	
epilepsy	6	
diabetes	6	
mononucleosis	6	6/98

With respect to health and sickness in general, 24% (24/98) of the respondents indicated that their health was not good or could be better when asked “what is the state of your health?” A smaller proportion (12%; 12/98) thought that their health was worse than that of their peers. Eighty-two percent of the respondents (68/83) indicated missing work or school at least once a month because of sickness.

Help-Seeking

The study participants were asked several questions about help seeking for problems either actually experienced or in a hypothetical context. With respect to specific worries, participants who indicated being worried about sexual harassment, their parent(s) abuse of alcohol, or their parent(s) use of drugs were asked whether they had talked to anyone about this concern or asked for help. For sexual harassment, 32% of those worried (10/31) had talked to someone about it or asked for help. Forty-eight percent (11/23) and 39% (9/23) of those worried about parental alcohol abuse and drug use had sought help, respectively.

The respondents who indicated past suicide attempt(s) were read a list of specific persons and asked if they had spoken to any of them about their attempt(s). Table 14A presents the results in rank order.

Table 14A. Help-Seeking for Suicide Attempt (Rank Ordered)

	%	Proportion
If tried to commit suicide,		
talked to		
best friend	39	12/31
friends	19	6/31
other	19	6/31
mother	16	5/31
father	16	5/31
doctor or nurse	16	5/31
peer counsellor	13	4/31
boy- or girlfriend	13	4/31
relative	10	3/31
teacher	3	1/31
social services worker	3	1/31

In Table 14A, there were no significant ($p < .10$) gender or age differences with respect to the proportion of respondents who spoke to a particular person about their suicide attempt(s). There was a borderline significant tendency for younger persons to speak more often to a peer counsellor (N=31, ages 14-19: 21%, ages 20-25: 0%, Fisher's exact, $p=.14$).

The study participants who reported physical and/or sexual abuse were asked if they had talked to anyone about their experience, were read lists of specific persons and were asked to indicate with whom they had spoken. The results are given in Table 14B. The specific persons who were sought for help are presented in rank order for the two types of abuse.

Table 14B. Help-Seeking for Abuse (Rank Ordered)

	%	Proportion
If physically abused, talked to someone about it	54	14/26
Talked to		
friend(s)	63	15/24
family	54	13/24
social services/ social worker	25	6/24
other	13	3/24
doctor	9	2/23
peer counsellor	8	2/25
nurse	4	1/24
teacher	4	1/24
mental health counsellor	4	1/24
school counsellor	4	1/24
community helpers	0	0/24
reverend	0	0/23
If sexually abused, talked to someone about it	69	9/13
Talked to		
family	57	4/7
other	57	4/7
friend(s)	50	4/8
social services/ social worker	29	2/7
doctor	14	1/7
nurse	14	1/7
community helpers	14	1/7
teacher	0	0/7
reverend	0	0/7
psychologist	0	0/7

With respect to the results presented in Table 14B, there was trend for older persons (20-25 years) to have spoken to a family member about sexual abuse (N=7, 14-19 years: 25%, 20-25 years: 100%, Fisher's exact, $p=.14$). Significant gender differences ($p < .10$) were observed in the proportion who would speak to someone about a concern for sexual harassment (N=31, males: 0%, females: 44%, Fisher's exact, $p=.03$); whether they would speak to a doctor about physical abuse (N=23, males: 29%, females: 0%, Fisher's exact, $p=.03$); and, the proportion who would speak to someone about sexual abuse (N=13, males: 0%, females: 82%, Fisher's exact, $p=.08$). Another age trend was the tendency for older persons (20-25 years) to have spoken to someone about a parent's drinking/drug problem (N=39, 14-19 years: 24%, 20-25 years: 50%, $\chi^2=2.89, df=1, p=.09$).

For the final results of the help-seeking section, the study participants were read a list of 11 specific problems and were asked who they would go to *first* if they were experiencing the problem. Table 14C presents, for each specific problem, the percentage of respondents who would first use each of the six most popular sources for help in this sample, as well as the percentage of respondents who indicated that they would not go to anyone for help.

The bottom of Table 14C shows the average percentage of respondents who would go to a particular person (or no one) first, across all of the specific problems. The ranking of each person in terms of the frequency with which they would be sought first for help is also presented. Across all problems, the people most often sought first were friends, followed closely by parents, and then a nurse or doctor. It is striking to observe that, for potential problems with birth control, anger, relationships, and drinking and/or drugs, a fairly large percentage of respondents (greater than 15%) indicated that they would not go to anyone for help. For several health-related problems, such as pregnancy, birth control, and substance abuse, less than 50% of respondents would first go to medical services. None of those surveyed indicated that they would go to a nurse or doctor first for a problem with depression.

The three persons who were selected the least as the first person a respondent would go to were a teacher, a peer counsellor, and an elder (data not shown in Table 14C). One to two percent of respondents chose a teacher first for a problem with family, depression, anger, boy- or girlfriend, sexually transmitted disease, or friendship break-up; nearly the same response rate was observed for going to a peer counsellor first for a problem with family (3%), pregnancy or friendship break-up (1%), depression or abuse (2%), and drinking and/or drugs (4%). An elder was first sought for help by 1% of respondents for depression or a drinking and/or drug problem, and by 2% of respondents for a friendship break-up.

Table 14C.
Person Who Would be Sought First for Help for Specific Problems

For a problem with	First goes to (%)						
	Parents	Other relatives	Friends	Nurse or doctor	Social services	Reverend	No one
family (N=91)	22	7	37	2	15	1	10
pregnancy (N=88)	44	2	23	15	1	0	14
health (N=92)	30	1	8	50	1	1	8
birth control (N=92)	17	2	19	45	1	0	16
sexually transmitted disease (N=93)	11	0	5	75	0	0	8
depression (N=91)	30	4	38	0	4	8	9
anger (N=93)	27	4	33	2	4	2	26
boy- or girlfriend (N=91)	35	2	38	1	2	0	20
break-up of friendship (N=92)	15	5	36	2	0	0	36
abuse (N=92)	32	4	32	4	8	3	15
drinking and/or drugs (N=90)	26	2	32	3	12	2	17
Average percentage for each column	26	3	27	18	4	1.5	16
Rank of each column's average	2	6	1	3	5	7	4

Interest in Activities and Programs

The study participants were read a list of six specific activities and were asked (1) whether they took part in the activity; (2) whether they would like to do more of or learn more about it; and (3) whether they had the opportunity to take part in the activity. Because there were significant gender differences in these responses for several activities, Table 15A presents the results separately for males and females for each activity.

More than half of the respondents take part in hunting and/or camping, cooking, and studying Inuit history, although males were significantly more likely to hunt or camp. A significantly greater proportion of females take part in sewing. Other crafts and particularly carving are done less often by the study participants. These trends are reflected somewhat by the opportunities to pursue each activity: opportunity is greatest for hunting and/or camping, cooking, studying Inuit history, and sewing (if female only). With respect to desire to do more of a particular activity, lower interest in sewing is expressed by males (21%) and in carving by females (16%). When opportunity to do more is compared to wanting to do more, desire for both genders is greater for cooking, hunting and/or camping, and studying Inuit history and is greater for females only for other crafts and sewing. Where nearly the same or a greater proportion of respondents have opportunity for a particular activity when compared to desire to do more of the activity, the results suggest that it is not lack of opportunity that is preventing the respondents from doing more (males: sewing, carving, other crafts; females: carving).

With respect to any age differences for the results in Table 15A, there was a tendency for older respondents to have more opportunity for cooking ($N=82$, ages 14-19: 64%, ages 20-25: 81%, $\chi^2=2.78, df=1, p=.095$), and for younger respondents to take part in hunting/camping ($N=98$, ages 14-19: 79%, ages 20-25: 61%, $\chi^2=3.77, df=1, p=.05$).

Forty-one percent of the 99 respondents had gone hunting or camping in the last week or month (68% of these were male); 63% of respondents had gone in the last six months. Most of the younger age group who indicated that they would like to do more hunting and/or camping (14-19 years; $N=45$) were prevented from doing so because they did not know how (16%), had no time (16%), had to babysit (16%), or had no one to go with (13%). For the older age group who wanted to do more hunting and/or camping (20-25 years; $N=39$), they could not do so because of work (26%), lack of time (15%), or because they were too busy with small children (15%).

With regard to other activities, 60% of the study participants indicated that they were involved in sports or other activities in school or in the community. With respect to television watching, 40% usually watched 1-2 hours/day and 52% usually watched more than 2 hours a day.

Table 15A. Interest in Activities

Activity	Takes part % (proportion)	Would like to do more % (proportion)	Has opportunity % (proportion)
Hunting/camping			
male	85* (40/47)	85 (39/46)	72 (33/46)
female	59 (30/51)	86 (42/49)	70 (33/47)
Sewing			
male	15** (7/47)	21** (9/44)	27** (6/22)
female	71 (36/51)	90 (47/52)	82 (40/49)
Cooking			
male	85 (40/47)	70 (33/47)	66 (25/38)
female	75 (38/51)	81 (42/52)	77 (34/44)
Carving			
male	13 (6/46)	48† (22/46)	50 (16/32)
female	8 (4/51)	16 (8/51)	33 (10/30)
Other crafts			
male	47§ (21/45)	63 (26/41)	64 (23/36)
female	31 (16/52)	73 (41/56)	65 (28/43)
Studying Inuit history			
male	62 (29/47)	79 (37/47)	73 (32/44)
female	54 (27/50)	89 (46/52)	76 (35/46)

* significant gender difference $p < .01$

** significant gender difference $p = .00001$

† significant gender difference $p < .001$

§ borderline significant gender difference $p = .11$

The study participants were also asked if they saw use for or would be interested in four suggested programs and services. The results are presented in Table 15b.

Table 15B. Interest in Programs and Services

	Percentage (%)	Proportion
Sees use for a life skills course	79	76/96
Sees use for a peer counsellor	91	83/91
Would attend a voluntary summer school	85	84/99
Would attend a youth camp with elders	79	76/96

While it is perhaps not surprising to find a large proportion of positive responses to the suggested programs and services (percentage interested 79%), it is interesting to note that there was variation in the proportion interested with respect to the gender and suicide attempt (multiple versus single) groups. Females saw significantly more use for a peer counsellor (N=91, males: 84%, females: 98%, Fisher's exact, $p=.03$), and also tended to be more interested in taking part in a voluntary summer school (N=99, males: 77%, females: 90%, $\chi^2=3.46, df=1, p=.06$). Interest in the suggested programs and services was uniformly high (77-89%) for those with either suicidal ideation or suicide attempt in the past. With regard to whether the more distressed or disaffected youth can be reached by specific programs, however, it is useful to note that 100% (15/15) of the multiple suicide attempters who responded to the question saw use for a peer counsellor, and 94% (17/18) would be interested in a youth camp with elders. In fact, these levels of interest were significantly greater than those expressed by respondents who had attempted suicide only once (for a peer counsellor: N=28, 69% interest for single attempters, Fisher's exact, $p=.03$; for youth camp: N=31, 54% interest for single attempters, Fisher's exact, $p=.01$). No significant age differences were seen for interest in the programs or services.

DISCUSSION

This study is the first to examine risk factors for attempted suicide among Inuit youth in the community using modern epidemiological interview methods and multivariate statistics. Although we were not able to obtain a strictly random sample, the sociodemographic characteristics of our convenience sample did not differ substantially from the portion that was randomly sampled. Unlike the U.S. study of Navajo adolescents by Grossman and colleagues (1991), we were able to include youth who were not attending school; only one third of our sample were students. The sample represented almost 40% of the people between the ages of 14-25 in the community. While it is possible that some of the most troubled youth may have avoided the survey or refused to participate, our sample is representative of a broad range of youth.

The survey questionnaire was well understood by most respondents, as indicated by the good reliability of the various scales and the consistency of results. Although the interview took one to two hours for most respondents, it was well tolerated and there were no reports of untoward effects. Respondents who used English in the interview were more likely than those who did not use English to report suicide attempts. This may represent greater disclosure due to better rapport, more emotional distance in using a second language, or a substantive effect of education and acculturation.

Prevalence of Suicide Attempts and Ideation. One third of the Inuit youth in our sample (34%) had made a suicide attempt at some time in their life. As an index of seriousness, 11% of youth reported that a suicide attempt had resulted in injury, 5% saw a doctor as a result of an attempt and 4% were admitted to hospital. Thus, for one third of suicide attempters (10/31) at least one attempt was serious.

Rates of suicide attempts in this sample were much higher than those reported in similar age and sex cohorts of the general population in North America. For comparison, the U.S. Adolescent Health Survey of high school students found a lifetime prevalence of attempted suicide of 14% (American School Health Association, 1989). Among 13,000 American Indian and Alaskan Native high school students living on reservations or rural communities, the rate was 17% (Blum et al. 1992). Higher rates have been reported among special populations, including Amerindian adolescents in residential schools. For example, a survey of 83 freshman students from the Zuni Public High School in New Mexico found a lifetime prevalence of suicide attempts of 30% (Howard-Pitney et al., 1992).

Meehan and colleagues (1992) used the same questions as the present study to assess seriousness of suicide attempts among 18-24 year old university freshman in the U.S. They found a self-reported lifetime rate of attempted suicide of 10%. As indices of seriousness, 4.6% reported having been injured in an attempt; 3% had sought medical attention due to an attempt and 1% were hospitalized for a suicide attempt. Compared to the suicide attempters among U.S. college freshman, then, a smaller proportion of Inuit youth who made suicide attempts suffered an injury or saw a doctor, but they were equally likely to be

hospitalized. This may indicate a greater proportion of less serious attempts among the Inuit combined with somewhat easier access to hospital care.

Suicidal ideation was also common among Inuit youth, with 43% reporting a past history and 27% reporting some suicidal ideation in the last month; 5% reported intense suicidal ideation, indicating that they felt like committing suicide “at the first opportunity” in the past month. Youth who reported suicidal ideation were more likely to have made a past suicide attempt, to have a friend who had attempted or completed suicide, to be out of school, and to not attend church every Sunday. They were more likely to report having had a personal or mental health problem in the past year. They were more likely to get into fights with others and there was a trend for them to be the victims of physical abuse. They were also more likely to report feeling bored, and to worry about dying, their body developing normally, and their looks. They reported greater feelings of alienation from their family and community and not being cared for by others, and were more likely to have thought of moving South. There were no age, gender or family history differences between those with and without suicidal ideation.

Age Effects. When we divided the sample into two age cohorts (14-19 and 20-25 years old), the younger group was more likely to report multiple suicide attempts, suicidal thoughts in the past six months, and having used solvents in the past. Since multiple attempts often indicate more severe psychopathology, particularly personality disorders, this suggests a different pattern of risk factors among the younger cohort. The increased risk associated with younger age was born out in the logistic regression analyses (discussed below).

Gender Effects. There were few significant gender differences. In the general population, women are more likely to make suicide attempts, while men are more likely to complete suicide; this difference is usually attributed to men’s tendency to use more lethal means in their attempts. In this sample of Inuit youth, men were actually more likely to make both single and multiple suicide attempts. Males were also more likely to have a friend who completed suicide and to have used solvents in the past. Women were more likely to have been sexually abused.

Exposure to Suicide. Not surprisingly, given the high rates of suicide and attempted suicide in the community, almost half of youth interviewed had a friend who had attempted suicide and almost as many (42%) had friends who had completed suicide. One-fourth had relatives who had attempted or completed suicide and 18% had relatives who had attempted or completed suicide in the past year. These very high rates of exposure to suicidal behaviour probably contribute directly to the tendency for suicide to occur in clusters, as a sort of chain reaction, in a community where so many people are closely related. It points to the need to consider suicide not just as an individual problem but as a community wide response. In this study, we can only address individual factors, since we studied just one community.

Risk Factors for Attempted Suicide. Comparing youth who had made suicide attempts to those who had never attempted suicide revealed the following risk factors: male, first born, out of school or doing relatively poorly in school, attending church less frequently, living in a more crowded house, parent with a drinking or drug problem, a history of having ever used solvents, and having used cough syrup or mouth wash to get high. Suicide attempters were more likely to report a personal or mental health problem in the past year and to feel bored and not cared for by their parents and community members, but were not less content with their families. Attempters were twice as likely as non-attempters to have a friend who had attempted or completed suicide, although there was no such difference in exposure to relatives who had attempted or completed suicide.

As already mentioned, the finding that males are more at risk for suicide attempts contradicts the trend in the general population for females to make more frequent suicide attempts. It may reflect the greater discontinuities in traditional roles experienced by Inuit men with rapid cultural change. Success at school is a source of self-esteem as well as a marker of general problem solving ability and coping skills. Failure at school curtails future options and leads to the feeling of being in a dead-end that may contribute to suicide attempts.

Regular church attendance appears to have a protective effect against the risk of suicide attempts. Quality of family life and religiosity are highly correlated (Stack, 1992). The impact of religion on suicide rates may be understood not so much in terms of specific beliefs about suicide, suffering and the afterlife but more in terms of the way in which religious affiliations and practices organize social support networks (Pescosolido & Georgianna, 1989). Religiosity may reduce the suicide rate through its effects on strengthening social ties through participation in community activities. This fits with the findings of greater feelings of lack of caring by family and community members and parental substance abuse as risk factors.

A number of risk factors identified in other studies were not found to be significant in this population, including: unemployment, family psychiatric history, having a relative who attempted or completed suicide, alcohol abuse and sexual abuse. These negative findings should be interpreted with caution since in some cases respondents may not have answered questions truthfully (e.g. family psychiatric history, sexual abuse). As well, certain other important potential factors were not included in the questionnaire, notably questions directed at family violence (although exposure to physical abuse was measured and found to be a marginally significant risk factor).

To examine the relative contributions of different potential risk factors we used logistic regression. This statistical technique allows us to partial out the effects of specific factors while controlling for possible confounding variables. The size of our sample only permitted us to work with about 10 variables. We selected potential risk factors to enter in a logistic regression model not simply from those that were statistically significant at the bivariate level, but from those that had been found to be important in previous research, were important in theoretical

models, and had the greatest potential clinical and public health importance. We tested a series of models, each of which provides useful information.

These models indicated that males were 4 to 8 times more likely than females to have made a suicide attempt; younger respondents were also more likely to have made a suicide attempt. Youth with a friend who had attempted suicide were 3 to 6 times more likely to have made an attempt themselves; and those exposed to physical abuse were 4 to 5 times more likely to make a suicide attempt. Family history of treatment for a psychiatric problem reduced the risk for a suicide attempt by a factor of almost 1/10. A history of solvent abuse was associated with 6 to 8 times the risk of attempted suicide; while a history of drug or alcohol abuse in the respondents' family increased suicide risk by 4 to 6 times. In the final reduced model, the significant risk factors were solvent use, parents' drinking or drug problem and physical abuse. These results point clearly to the significance of family problems in setting the stage for suicide attempts among youth.

Multiple Suicide Attempts. The psychiatric literature suggests that people who make multiple suicide attempts are more likely to have specific types of psychopathology, especially personality disorders, compared to those who make a single attempt (Kirmayer et al., 1994). Compared to single attempters, youth who made multiple suicide attempts were younger, more likely to be unemployed and not looking for work, have been arrested, have used solvents at some time, and to have had a family history of psychiatric treatment. These differences support the impression that multiple attempters have more severe psychopathology, suggestive of antisocial or borderline personality disorder. The finding that none of the multiple attempters talked to a relative about their suicide attempts, and viewed their parents as having lower expectations of them, indicated a lack of parental involvement or support. Multiple attempters were, however, more likely to talk to a best friend. This may indicate the importance of peer relationships for this group. However, some youth may talk to friends about suicide, not only as an expression of distress or effort to seek alternatives to suicide but, at times, to muster "reasons to go through with it."

Substance Use. Although the major focus of the study was attempted suicide, we also investigated the prevalence of substance abuse. The majority of respondents (86%) smoke. The most frequently used substances are alcohol (31% use it once a month, 6% once a week or more) and cannabis (27% use it once a month, 6% once a week or more). Solvent use within the last month was reported by 5%. Most substance use is social, in the sense that it is done with friends. The most common problems associated with alcohol and drug use were family arguments, trouble with school studies, loss of friends, accident or injury and violence. While more than one-third of youth reported a parent with a drug or alcohol problem, only 40% of these had spoken to someone about the problem.

Worries and Health Problems. The survey assessed the self-reported prevalence of 27 specific worries and 14 illnesses. The most common concerns were worries about community violence (70%), the behavior of drunk people (66%), a parent dying (62%), and contracting a sexually transmitted disease (58%) or AIDS (57%).

About one-fifth of youth reported concerns about their parents' abuse of alcohol (24%) and drugs (22%). The most common health problem was headaches (70%), followed by stomach problems and learning disabilities (each 26%) and sexually transmitted disease, limited vision and short attention span (each 21%).

An Emotional Distress scale was included in the study and psychometric properties are reported in Appendix B5. However, due to the lack of norms it cannot be used to measure the prevalence of emotional distress. Factor analysis of this scale did reveal three distinct dimensions corresponding to depression, fatigue and lethargy, and generalized dysphoria.

Help-Seeking. Youth who had made a suicide attempt were most likely to speak to their friends or family about it. Only 16% had spoken to a doctor or nurse and only 3% to a community worker. Those who reported physical or sexual abuse were most likely to talk to friends or family about this, but at least 25% did talk to a community worker. Talking about physical or sexual abuse with a doctor or nurse was reported in about 10-15% of cases.

A second component of the assessment of help-seeking involved a list of 11 specific problems for which respondents were asked to indicate what source of help they would seek first if they had such a problem. One response category allowed youth to indicate that they would not go to anyone for help for that problem. Parents and/or friends were the first choice for help for most kinds of problems. A nurse or doctor would be the first source of help for sexually transmitted diseases, health related problems and birth control. Social services would be consulted first by some for family problems and alcohol or drug problems. Other relatives and the reverend would rarely be consulted for any problem. It is important to note that neither health care nor social service workers would be consulted first for depression or abuse. A substantial proportion of youth would not seek help from anyone for problems with relationships and anger. This is of concern because such problems are often identified clinically as precipitants of suicide attempts.

Interest in Activities and Programs. A final section of the survey addressed interest in traditional activities and in mental health related programs and services. There were high levels of participation in hunting and camping, cooking, sewing (among females), and studying Inuit history. Most youth reported wanting to do more activities with the exception of carving (especially among females) and sewing (among males). However, most youth also felt they had the opportunity to do more of the activity. Any discrepancy between actual and desired level of participation in an activity is likely due to other personal and social impediments rather than simply the lack of opportunity to participate. This suggests that program development must go beyond simply offering activities to identifying what the individual barriers are to more participation.

With regard to social programs, the majority of youth expressed interest in programs in life skills, peer counselling, summer school, and a youth camp with elders. Even distressed youth (e.g., multiple suicide attempters) endorsed these

programs, suggesting that it may be possible to involve those at highest risk for suicide.

CONCLUSION & RECOMMENDATIONS

The prevalence of suicide attempts among youth in a community on the Hudson Bay Coast of Northern Quebec is among the highest reported in the literature. One third of the youth surveyed have attempted suicide and almost a half have a friend who has attempted suicide. This community-wide prevalence points to the need to consider both individual and community factors in accounting for the elevated rate. In this study, we can only address the individual factors with data since we only surveyed one community. Further consideration of community factors would require study of multiple communities in the same time frame to identify social factors contributing to elevated rates.

The risk factors identified in this study include:

- male gender
- a history of ever having used solvents
- being a victim of physical abuse
- a parent with an alcohol or drug problem
- living in more crowded house
- having a friend who has attempted or completed suicide

These risk factors can be used to identify vulnerable individuals in the community and in clinical settings. In particular, males with a history of substance abuse and family problems (parents abusing drugs, family violence) are at extremely high risk for a suicide attempt.

Several protective factors were also identified:

- a family history of treatment for a psychiatric problem
- more frequent attendance at church
- doing well in school

These findings also have implications for prevention. Clearly, there is a need to provide ongoing counselling and socialization programs for youth with histories of solvent abuse, friends who attempted or completed suicide, and mental health problems. The data also suggest that identifying and treating mental health problems in other family members may help to prevent youth suicide. A broader emphasis on family health may be more effective than an exclusive focus on troubled youth, who may otherwise feel blamed for problems that arise, at least in part, from their parents' difficulties.

Regular participation in the church provides social support, integration in meaningful community activities and people to turn to in times of crisis. Other community activities and institutions may serve the same function for youth who are not as religious. Success at school is probably an indicator of intelligence and coping resources but also is a source of self-esteem. Any other activity that provides similar opportunities for success can also build self-esteem and coping and so reduce suicide risk.

In the clinical context, family conflict and the break-up of relationships are often offered as explanations for suicide attempts. The finding that many youth would go to no one for problems with relationships or anger points to the need for social skills training programs to teach ways of coping with interpersonal conflict. Since depression is strongly associated with suicide attempts and completed suicide in all populations studied, it is of great concern that no youth would go to a doctor or nurse first for help with depression. Many suicidal youth come to medical attention only after their suicide attempt, if at all. Public education programs aimed at improving the recognition of depression and other emotional problems and indicating effective sources of help may lead to more appropriate help-seeking.

The results of the present study are consistent with recommendations on interventions we made in an earlier report based on a comprehensive review of the suicide literature for the Royal Commission for Aboriginal Peoples (Kirmayer et al. 1994). We reproduce those recommendations here.

Figure 3 presents the types of suicide intervention arranged by their point of application: to pre-existing social or contextual factors, to the vulnerable individual or at the time of a precipitating event or crises. Interventions may be targeted at the sociocultural milieu, the family, the vulnerable individual or the crisis situation. While all these approaches are reasonable, only the public educational and individual levels of intervention have received much study and there is little evidence that they have significantly reduced the suicide rate (McNamee & Offord, 1990; Shaffer et al., 1988). Most disturbingly, there is evidence that some types of intervention may actually be harmful—specifically, school-based suicide awareness programs and media attention to suicide epidemics (Lester, 1992; Phillips et al., 1992; Shaffer, et al., 1990; Vieland et al., 1991). Most studies of the effectiveness of interventions have been methodologically flawed so that no firm conclusions can be reached (McNamee & Offord, 1990).

Although early studies of school-based educational suicide prevention programs have been very disappointing (Shaffer et al., 1988;), some authorities remain optimistic (Leenaars & Wenckstern, 1991). More recent studies suggest some efficacy for intensive, broad based programs (Felner et al., 1992). The current consensus in the literature on youth suicide prevention emphasizes that rather than teaching the topic of suicide directly to students, schools should provide a health education curriculum for all students that builds basic skills useful for managing a variety of health issues. Such a curriculum would enhance students' skills in coping with stress or distressing emotions, problem solving, interpersonal communication and conflict resolution—all measures that help to build self-esteem (Cimboric & Jobes, 1990). Even if these psychological issues are explored and dealt with in life skill programs, however, the surrounding socioeconomic factors that the community, and hence the individual, is struggling with must be dealt with simultaneously.

Aboriginal peoples must be provided with ready access to culturally sensitive mental health care. In the case of individuals with major psychiatric disorders who comprise a large proportion of suicidal individuals, this means

comprehensive psychiatric care including access to evaluation, and the full range of treatment modalities. Traditional values of non-interference that are used to justify non-intervention and lead to avoidance of problems must be counter-acted with education on help-seeking for specific problems.

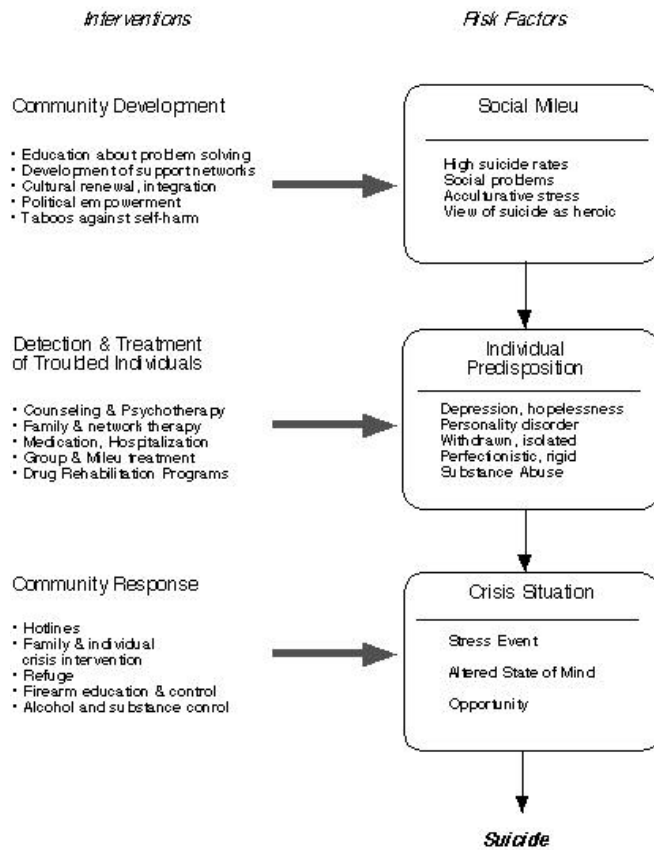
However, for many suicidal adolescents, their problems are inextricably intertwined with problems in the family and the social order. Consequently, they need therapy aimed at helping them to negotiate and master the chaotic social situations they face. Family therapy or social network interventions aimed to uncover abuse, resolve conflicts and ensure the emotional support of youth may be more useful than an individually centered approach. For those suicidal adolescents who are withdrawn “outsiders” vis-a-vis the community, therapy “directed at formation of role identity and assimilation into the dominance hierarchy would be a logical strategy to try, but has not had systematic study” (Ryland & Kruesi, 1992, p. 192). For adolescents who are outward success stories, but who inwardly harbor perfectionistic strivings and an inability to share pain and self-doubt, it may prove helpful to identify some of the burdensome community expectations they receive and develop relationships in which they can confide their concerns and receive support.

One type of program that may be particularly effective at the level of cultural transmission, enhancing self-esteem and promoting social integration, is the development of heritage camps that bring together youth and elders. Under skillful leadership and design, these programs can integrate troubled youth without singling them out for further labeling or ostracism (Levy & Kunitz, 1987)

Previous working groups have clearly set out the broad agenda for Aboriginal mental health (Medical Services Branch Steering Committee, 1991) . The basic principles include: (1) a holistic approach to health—that is, avoiding the segmentation of care and narrow focus of biomedicine to encompass biological, psychological, sociocultural and spiritual dimensions of health and well-being; (2) coordination of multidisciplinary services; (3) a continuum of care from promotion to prevention, treatment, support and aftercare; (4) mental health training of existing community workers; (5) development of specialized indigenous training centers; (6) a particular focus on child and family; (7) experiential learning and development of indigenous models of knowledge and practice.

Figure 3. A Model for Suicide Prevention.

Figure 3. A Model For Suicide Prevention*



* Based in part on Shaffer et al., 1988.

While embracing these principles, the research we have reviewed suggests that suicide interventions among Aboriginal peoples must:

- address problems at community and political levels as well as at the individual level; specifically, to promote empowerment of individuals and communities so that people come to feel a greater sense of coherence and control over their lives;
- promote active transmission of traditional language and life skills from elders to young people;
- support symbols and enactments of group and community pride;
- develop culturally appropriate educational programs that address problem solving, dealing with substance abuse, depression, anger, relationship breakups, and other life events;
- ensure access to basic biomedical care; train primary care providers to better detect and treat major depression, panic disorder, and other psychiatric disorders;
- develop and improve access to treatment programs for alcohol and substance use;
- develop cadres of local Native community mental health workers with skills in individual and family counseling, social network intervention and community development;
- develop culturally sensitive approaches to psychotherapy, family therapy and social network intervention—especially the promotion of traditional healing practices.

As well, we note that there are certain problems not of culture but of scale, that affect the applicability of mental health programs designed for urban settings. In small communities, identifying vulnerable individuals may have damaging effects on their social status and integration thus further aggravating their situations. In small communities there are no secrets so that usual guarantees of professional confidence may be more or less meaningless. The development of interventions must thus proceed with the participation of community members, experts on social process and cultural practitioners and not by mental health practitioners who simply transplant models of care appropriate to their familiar settings to Inuit communities.

Suicide is a response to feeling trapped in a dead-end with no exit. It is almost always an effort to escape unending frustration, grief and psychic pain (Schneidman, 1993). The prevention of suicide must therefore counteract frustration, hopelessness and unbearable pain in all of their toxic forms and provide other means of changing or escaping intolerable circumstances. In many cases, this may involve psychotherapy, medication or other forms of healing that

renew the individual's sense of power, self-efficacy and self-worth. For conventional mental health approaches to be effective, however, they must fit with community values. Where the loss of hope affects whole communities, this individualized approach may be woefully inadequate. Rather than turning Native communities into "therapeutic milieus" where everyone is preoccupied with mental health issues, it may be more effective to address directly the social problems of economic disadvantage, the breakdown in the transmission of cultural tradition and identity, and political disenfranchisement.

In accord with previous reports then, we believe that the fragmentation of mental health programs into substance abuse, violence, psychiatric disorders, suicide prevention and so on, is not a wise way to proceed (Steering Committee, 1991) . There is tremendous overlap between the affected individuals, the professional expertise and the appropriate interventions. Focusing attention exclusively on suicide, without attending to its larger context, may do more harm than good. A comprehensive approach to the problem of suicide should be integrated within larger programs of health promotion, family life education, community and cultural development, and political empowerment.

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APPENDIX

A. RESEARCH INSTRUMENTS

A1. CONSENT FORM (ENGLISH)

A2. SURVEY QUESTIONNAIRE
(INUKTITUT AND ENGLISH)
(AVAILABLE UPON REQUEST FROM CMHRU)

A3. PROBLEMS ENCOUNTERED ADMINISTERING QUESTIONNAIRE

The questionnaire was translated by Robert Watt (from Kujjuaq), and back-translated at Inuulitisivik. It retains some features of Ungava dialect which, in a few instances may be difficult to understand on the Hudson Coast.

Q10-21. Many of the questions pertaining to family history and structure may be somewhat ambiguous due to the complex nature of family associations and adoption practices. An adoptive parent, for example, does not in all cases exclusively occupy the 'parent' category. At least one of the biological parents, usually the mother, will remain a significant parent figure. There is some chance, therefore, that respondents answered these questions inconsistently because they had two sets of parents in mind. The issue of siblings is similarly complicated by the fact that there are many types of sibling relationship (adoptive, step or natural).

Q24. Subjects appeared very reluctant to answer this question so it is likely to underestimate the number of family members with a history of psychiatric treatment.

Q37b. "Do you have the opportunity?" was often difficult to explain.

Q103. Interpreters may not have always included the "have you ever had" clause of this question.

B. SCALES

B1. ALIENATION SCALE (8 ITEMS)

(source: Grossman, Milligan & Deyo, 1991)
Cronbach's alpha = 0.801

How much do you feel...	Alpha if item deleted	Loads onto factor* (factor scores > 0.3)
• your parents care about you	0.781	1
• elders care about you	0.781	1
• church leaders care about you	0.778	1
• neighbors care about you	0.776	1
• your family cares about your feelings	0.763	2
• your family understands you	0.797	2
• you and your family have fun together	0.793	2
• your family pays attention to you	0.762	2

Number of subjects completing this scale = 86
Mean inter-item correlation = 0.34
Range in item-total correlations = 0.38-0.62
Range in score = 8-37
Mean score \pm SD = 21.01 \pm 7.0

Factor analysis: two components extracted with varimax rotation	Percent of variance
Factor 1: "lack of caring"	42.5%
Factor 2: "family discontentment"	14.8%

Range in factor scores = 0.59-0.78

*The individual items loading on each factor are presented in rank order by their factor scores

B2. LACK OF CARING SCALE

(4 items; source: 8-item Alienation Scale)
Cronbach's alpha = 0.719

How much do you feel...	Alpha if item deleted
• elders care about you	0.654
• your parents care about you	0.713
• church leaders care about you	0.636
• neighbors care about you	0.612

Number of subjects completing this scale = 90
Mean inter-item correlation = 0.39
Range in item-total correlations = 0.4-0.58
Range in score = 4-20
Mean score \pm SD = 11.61 \pm 4.08

Factor analysis: one component extracted, accounting for 54.5% of variance
Range in factor scores = 0.63-0.79

B3. FAMILY DISCONTENTMENT SCALE

(4 items; source: 8-item Alienation Scale)

Cronbach's alpha = 0.741

How much do you feel...	Alpha if item deleted
• your family cares about your feelings	0.667
• your family understands you	0.720
• you and your family have fun together	0.708
• your family pays attention to you	0.623

Number of subjects completing this scale = 94

Mean inter-item correlation = 0.42

Range in item-total correlations = 0.46-0.63

Range in score = 4-18

Mean score \pm SD = 9.43 \pm 3.97

Factor analysis: one component extracted, accounting for 56.4% of variance

Range in factor scores = 0.68-0.83

B4. ALIENATION SCALE (10 ITEMS)

Cronbach's alpha = 0.778

How much do you feel...	Alpha if item deleted	Loads onto factor* (factor scores > 0.3)
• elders care about you	0.743	1
• your parents care about you	0.758	1
• church leaders care about you	0.757	1
• neighbors care about you	0.749	1
• your family cares about your feelings	0.747	2
• your family understands you	0.763	2
• you and your family have fun together	0.765	2
• your family pays attention to you	0.740	2
• you want to leave home	0.780	3
• upset at home	0.785	3

Number of subjects completing this scale = 83

Mean inter-item correlation = 0.26

Range in item-total correlations = 0.22-0.59

Range in score = 11-47

Mean score \pm SD = 26.18 \pm 7.90

Factor analysis: three components extracted with varimax rotation **Percent of variance**

Factor 1: "lack of caring" 35.0%

Factor 2: "family discontentment" 13.7%

Factor 3: "feelings at home" 12.3%

Range in factor scores = 0.63-0.8

*The individual items loading on each factor are presented in rank order by their factor scores.

B5. EMOTIONAL DISTRESS SCALE (17 ITEMS)

Cronbach's alpha = 0.812

In the past month how often have you been...	Alpha if item deleted	Loads onto factor* (factor scores > 0.3)
• depressed or sad	0.802	1
• bothered by nervousness or nerves	0.809	1
• anxious, worried, or upset	0.797	1
• depressed versus cheerful	0.801	1
• so sad, discouraged, or hopeless or had so many problems that you wondered if anything was worthwhile	0.794	1 and 2**
• bothered by any illness, pains, or fears about your health	0.800	1
• unhappy with your personal life	0.795	1
• worried that you might be losing your mind or memory or losing control over the way you act, talk, think, or feel	0.800	1
• tired a lot	0.798	2
• tired, with too many things to do	0.810	2
• not rested when you woke up	0.807	2 and 3†
• lethargic versus energetic	0.803	2
• feeling your daily life was not full of things that were interesting to you or fun	0.811	3
• emotionally insecure and unsure of yourself	0.796	3
• feeling out of control of your behavior, thoughts, emotions, or feelings	0.815	3
• tense versus relaxed	0.801	3
• feeling badly in general	0.806	3

Number of subjects completing this scale = 92

Mean inter-item correlation = 0.21

Range in item-total correlations = 0.25-0.54

Range in score = 19-116

Mean score ± SD = 47.41 ± 15.18

Factor analysis: forced a varimax three-component solution, following extraction of five components with varimax rotation	Percent of variance
Factor 1: "depression"	26.3%
Factor 2: "fatigue"	10.6%
Factor 3: "generalized dysphoria"	8.1%

Range in factor scores = 0.3-0.8

*The individual items loading on each factor are presented in rank order by their factor scores

**Loads last onto factor 2

†Loads second to last onto factor 3