

Northwest Territory: An Exploratory Study of Youth  
Perceptions of Perceived Vulnerability and Health Locus of  
Control

By

Susan Fred

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### Abstract

There has been limited research in the area of health beliefs and behaviors in children. Little research has been multi-cultural and those studies that have been done have indicated that ethnicity is an important variable. This study investigated the perceived vulnerability to selected health problems and the health locus of control of fifth grade students in the Northwest Territories. The grade five students came from 19 intact classrooms from the six educational regions of the Northwest Territories. There were females and males from three ethnic groups: Non-Native, Indian/Metis and Inuit. The Non-Native students had a significantly higher level of perceived vulnerability than the Indian/Metis group. The Non-Native students had a significantly greater level of internality with respect to health locus of control than either the Indian/Metis group or the Inuit group. There were differences in the ranking of health problems with respect to perceived vulnerability by each ethnic group. However, there was some consistency in which problems the students viewed as most likely and least likely to occur. This study found that ethnicity had a significant relationship with perceived vulnerability and health locus of control. Consideration of the impact of ethnicity in the planning of health education curriculum is recommended.

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## CHAPTER I

### STATEMENT OF THE PROBLEM

#### Introduction

The Northwest Territories have a multi-cultural population consisting mainly of Inuit, Indian/Metis and Non-Native people. Morbidity and mortality figures for the region indicate the need to target youth for health education programs. This study sought to provide more knowledge of some of the influencing factors affecting the health attitudes and beliefs of youth in the Northwest Territories.

#### General Background

Health education has been defined "as any combination of learning experiences designed to facilitate voluntary adaptations of behavior conducive to health." (Green et al., 1980) To change behavior is a very complex process and research has determined that this change requires more than the presentation of facts. Attitude has been seen as a predictor of behavior and much research has been done to determine the relationship between attitude and behavior.

Suchman (1970) stated "underlying all health attitudes and behaviors are a combination of cultural values, social pressures, and individual needs. Any explanation of why people believe what they do about health or behave the way they do must recognize the contribution of each of these three factors".

The study of attitude and behavior has generated a large body of theory, but has not provided the means for successfully modifying health behaviors. "The generally unsatisfactory outcome of health education programs, especially for changing adult behavior, has naturally led many to suggest that we might move back in time and start health education with children. This assumption that behavior is more easily controlled or developed in children than in adults underlies the emphasis on preventive approaches for children among health educators." (Haggerty, 1977). There has been very little that has been known about the development of the means of modifying health behavior in children and the transference of this behavior to adulthood. As well there has been little or no research reported to support the idea that if health education is introduced early, that this would prevent later health problems.

The Health Belief Model shown in Table 1 is used as the

conceptual framework for this study. Variables were chosen that would help to explain the relationship between beliefs and attitudes and their influence on behaviors in this cross-cultural population. The Health Belief Model has been used to explain and predict adult health preventive behaviors. There has been little research in the area of explaining or predicting children's health behavior.

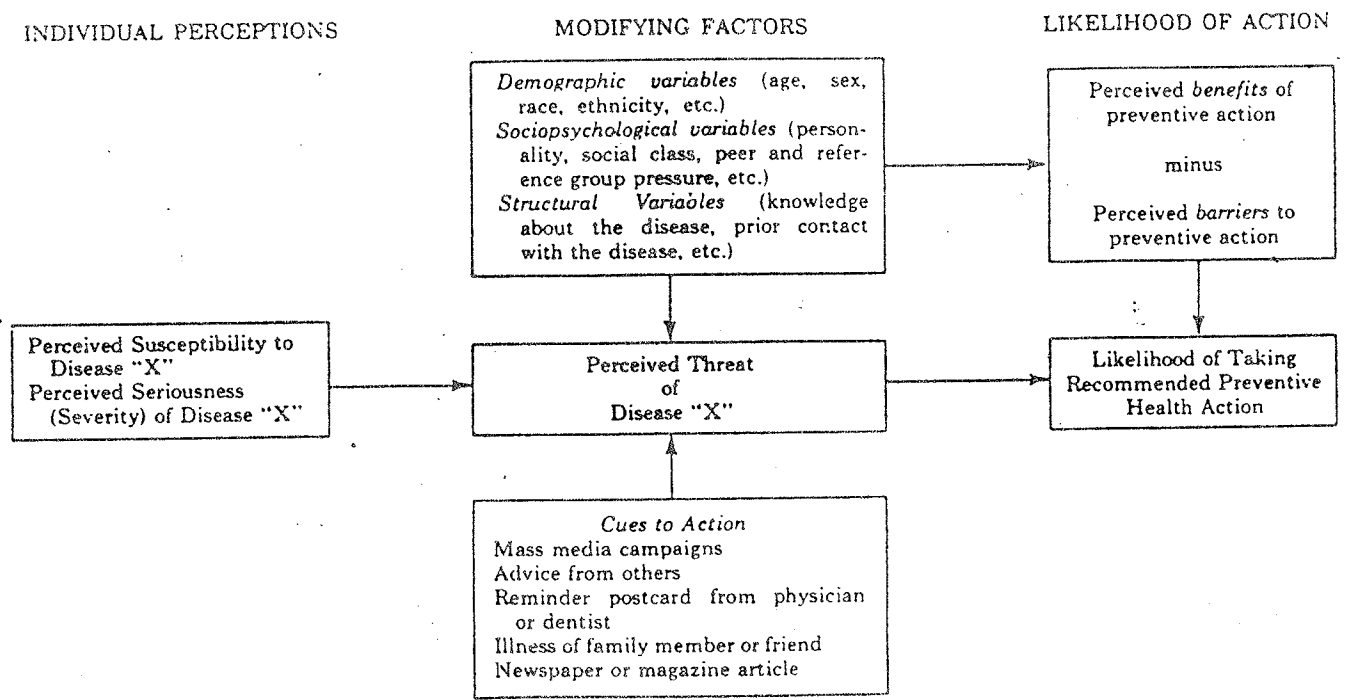
The Health Belief Model is based on a well established core of psychological and behavioral theory, particularly the work of Kurt Lewin. Becker et al. (1977) describe the three key elements of the Health Belief Model: (see Table 1)

1. The individual's subjective state of readiness to take action, which is determined by both the individual's perceived likelihood of susceptibility to the particular illness and by his or her perceptions of the probable severity of the consequences (organic and social) of contracting the disease,

2. The individual's evaluation of the advocated health behavior in terms of its feasibility and efficaciousness ... weighed against his/her perceptions of physical, psychological, financial, and other costs or barriers involved in the proposed action,

3. A cue to action must occur to trigger the

Table 1



The "Health Belief Model" as predictor of preventive health behavior.

Source: Becker, M. H. et al. (1977).

appropriate health behavior; this stimulus can be either internal (e.g., symptoms) or external (e.g., interpersonal interactions, mass media communications)."

The Health Belief Model theorizes the cognitive awareness that takes the individual to the point of making a decision about his/her health action. The role of health education has always been to assist the individual through the provision of learning experiences to make the voluntary adaptation to a healthier lifestyle. It was not expected in this study that a predictive model would be confirmed. Rather, it was expected that a better understanding of the processes that these particular students went through in making their health decisions could be explored through the use of the model and that this information would be of value in the design of successful learning experiences in the future.

Rothman and Byrne (1981) stated that through the evaluation of attitudes and beliefs the behavioral intentions of children can be determined. This should provide health program planners with information concerning who or what influences children's decision-making about health matters. As well, programs could focus on concerns that the children themselves have identified as priorities

for them.

Lewis and Lewis (1982) stated that with fewer than a dozen investigators researching the subject of the development of children's health-related beliefs in the last thirty years, there is a need for further research into the area. They concluded that programs should promote health-care-related behaviors rather than merely transfer knowledge. These comments support the premise that inquiry about attitudes and beliefs of a high risk group would assist in producing a better educational product that was better tailored to the needs of the group and thus have more potential for success in bringing about positive health behavior changes.

The trend in research has been to view children's concepts of health and illness from two perspectives. "The first has been concerned with the delineation of age-related qualitative changes in children's concepts of health and illness and the interpretation of these changes within a Piagetian framework. The second approach, based on expectancy theory from social psychology, has focused on children's perceptions of vulnerability to health problems and the relationship of these to potential health behavior." (Kalnins & Love, 1982)

Piagetian theory delineates health concepts according to cognitive stages of development. At the pre-operational stage below the ages of 7 or 8, there is little recognition of cause and effect in health and illness. At the concrete operational stage of ages 7 to 10, cause and effect are considered and the child can think through a chain of events along the continuum of health and illness. Gochman (1971) identified that a child under ten lacked the ability to deal with the abstractions of health and illness. There was an important point between grade three and four that had been found to be when the child differentiated the concept of health. The child did not have a future orientation and could not therefore project the effect of changed behavior on health. At the formal operational stage of ages above 10 or 11, the child is "future oriented, can formulate hypotheses, can consider abstractions, and deductive reasoning develops." (Natapoff, 1982). The knowledge of the cognitive development of health concepts by the child has enabled health educators to determine content for programs that are appropriate for each developmental level. However, there has been little success in transferring this knowledge into attitude and behavior change. A study of children of ages 11 or 12 would indicate what health belief systems had

been established and would provide direction for the production of effective health education programs.

The variables investigated in this study are sex, ethnicity, perceived vulnerability, and health locus of control. Perceived vulnerability is a stable personality construct that is part of the individual perceptions of the child. Health locus of control is a sociopsychological variable and sex and ethnicity are demographic variables that modify the individual perceptions of the child. These factors along with the effect of a variety of cues for action affect the perceived threat of disease and thereby influence the likelihood of the action that is taken. A better understanding of these perceptions and modifying factors would be of value.

#### Specific Background

The need for a study of youth in the Northwest Territories was identified after the review of morbidity and mortality figures that reflected the high risk status of this population. In the Northwest Territories Report on Health Conditions 1982 it was stated that "the leading causes of death for the population of the Northwest Territories as a whole were accidents, poisonings, and



violence (30.9%), diseases of the circulatory system (20.9%), and cancer (10.3%)." (Health and Welfare Canada, 1982) In a ranking of the cause of death for the child under 15, the top cause of death was drowning and fire for the male, and injury and poisoning, and drowning for the female. The high incidence of accidental and violent deaths in the younger population followed a national trend for youth in Canada. (see Appendix 7) However, these violent deaths were continuing on into the adult age groups where, in Canada as a whole cardiovascular disease and cancer had the most prominence. (Ableson, 1983) The need for research into the prevention of these deaths is supported by the statement "Injuries and deaths of an accidental or violent nature, largely responsible for excess mortality among males, are of particular importance due to their prevalence among the young. The often avoidable nature of events leading up to these injuries or deaths make them prime targets for prevention programs." (Ableson et al., 1983)

In a study completed by the Health and Welfare Department in 1982, the patterns of tobacco use in the students in the Northwest Territories were assessed. It was determined that the rates for the school population were the "highest levels recorded for a school population in Canada.

Smoking starts in the early years of elementary school and by the late adolescent years 15 to 19, 49 percent of boys and 53 percent of girls are regular smokers. The age of smoking onset is earlier among Inuit and Indian/Metis youth than among non-natives." (Health and Welfare Canada, 1982)

A survey was conducted in the summer of 1984 in the Northwest Territories to determine the incidence of disease in particular age segments (Harvey et al., 1984). The international disease categories of the World Health Organization were used as a structure for the study. For the 6 to 12 year old segment, the categories with the highest incidence were diseases of the respiratory system, diseases of the nervous system and sense organs, and injury and poisoning. (Harvey et al., 1984). Each of the categories included conditions where positive health behaviors would have made a difference. For example, covering the mouth when coughing would prevent transmission of germs and may decrease the incidence of respiratory infection.

#### Specific Problem Statement

The purpose of the study was to determine the relationship between the demographic and socio-psychological

variables of sex, ethnicity, health locus of control orientation, and perceived vulnerability to health problems in grade five students in the Northwest Territories.

#### Research Hypotheses

##### H(R)1

There is a difference in the perceived vulnerability to selected health problems of fifth grade students as a function of their sex and/or ethnicity.

##### H(R)2

There is a difference in the internality or externality of health locus of control of fifth grade students as a function of their sex and/or ethnicity.

##### H(R)3

There is a difference in the ranking of perceived vulnerability to selected health problems made by fifth grade students as a function of their ethnicity.

#### Null Hypotheses

##### H(Ø)1

There is no difference in the perceived vulnerability to selected health problems of fifth grade students as a function of their sex and/or ethnicity.

H(0)2

There is no difference in the internality or externality of health locus of control of fifth grade students as a function of their sex and/or ethnicity.

H(0)3

There is no difference in the ranking of perceived vulnerability to selected health problems made by fifth grade students as a function of their ethnicity.

#### Operational Definitions

The demographic variables are self explanatory. The following terms are defined for a better understanding of the text of the study.

**Attitude:** A relatively constant feeling, predisposition, or set of beliefs directed toward an object, person, or situation.

**Belief:** A statement or sense, declared or implied, intellectually and/or emotionally accepted as true by a person or group.

**Health:** A quality of life involving dynamic interaction

and interdependence among the individual's physical well-being, his mental and emotional reaction, and the social complex in which one exists. (Green et al., 1980)

**Locus of Control:** An individual's perceived source of reinforcement for engaging in goal-directed behavior that is related to health. The control is expressed as internal or external. (Parcel & Meyer, 1977) "The potential for a behavior to occur in any specific psychological situation is a function of the expectancy that the behavior will lead to a particular reinforcement in that situation and the value of that reinforcement." (Rotter, 1966) Reinforcement can be under personal control (internal) or under the control of outside forces such as luck, powerful others, or chance.

**Perceived Susceptibility:** The original variable in the Health Belief Model that dealt with beliefs or expectancies about a single health problem.

**Perceived Vulnerability:** The degree to which a person believes he is susceptible to, or might encounter, health problems, illnesses, or accidents. (Gochman, 1977).

## Overview of the Thesis

The following chapters include the literature review that was undertaken to support the problem statement, the methodology used as well as the findings, conclusions, and recommendations that resulted from the study. Each of the three hypotheses was discussed in order. The conclusions of the study compare the results to those of other studies. The recommendations are divided into program as well as research recommendations specifically outlined for educators as well as health care personnel.

## Assumptions

There were certain assumptions that were made in the undertaking of this study. There were two instruments to be administered. It was assumed that the teachers administered the instruments in an identical way and without any hidden bias. It was assumed that when a pilot study was undertaken in two classes in a Winnipeg school to review the questionnaire and the teacher's and student's instructions for errors and when an interpreter had reviewed the material that no difficulties would be experienced by the students in the sample. Another assumption made was that the conditions that affected both the teachers and the students were

similar enough in all classes surveyed in the Northwest Territories that the data could be used as a total.

#### Limitations

There were several limitations that affected the data. The questionnaires were administered as a self-report paper and pencil test which was less desirable method than an interview. Both of the instruments used were modified for the population sampled and had originally only been tested with an American population to determine validity and reliability. The sample used was stratified according to sex and ethnicity but not randomly selected. As a result the study could only be considered an exploratory one.

## CHAPTER II

## Literature Review

There had been limited research in the area of explaining or predicting children's health behavior. The review of the literature undertaken, focused on the research of the variables of perceived vulnerability and locus of control orientation.

## Perceived Vulnerability

Gochman (1970), conducted research in 1968 to provide a basis for the content and timing of public health education programs for children. "The likelihood of taking some preventive or adaptive health action is related in large measure to whether a person perceives himself as being vulnerable to an illness or accident." (Gochman, 1970) The focus of the study was to look at "the dimension of consistency in expectancies of health problems - the manner in which the degree of expectancy of one health problem is related to the the degree of expectancy of other such problems." (Gochman, 1970) This was investigated in both the individual child and in the patterns of groups of children. A group of 134 Boy and Girl Scouts, aged 7 to 17



years old were each asked ten questions about the likelihood of experiencing certain health events. The results were that there was no specific differences seen in the expectancies of the older and younger children. However, the boys had a significantly higher expectation of health.

Gochman (1971) replicated his original study, and refined it to look more closely at the consistency of health expectancy in the young child. He used 108 children of middle class background, aged 7 to 18 years. The children were attending a university sponsored summer camp. A consistency score was determined by measuring the average deviation of each of the scores from the composite expectancy score (a mean of the 15 questions that related to illness). The hypothesis that there would be a lower degree of consistency in younger children was supported. It was concluded that it was the concrete components of an experience that the child could relate to, such as an accident, rather than the more abstract concept of health or illness. Age and sex variables did not have a significant relationship to the patterns of health problem expectancy.

Gochman, Bagramian, and Sheiham (1972) studied the effects of socioeconomic status, sex and age variables on selected health and dental problems. Younger children were

assessed for the consistency of their expectancies of health problems in relationship to the expectancies of older children. A sample group of 774 school children was studied. The children ranged from grade three to grade nine, and represented different economic levels, ages and sex. Similar to Gochman (1971), it was demonstrated that relatively less consistency exists within the younger child's expectancies than with the expectancies of older children. No significant differences in consistency scores were observed between inner city and non-inner city children. There was, however, no significant difference in consistency scores for children under 12 years compared to children over 12 years when dental items on the questionnaire were analyzed separately. When the rankings of expectancies for inner city and non-inner city children were correlated by sex and age, there was a high level of agreement. The researchers referred to mean expectancy of health problems with the term perceived vulnerability in this study. This was the first time that this was done, as previously the term perceived susceptibility was used.

Gochman (1977) continued to study perceived vulnerability in relationship to other variables, such as traumatic experience, self-concept, and health motivation.

The study was conducted with the first sample group of 774 children, ranging in ages from 8 to 17 years in May of 1969. A second sample group of 686 children in third grade and a third sample of 655 children in seventh grade were studied in November, 1970. The children represented different ages, sex and two socioeconomic groupings. The hypotheses were: that perceived vulnerability was directly related to traumatic encounters; perceived vulnerability was negatively related to self-concept; and perceived vulnerability was positively related to health motivation. Perceived vulnerability was found to be related to trauma, but was more closely and inversely related to self-concept. There was no significant relationship to health motivation. Gochman described perceived vulnerability as an anxiety-like state and suggested that further consideration should be made of this relationship between perceived vulnerability and anxiety.

Gochman and Sheiham (1978), conducted a simultaneous examination of the consistency of children's health beliefs with two sample groups, one in England and one in the United States. Health expectancies were seen as part of an organized, consistent personality characteristic that could be termed perceived vulnerability and that was more related

to a level of anxiety than to particular experiences. As well, there was a consistency cross-culturally in the health expectancy. Gochman stated that perceived vulnerability represented a system of beliefs rather than just a singular belief and that these beliefs must be addressed in large numbers if a program of change is to be successful.

Stone and Crouch (1979) conducted a cross-cultural study to determine the relationship between the demographic and socio-psychological variables of ethnicity, sex, age, residence, and locus of control orientation and children's perceptions of vulnerability to health problems. Their sample group consisted of 576 students representing Anglo, Hispanic, and Native American students. The ages ranged from 9 to 13 years, both sexes were represented and both rural and urban students were in the study. Perceived vulnerability was measured by an adaptation of Gochman's instrument. Locus of control was measured by using the Nowicki-Strickland Internal-External Locus of Control Scale For Children. Ethnicity was found to have a significant relationship to perceived vulnerability and locus of control orientation. There was a difference in the rank ordering of perceived vulnerability to health problems by the three ethnic groups. The researchers recommended that further

cross-cultural research be conducted. "The cultural background and the cultural beliefs concerning health and perceptions of health problems should be a consideration in developing a health education curriculum.." (Stone & Crouch, 1979).

Gochman and Saucier (1982) reported on perceived vulnerability in children and adolescents that reflected cross-sectional data on American and French-speaking Canadian students and two longitudinal studies on American students. Perceived vulnerability was found to be a consistent set of beliefs in the individual and was found to be consistent within the beliefs of a specific demographic group. There was a complex relationship to age. Females had significantly higher levels of perceived vulnerability to immediate health problems and there was evidence that females may also have higher levels of perceived vulnerability towards future health problems as well. There was a relationship to socio-economic status in the younger age groups only. There was a complex relationship indicated between health motivation and perceived vulnerability. Where relationships were observed in adolescents, those subjects with higher levels of perceived vulnerability had lower levels of preventive attitudes. There was a negative

relationship with self-concept and a positive relationship to anxiety. The researchers suggested that "perceived vulnerability is as much an affective construct as a cognitive one, emotionally linking a wide range of conditions, current and future, serious and minor with the individual's appraisal of encountering health problems in general." (Gochman & Saucier, 1982). Perceived vulnerability was seen as a stable construct that is unlikely to change in later childhood and adolescence. The implications were that the beliefs determined in the child were likely to remain throughout stages of growth and development and that "comprehensive programs should begin before puberty, when anxiety is likely to increase and thus add to the possibility of unanticipated boomerang effects when a well-organized system takes on heavy affective component." (Gochman & Saucier, 1982).

The Health Belief Model includes a key element that is the individual's subjective state of readiness to take action. This state of readiness is affected by the individual's perceived susceptibility to a particular illness. Gochman's original research was looking at perceived susceptibility. Eventually, he found that the expectancy of encountering a health problem was a set of

beliefs and that the term perceived vulnerability was more appropriate to describe these expectancies. Perceived vulnerability was found by the researchers to have many characteristics:

consistent in an individual and represents a pattern of beliefs (Gochman & Sheiham, 1978); consistent in a demographic group (Gochman & Saucier, 1982); higher in females at all ages (Gochman & Saucier, 1982); less consistent in younger children than in adolescents (Gochman, 1971, Gochman, Bagramian, & Sheiham, 1972) ; related in a complex way to age (Gochman & Saucier, 1982); positively related to traumatic experiences (Gochman, 1971, 1977); inversely related to self-concept (Gochman 1977, Gochman & Saucier, 1982); positively related to anxiety (Gochman, 1977, Gochman & Saucier, 1982); and related to ethnicity (Stone & Crouch, 1979).

It is apparent that perceived vulnerability is a stable construct that could be predictive of health action.

#### Locus of Control

Rotter (1966) developed a concept of internal-external control of reinforcement from social learning theory. Joe

(1971) described Rotter's concept thus: "It describes the degree to which an individual believes that reinforcements are contingent upon his own behavior. Internal control refers to individuals who believe that reinforcements are contingent upon their own behavior, capacities, or attributes. External control refers to individuals who believe that reinforcements are not under their personal control but rather are under the control of luck, chance, fate, etc. Thus, depending on his/her past experiences, a person will have developed a consistent attitude tending toward either an internal or external locus of control as the source of reinforcement." Lefcourt (1966) also completed an extensive review of the research on the internal-external control variable, which generated interest in the study and measurement of the variable.

Rotter's (1966) Internal-External Control Scale was found to be valid and reliable with a number of different samples. (Hersch & Scheibe, 1967, Minton, 1967, Harrow & Ferrante, 1969). Schneider (1968) and Dies (1968) developed alternative measures of locus of control. Scales for children were also developed. (Battle & Rotter, 1963; Bialer, 1961; Crandall, Katkovsky, & Crandall, 1965). Crandall's Intellectual Achievement Responsibility (IAR)



Scale measured belief in two subscales: internal responsibility for successes and failures.

One of the major difficulties that the researchers had to deal with in producing a valid instrument to measure locus of control was the interaction between the individual's view of societal norms and the views which represent a personality trait. Another point of debate was the relationship of the sex of the respondent to locus of control orientation. There are still many relationships to be explored.

Joe (1971) indicated in his review of the research on locus of control, that the ethnic and social class differences in populations were significant when measuring locus of control. Many studies in the United States have shown a relationship between poverty and a high external expectancy toward health.

Gochman (1971) attempted to develop a psychological matrix for health behavior. He used a sample group of 134 girls and boys, aged 7 to 17 to measure the relationship between probabilism and perceived internal control. There was a lack of consistency in the measurement of the internal control construct, as it was not meaningful to the subjects until after the age of ten. Strickland (1973) suggested

that internals were more likely to take preventive health measures than externals and stated that the study of this relationship was important.

Strickland and Nowicki (1973) developed a locus of control scale for children 7 to 12 years of age. Nowicki and Duke (1974) constructed a Pre-school and Primary Internal-External Control Scale. They stated that they felt that there were currently enough instruments available in the field for each age group to begin to see less instrument development and more application of the instruments to explain behavior.

Neuhauser et al. (1978) studied children's understanding of the concept of healing and determined that "both level of cognitive development and locus of control are relevant factors. The importance of the children's locus of control orientation to their understanding was found to depend upon the interaction of the cognitive level and the complexity of the concept considered." (Neuhauser et al., 1978) It was found that the concrete operational child felt more in control than the pre-operational child. This supports Gochman's view that internal control may not be a meaningful construct for the younger child.

Wallston and Wallston (1978) developed a

Multidimensional Health Locus of Control (MHLC) Scale for older children and adults. The scale measures three separate dimensions, internal control, powerful others and chance. Parcel and Meyer (1978) developed the Children's Health locus of Control Scale (CHLC) for children from 7 to 12 years of age. The dimensions of internal control, powerful others, and chance were identified as the three factors measured by the scale. Parcel et al. (1980) tested the application of social learning theory to a health specific situation using locus of control scales and found that the results could be used in the planning of school health curricula.

Stone and Crouch (1979) used a cross-cultural population to study children's perceptions of vulnerability to health problems. The Gochman Perceived Vulnerability Instrument and the Nowicki-Strickland Internal-External Locus of Control Scale for Children were used to collect data. They found that children's perceptions of health problems were related to perceived vulnerability, locus of control and ethnicity. Their recommendation was that further research be conducted to investigate the different health needs of students from different cultural backgrounds.

The variable locus of control relates to two of the key elements of the Health Belief Model. When an individual is weighing the pros and cons of taking a certain health action, the perception of the internality or externality of locus of control affects the decision about whether or not this action is feasible. Cues to action to trigger the health behavior could be either internal or external. An understanding of which type of cue to use would be important in guiding desired behavior.

#### Summation

Lewis and Lewis addressed the issue of children's decision-making about health. "Children are passive participants in a process dominated by adults. At some magical age without formal practice they are expected to assume responsibility for their own health." (Lewis & Lewis, 1982) They suggested that there was value to be gained from working with children to determine their locus of decision-making to help them to shift from the role of spectator to full participant. It was concluded from this literature review that the Health Belief Model is useful as a framework for the study of health beliefs and that the

variables of perceived vulnerability and locus of control orientation reflect health attitudes and beliefs that may be useful predictors of health behavior.

## CHAPTER III

### Methods and Procedures

#### Research Design

The study was a descriptive research survey that used both descriptive and inferential statistics for data analysis. This design was chosen because it would describe the current status of the students in relation to certain variables. (Gay, 1981) The study consisted of 304 subjects who were fifth grade students from 19 classrooms in the Northwest Territories. The target grade was fifth grade in order to reach the twelve year old student. There were three ethnic groups represented in the sample: the Inuit, the Indian/Metis, and the Non-Native group. These categories corresponded to the demographic categories used by the Department of Education in the Northwest Territories. Both girls and boys were represented. There was class room representation from each of the six educational regions: Yellowknife, Inuvik, Kitikmeot, Baffin, Fort Smith, and Keewatin.

#### Instrument Selection

There were four variables to be measured. These were sex, ethnicity, perceived vulnerability, and locus of control orientation. The first two variables of sex and ethnicity were provided as demographic information on the questionnaire.

#### Perceived Vulnerability Instrument

A modified form of the Perceived Vulnerability instrument developed by Gochman was used. (see Appendix 5 Part A) Gochman in his earlier studies had noted a significant correlation between beliefs about encountering health problems. Three sample groups provided the data to determine the validity and reliability of the instrument for use in this current study. The samples were composed of Sample A - a cross-sectional study of 28 classes of third through ninth graders, Sample B - a longitudinal study of 24 classes of third graders, and Sample C - 24 classes of seventh graders observed at five semi-annual intervals over a two year period. "There were significant correlational coefficients between 101 and 105 possible item pairs, and the odd-even  $r$ 's of .69 for Sample A, the odd-even  $r$ 's of .66 and .68 for Samples B and C." (Gochman and Saucier, 1982).

The Perceived Vulnerability Instrument was made up of

fourteen items plus a practice question. The question form was: "What chance is there of your catching a cold during this next year?" The responses in the original instrument were "no chance", "almost no chance", "a small chance", "a medium chance", "a good chance", "almost certain", and "certain", and were scored from 1 to 7. The responses were modified to three in number which were "no chance", "maybe", and "for sure" and were scored from 1 to 3. When there was an omission of a response the number two was used to designate "maybe". Omission of a response occurred in twenty-three of the questionnaires. When the omissions were analyzed according to ethnicity, fifteen of the omissions occurred in the Inuit group, six in the Indian/Metis group and two in the Non-Native group.

The responses were simplified in order that there would be no confusion with the differences in the terms such as "almost no" and "small" in reference to a response. As well, the application of the Fry Readability Graph registered the original instrument at a 5.5 grade level. The modification lowered the level to a 4.5 grade level. In the Northwest Territories, the Inuit and Indian/Metis students normally do not receive instruction in the English language until grade four. The readability level was



lowered so that there would not be any reading difficulties encountered. The instrument was reviewed by an Inuit interpreter from the Northern Medical Unit at the Health Sciences Centre, Winnipeg, Manitoba and the instrument was found to be easily understood. It was decided that a translation would not be necessary because of the elementary level of the language used. The 14 health expectancies included in the instrument are: a cold, a bad accident, a rash, a fever, having a tooth pulled, a sore throat, a tooth-ache, bleeding gums, an upset stomach, missing a week of school because of sickness, a cavity, a bad headache, breaking or cracking a tooth, and cutting a finger accidentally. The total score ranges from a minimum 14 to a maximum of 42. A high score represents a higher level of perceived vulnerability than a low score.

#### Locus of Control Instrument

The Children's Health Locus of Control Instrument developed by Parcel and Meyer was used. (see Appendix 5 Part B.). The instrument consisted of 20 questions requiring a yes-no response. The questions were worded in the following manner "If I get sick, it is because getting sick just happens." There was a practice loop at the beginning that familiarized the students with the manner in which to fill

out the instrument. The instrument was modified from the original in that the yes-no responses were placed at the beginning of the questions rather than at the end of the questions. This was done for ease of reading as well as to decrease the chance that the first response that occurred would be used each time because of its close proximity to the end of the question. Each of the items in the instrument had been designed by the developer so that they were worded either in the internal direction or in the external direction. There were three questions that were internally directed and the remaining 17 were worded in the external direction. The scoring used was outlined by Parcel and Meyer in their article describing the development of the instrument. "A score of two was given to each internal response and a score of one was assigned to all external responses. Items with no response or multiple responses were assigned a value of 1.5." (Parcel & Meyer, 1982) The instrument was developed to eventually measure three sub-scales of "powerful others", "chance", and "internal control", but the research to validate these sub-scales had not been carried out. As a result, the sub-scales were not considered in the scoring. In the original instrument, items were scored so that higher scores represented beliefs

in internal control and lower scores represented beliefs in external control. The instrument was scored in the following manner: each internally directed question (questions 11, 16, 20) was given a score of 2 if the response was "yes" and 1 if the response was "no". An omission or a multiple response was given a score of 1.5. Each externally directed question (questions 1-10, 12-15, 17-19) was given a score of 1 if the response was "yes" and a 2 if the response was "no". An omission or multiple response was given a score of 1.5. The result was that the minimum score would be a 20 and the maximum score would be a 40. The original instrument did not have a division point between internality and externality. In order to facilitate discussion of the results, scores that were between 20-29 were termed internal and scores that were between 30-40 were termed external.

The Locus of Control Scale was originally developed from a pilot study using thirty questions. The items were scored internally or externally and had been generated from the Wallston, Kaplan et al. Scale as well as from statements from an elementary grade school health education textbook. The original instrument was refined to 20 items. It had a Kuder-Richardson internal reliability coefficient of  $r=.753$ .

The final revised instrument had a biserial correlation of .234 to .873 and a Kuder-Richardson of  $r=.807$ . The instrument had been tested for reliability  $r=.62$ , internal consistency Kuder-Richardson  $r=.72$ , and significantly correlated with the Nowicki-Strickland Children's Locus of Control Scale. The studies conducted were for children of 7 to 12 years.

#### Sampling Procedures

There were classes representing each of the six educational regions designated by the Department of Education: Yellowknife, Inuvik, Kitikmeot, Baffin, Fort Smith, and Keewatin. In the Fort Smith region classes surveyed came from Detah, Fort Laird, Fort Smith, Lac la Martre, Fort Resolution, and two classes from Fort Providence. In the Inuvik region, classes surveyed came from Tuktoyaktuk and Norman Wells. In the Baffin region, classes surveyed came from Pangirtung and Cape Dorset. In the Keewatin region, classes surveyed came from Eskimo Point and Baker Lake. In the Kitikmeot region, two classes each came from Gjoa Haven and Cambridge Bay. The Yellowknife region encompassed the capital city of Yellowknife and included two classes that were surveyed, one from the

educational district and on from the Catholic school system.

Table 2 displays the age and sex distribution of the subjects. For each age level there were almost equal numbers of females and males. The majority of the subjects were in the twelve year old level as was consistent with the target grade being fifth grade.

Table 2

Age and Sex Distribution of the Subjects

Age	Male	Female	Total
11	16	20	36
12	129	139	268

Table 3 displays the sex and ethnicity distribution of the subjects. The number of males and females in each ethnic group was fairly equal, but the Inuit group doubled the number in the Non-Native group and was one and one-half times the number of Indian/Metis subjects.

Table 3

## Sex and Ethnicity Distribution of the Subjects

Sex	Inuit	Indian/Metis	Non-Native	Total
Male	57	55	33	145
Female	81	48	30	159
Total	139	103	63	304

There were 341 questionnaires completed and returned to the investigator. Nine of these questionnaires had to be discarded because of missing demographic information. These omissions represented two male and one female Inuit students, two male and one female Indian/Metis students, one male Non-Native student, and two students of undisclosed sex, one Indian/Metis and the other Non-Native. The omissions came from four of the six educational regions. Four of the Indian/Metis students came from the Fort Smith region, one of the Inuit students came from the Inuvik region, two of the Inuit students and one of the Non-Native students came from the Kitikmeot region, and one Non-Native student came from the Yellowknife region.

The ages of the students who completed the 332

acceptable questionnaires ranged from six years seven months to fourteen years. The students had been directed to fill out their age in answer to the question "What is your age now?" There were boxes provided for ages eight, nine, ten, eleven, and twelve or more. The month of the student's birthday was then reported. This section of the demographic page was completed inconsistently. As was stated the ages ranged from six to fourteen years. In some of the more remote regions, there were one room multi-grade classes. All of these students would have filled out the questionnaire. Another difficulty was that the students who were twelve or more did not accurately report their age so that many of the twelve year olds could have been almost thirteen in age. It was decided to round off each age to the nearest year in order to eliminate the months. If the months had remained there would have been 32 variables for age which would have been unwieldy.

It was also decided to eliminate the extreme age values for two reasons. A one factor analysis of variance with an alpha of .01 was performed for both of the dependent variables. There was no significant relationship of age to perceived vulnerability and no significant relationship of age to health locus of control. There was one seven year

old, one eight year old, five nine year olds, eleven ten year olds, five thirteen year olds and one fourteen year old eliminated from the sample population. There were not enough subjects in these age groups to be representative of the age level. As well, the younger subjects were far from the abstract level of cognitive development that was hoped to be emerging in the sample population. The remaining number of respondents numbered 304 and were composed of students from the ages of 10 years six months to 12 years six months. Of these 138 were Inuit, 103 were Indian/Metis and 63 were Non-Native.

#### Data Collection Methodology

The questionnaire was reviewed by an Inuit interpreter for possible translation difficulties. The opinion of the interpreter was that there would be little difficulty in understanding the terminology used. A pilot administration was carried out with a third and fourth grade class in a Winnipeg school. The purpose of this pilot was to review the questionnaire and the teacher and student instructions for errors. There was no difficulty with the pilot and the third grade students understood the questions.

The questionnaires were distributed to the participating



classrooms by the Department of Education in the Northwest Territories. Each class-room teacher arranged for a forty-five to sixty minute period in which to administer the questionnaire. There were two sections to the questionnaire. Each section began with a practice loop. The teacher assisted the students to fill out the demographic data at the beginning and then read each question one by one. The completed questionnaires were returned to the Department of Education and then, in turn, to the investigator in April and May of 1985.

#### Data Computerization Process

Both descriptive and inferential procedures were used to analyze the data. The data were coded and put into a data-set for analysis. Frequency distributions and cross tabulations were used to profile the respondents. The uneven character of the cells necessitated using an analysis of variance linear model procedure. To test Hypothesis 1 and 2 which dealt with the effects of sex and ethnicity on perceived vulnerability and health locus of control, two 2-factor (sex X ethnicity) Anovas were performed. As the cell sizes appropriately reflected the population characteristics, for each analyses weighted hypotheses were

tested using the Statistical Analysis System package.

To test Hypothesis 3, the mean values were determined for each part of the questionnaire as well as for each question in the Perceived Vulnerability Instrument. This later procedure was performed in order to be able to rank order the responses according to ethnicity.

## CHAPTER IV

## Findings

The null hypotheses were tested at a significance level of .01. This significance level of .01 was used to protect against the high possibility of Type I error resulting from the numerous tests used for each variable. The greater the number of tests, the greater the possibility that the tests might have found a significant result. As well, the large sample size of 304 subjects protects against the possibility of Type II error at a .01 significance level. (Gay, 1981)

## Hypothesis 1

## Research Hypothesis H(R)1

There is a difference in the perceived vulnerability to selected health problems of fifth grade students as a function of their sex and/or ethnicity.

## Null Hypothesis H(0)1

There is no difference in the perceived vulnerability to selected health problems of fifth grade students as a function of their sex and/or ethnicity.

The subjects were administered a modified form of Gochman's Perceived Vulnerability Instrument. There were fourteen questions about the expectancy of being vulnerable to selected health problems. The score had a possible range

of 14 to 42. The higher the score, the greater was the level of perceived vulnerability.

Descriptive statistics were used to determine the group mean for each of the ethnic groups by sex as indicated in Table 4. An examination of the columnar means in Table 4 shows that the Non-Native group has a higher level of perceived vulnerability as indicated by a greater mean score of 2.17 than either the Inuit group, with a mean score of 2.07 or the Indian/Metis group with a mean score of 2.03. Disregarding ethnicity, the female subjects had a higher level of perceived vulnerability with a mean score of 2.13 than the males with a mean score of 2.09.

#### Testing of the Hypothesis

The hypothesis was tested with an analysis of variance for unequal N using a general linear model program at .01 significance. The results are reported in Table 5.

The critical value of  $F(2,298)$  for  $\alpha=.01$  was  $F_{.01}=4.61$ . Since the computed value for  $F$  exceeded  $F_{\alpha}$ , the null hypothesis was rejected. The variable of ethnicity was significant in its relationship to perceived vulnerability. The variable of sex was not significant. There was no significant interaction between the variables of sex and ethnicity.

Table 4

Table of Cell Means and Standard Deviations for Sex and Ethnicity Matrix

	Inuit	Indian/Metis	Non-Native	Total
	Mean S.D.	Mean S.D.	Mean S.D.	
Male	2.06 0.35	1.97 0.29	2.10 0.27	2.04
Female	2.07 0.33	2.09 0.29	2.24 0.23	2.13
Total	2.07	2.03	2.17	2.09

Table 5

Summary of Analysis of Variance Results

Source	df	SS	MS	F	PR.>F
sex	1	0.34	0.34	3.72	0.0548
eth	2	0.86	0.43	4.68	0.0099*
sex*eth	2	0.39	0.20	2.15	0.1183
error	298	27.29	0.09		

\*significant at the .01 level

The Tukey's Studentized Range Test was used to make pairwise comparisons among the three ethnic group means for which a significant relationship was found. The test indicated a significant relationship between the scores of the Indian/Metis and Non-Native groups on the Perceived Vulnerability Instrument. The results are reported in Table 6. The variable 'AVE' represented the average of the mean scores for the Perceived Vulnerability Instrument.

There were significant comparisons in both directions between the mean scores of the Non-Native group and the Indian/Metis group. The Non-Native mean score was significantly higher and reflected a greater perceived vulnerability than the score attained by the Indian/Metis group. There was no significant difference between the mean scores attained by the Inuit group and the Non-Native group and no significant difference between the mean scores of the Inuit and the Indian/Metis group. The mean score of the Inuit group was close in value (mean= 2.06) to the mean score of the Non-Native group (mean= 2.10).

Table 6

Tukey's Studentized Range (HSD) Test For Variable:Ave

Alpha=0.01 Confidence=0.99 DF=298 MSE=.0915838

Coding of Ethnicity: Non-Native=3, Indian/Metis=2, Inuit=1

Critical Value of Studentized Range=4.152

Comparisons significant at the 0.01 level are indicated by

'\*\*\*'

Eth Comparison	Simultaneous		Difference Between Means	Simultaneous	
	Lower Confidence Limit			Upper Confidence Limit	

3	-1	-0.0388	0.0963	0.2314
3	-2	0.0058	0.1479	0.2900***
1	-3	-0.2314	-0.0963	0.0388
1	-2	-0.0641	0.0516	0.1673
2	-3	-0.2900	-0.1479	-0.0058
2	-1	-0.1673	-0.0516	0.0641

## Hypothesis 2

### Research Hypothesis H(R)2

There is a difference in the level of internality and externality of health locus of control of fifth grade students as a function of their sex and/or ethnicity.

### Null Hypothesis H(Ø)2

There is no difference in the level of internality and externality of health locus of control of fifth grade students as a function of their sex and/or ethnicity.

The subjects were administered a modified form of the Parcel and Meyer Health Locus of Control Instrument. There were twenty questions about what the subjects believed had control over their health. The score had a possible range of 20 to 40. The higher the score, the more internal the health locus of control. A score of 20 to 29 represented an external health locus of control and a score of 30 to 40 represented an internal health locus of control.

Descriptive statistics were used to determine the group mean for each of the ethnic groups by sex and are indicated in Table 7. An examination of the columnar means in Table 7 shows that the Non-Native group has a higher level of internality as indicated by a greater mean score of 1.68 than either the Inuit group with a mean score of 1.48 or the



Table 7

Table of Cell Means and Standard Deviations for Sex and Ethnicity Matrix

	Inuit	Indian/Metis	Non-Native	Total
	Mean S.D.	Mean S.D.	Mean S.D.	
Male	1.47 0.16	1.48 0.17	1.65 0.14	1.53
Female	1.48 0.14	1.50 0.16	1.71 0.10	1.56
Total	1.48	1.49	1.68	1.55

Table 8

Summary of Analysis of Variance Results

Source	df	SS	MS	F	PR.>F
sex	1	0.003	0.003	0.17	0.6792
eth	2	2.01	1.00	47.03	0.0001*
sex*eth	2	0.04	0.02	0.86	0.4320
error	298	6.38	0.02		

\*significant at the .01 level

Indian/Metis group with a mean score of 1.49. Disregarding ethnicity the female subjects had a higher level of internality with a mean score of 1.56 than the males with a mean score of 1.53.

#### Testing of the Hypothesis

The hypothesis was tested with an analysis of variance for unequal N using a general linear model program at a  $0.01$  level of significance. The significant results are reported in Table 8.

The critical value for  $F(2,298)$  for  $\alpha=0.01$  was  $F_{.01}=4.61$ . Since the computed value for  $F$  exceeded  $F_{\alpha}$ , the null hypothesis was rejected. The variable of ethnicity was significant in its relationship to health locus of control. The variable of sex was not significant. There was no significant interaction between the variables of sex and ethnicity.

The Tukey's Studentized Range Test was used to make pairwise comparisons among the three ethnic group means for which a significant relationship was found. The test indicated a significant relationship between the scores of the Non-Native group as compared to both the Indian/Metis group and the Inuit group on the Health Locus of Control Scale. The results are reported in Table 9. The variable

'AVG' represented the average of the mean scores for the Health Locus of Control Scale.

The Non-Native group mean score was significantly greater than the mean scores of the Indian/Metis and Inuit groups. This reflected a higher level of internality of health locus of control in the Non-Native group. The converse was true, in that the mean score of the Indian/Metis and Inuit groups was significantly lower than the Non-Native group. This reflected a lower level of internality in these groups. There was no significant difference between the mean scores of the Inuit and the Indian/Metis groups.

#### Analysis of the Distribution of the Scores

Table 10 shows the distribution of the scoring from the Parcel-Meyer Health Locus of Control Instrument. The frequency of the scores was tabulated according to the ethnicity and the sex of the subject. The dividing line to distinguish internality and externality was drawn between 29.5 and 30.

In the external area (scores between 20 to 29), there were 72 Inuit (32 male, 40 female), 56 Indian/Metis (30 male, 26 female), and 1 male Non-Native. In the internal area (scores between 30 to 40), there were 66 Inuit (25

Table 9

Tukey's Studentized Range (HSD) Test For Variable: Avg

Alpha=0.01 Confidence=0.99 DF=298 MSE=.0214221

Critical Value of Studentized Range=4.152

Coding of Ethnicity: Non-Native=3, Indian/Metis=2, Inuit=1

Comparisons significant at the 0.01 level are indicated by  
'\*\*\*'

Eth	Simultaneous	Difference	Simultaneous
Comparison	Lower	Between	Upper
	Confidence	Means	Confidence
	Limit		Limit

3	-2	0.1251	0.1938	0.2625***
3	-1	0.1401	0.2054	0.2708***
2	-3	-0.2625	-0.1938	-0.1251***
2	-1	-0.0443	0.0116	0.0676
1	-3	-0.2708	-0.2054	-0.1401***
1	-2	-0.0676	-0.0116	0.0443

male, 41 female), 47 Indian/Metis (25 male, 22 female), and 62 Non-Natives (32 male, 30 female). The percentage distribution of these scores are shown in Table 11.

Table 10

Distribution of the Scores From the Parcel-Meyer Health Locus of Control Instrument

(N = 304 Inuit = 138, Indian/Metis = 103, Non-Native = 63)

Score	Inuit		Indian/Metis		Non-Native	
	M	F	M	F	M	F
22			1			
23	1					
24	1	1	1			
25	4	4	3	5		
26	4	7	2			
26.5				1		
27	3	6	9	4		
27.5			1			
28	5	12	8	8	1	
28.5			1			
29	13	10	4	8		
29.5	1					
30	4	14	7	2	3	1
31	5	10	1	5	5	1
32	2	6	5	3	3	5
32.5			1			
33	6	3	2	2	6	3
34	6	5	1	3	5	5
35	2		3	5	3	7
35.5				1		1
36		1	4	1	6	2
37		2	1		1	4
38						1

Note: The line drawn denotes the point above which reflects internality and below which would reflect externality.

Table 11

Percentage Distribution of the Scores on the Parcel-Meyer  
Health Locus of Control Instrument by Ethnicity

	Inuit	Indian/Metis	Non-Native
Percent of External Responses	52.17%	54.37%	1.6%
Percent of Internal Responses	47.83%	45.63%	98.4%
Total	100.00%	100.00%	100.00%

The Non-Native group had the greatest percentage of internal responses with a percentage of 98.4%. There was little difference in the percentage of internal responses of the Inuit group with a percentage of 47.83% and the Indian/Metis group with a percentage of 45.63%.

### Hypothesis 3

#### Research Hypothesis H(R)3

There is a difference in the ranking of the perceived vulnerability to selected health problems made by fifth grade students as a function of their ethnicity.

#### Null Hypothesis H(0)3

There is no difference in the ranking of the perceived vulnerability to selected health problems made by selected fifth grade students as a function of their ethnicity.

The students were administered a modified form of Gochman's Perceived Vulnerability Instrument. The students were asked fourteen questions about their expectancy of being vulnerable to selected health problems. The score had a possible range of 14 to 42. The higher the score the greater was the level of perceived vulnerability.

Descriptive statistics were used to determine the group mean on each of the fourteen questions for each ethnic group on the perceived vulnerability instrument. The expectancy scores for each item ranged from 1 (lowest) to 3 (highest). The means for each of the fourteen questions were calculated and then ranked for each ethnic group. Therefore the smallest mean received a rank of one indicating the health problem least likely to occur with each succeeding mean in



size ranked to 14. A rank of 14 indicated the health problem most likely to occur. The results for each ethnic group on each of the 14 questions are reported in Table 12. To serve as a comparison, the Inuit mean ranks were listed first, in ascending order and then the other two ethnic group mean ranks were compared to the Inuit ranks.

There was a difference in the ranking of the problems that were seen to be most likely to occur and least likely to occur when the table was reviewed visually. The Inuit group responded that a headache, a cold and a stomach upset and fever were the most likely health problems to occur. Least likely to occur were a rash, an accident, and a cracked tooth. The Indian/Metis group responded that a cut finger, a headache, and a cold were the most likely health problems to occur. Least likely to occur were a pulled tooth, a cracked tooth, and an accident. The Non-Native group responded that the health problems that were most likely to occur were a sore throat, a cold and getting an upset stomach. The least likely problems to occur were a pulled tooth, a cracked tooth, and an accident.

#### Instrument Administration Notes

Each of the teachers were asked to answer questions about the ease or difficulty of administering the survey.

Table 12

Ranking of Children's Perceptions of Vulnerability to Selected Health Problems by Ethnic Groups

Ethnicity	Inuit N = 138			Indian/Metis N = 103			Non-Native N = 63			
	Question	Rank	Mean	S.D.	Rank	Mean	S.D.	Rank	Mean	S.D.
	Rash	1	1.60	0.67	5	1.86	0.64	5	1.95	0.58
	Accident	2	1.68	0.54	3	1.76	0.46	3	1.90	0.39
	Crack Tooth	3	1.71	0.73	2	1.75	0.67	1	1.56	0.59
	Miss a Week	4	1.86	0.71	4	1.85	0.68	7	1.97	0.65
	Gums Bleed	5	1.99	0.75	6	1.92	0.70	8	2.22	0.77
	Pull Tooth	6	2.00	0.66	1	1.71	0.67	2	1.57	0.64
	Toothache	7	2.10	0.68	7	1.96	0.66	5	1.95	0.73
	Cavity	8	2.21	0.73	8	2.00	0.64	5	1.95	0.61
	Cut Finger	9	2.24	0.78	14	2.36	0.61	10	2.48	0.53
	Sore Throat	10	2.30	0.70	10	2.19	0.60	14	2.70	0.53
	Fever	11.5	2.33	0.68	9	2.14	0.60	9	2.41	0.59
	Stomach	11.5	2.33	0.74	11	2.24	0.53	12	2.62	0.49
	Cold	13	2.39	0.64	12	2.32	0.53	13	2.73	0.48
	Headache	14	2.39	0.68	13	2.36	0.59	11	2.49	0.64
	Average		2.08	0.33		2.03	0.29		2.18	0.26

Note. The expectancy scores for each item range from 1 (lowest) to 3 (highest). The higher the ranking, the more likely it is perceived that the problem will occur.

There were 19 teacher comments returned and in 11 of the 19, there were no problems in the administration of the survey. Five of the teachers mentioned that there was no school nurse in the settlement, a term that was used in question 18 in the Children's Health Locus of Control instrument. The term doctor or nurse was used in three other questions, but there was no difficulty mentioned.

In Fort Providence, the teacher stated that the students had difficulty with the terms male and female in the demographic section. It was suggested that the terms girls and boys be used instead. In Cambridge Bay, one of the teachers stated that there was some difficulty with the Children's Health Locus of Control instrument with associating the term yes with true and the term no with false.

There were three teachers who reported difficulty with the concept of luck and two teachers also reported difficulty with the concept of having a choice. One teacher stated "Filling of surveys is a topic that evidently the typical grade 5 class has neglected because this one consumed a great deal of time. Also the underlying concepts and skills required for this activity were lacking. Even with a lengthy introduction the ideas of surveys was not

understood." Other teachers reported that the survey was very easily administered and took only 10 to 15 minutes.

## CHAPTER V

## Conclusions, Limitations and Recommendations

## Summary

The purpose of the study was to determine the relationship between the demographic and socio-psychological variables of sex, ethnicity, locus of control orientation, and perceived vulnerability to health problems in selected grade five students in the Northwest Territories. The Health Belief Model was used as the conceptual framework for the study. The study involved 19 intact classes of fifth grade students who had been selected by the Department of Education. A questionnaire composed of a modified form of the Gochman Perceived Vulnerability Instrument and the Parcel and Meyer Children's Health Locus of Control Instrument was administered to the students by their teachers during the months of February, March and April, 1985.

The study of attitude and behavior has generated a large body of theory, but has not provided the means for successfully modifying health behaviors, ie. smoking. The generally unsatisfactory outcome of health education

programs, especially for changing adult behavior, has led many to suggest that health education should start with children. (Rothman & Byrne, 1981) The need for this study can be expressed in the comments found in the introduction of the Report on the Needs Assessment of the Northwest Territories School Health Program (1984). "In the past, almost all human energy and financial resources devoted to health needs had been in the form of acute treatment of illnesses in nursing stations, doctor's offices and hospitals. Little was done to determine the cause and ameliorate, or perhaps prevent altogether, this final result of death or illness. The costs of this approach in terms of both human suffering and financial resources demanded that new approaches be found." This study investigated the health attitudes and beliefs of fifth grade students in the Northwest Territories. Fifth grade students were selected since this is the age when they are moving into the developmental stage where they are capable of more abstract concepts about health and illness.

The following are the research questions:

What is the relationship of sex and ethnicity to fifth grade students' health locus of control orientation?

What is the relationship of sex and ethnicity to

fifth grade student's perceived vulnerability to selected health problems?

What is the relationship of the three ethnic groups (Inuit, Metis/Indian, and Non-Native) to the ranking of perceived vulnerability for different health problems?

The review of the literature on this topic indicated that:

1. The Health Belief Model included a key element that is "the individual's subjective state of readiness to take action." This state of readiness was affected by the individual's perceived susceptibility to a particular illness. The expectancy of encountering a health problem was a set of beliefs and this was termed by Gochman as being perceived vulnerability. It was a stable construct that could be predictive of health action. (Gochman, 1970, 1971, 1972, 1977; Gochman & Sheiham, 1978; Stone & Crouch, 1979; Gochman & Saucier, 1982).

2. The variable locus of control is related to two of the key elements of the Health Belief Model. When an individual is weighing the pros and cons of taking a certain health action, the perception of an internal or external locus of control affects the decision about whether or not this action is feasible. Cues to action to trigger the

health behavior could be either internal or external. (Rotter, 1966; Lefcourt, 1966; Joe, 1971; Gochman, 1971; Strickland, 1973; Strickland & Nowicki, 1973; Nowicki & Duke, 1974; Neuhauser et al, 1978; Wallston & Wallston, 1978; Parcel & Meyer, 1978; Parcel et al., 1980).

3. Children's perceptions of health problems are related to perceived vulnerability, locus of control, and ethnicity. (Stone & Crouch, 1979).

The first two hypotheses were tested by descriptive statistics and analysis of variance and the third hypothesis was tested through a ranking of means. There were 138 Inuit subjects, 103 Indian/Metis subjects and 63 Non-Native students in the study. The Statistical Analysis System was used for data analysis.



## Conclusions

### Hypothesis 1

Hypothesis 1 tested the relationship of sex and ethnicity to perceived vulnerability. Ethnicity was the variable that was found to have significance. The Non-Native subjects perceived themselves as more vulnerable to the selected health problems than the Indian/Metis group. There was no difference in perceived vulnerability between the Non-Native group and the Inuit group. There was no significant difference in perceived vulnerability between the Indian/Metis group and the Inuit group. The implication is that the Non-Native group is most aware of their own vulnerability to health problems and that the Inuit group awareness is not that dissimilar. The Indian/Metis group, however, is significantly different in their awareness of health problems from the Non-Native group, but not that dissimilar from the Inuit group. The Inuit group level of awareness falls somewhere in the middle of the two other groups but is not significantly different from either one.

The similarity between the mean scores of the Indian/Metis group mean and the Inuit group mean may have been due to many factors. The majority of the students who

were Non-Native came from the largest urban centre in the Northwest Territories, Yellowknife. The majority of students who were Indian/Metis or Inuit came from smaller rural settlements of varying populations. The similarity of the settings where most of the Inuit and Indian/Metis children reside may account for the similarity in the level of perceived vulnerability. The more limited access to health services may account for less awareness about the causes of illness and less opportunities for the screening for disease. When ill in the rural setting, the student contacts the teacher, who then contacts the nursing station or sends the child home. The majority of problems are taken care of by the family unit, using traditional medicine. The teacher may often serve as the point of entry in to the health care system and is not trained as a diagnostician.

The students in the rural areas were found to be grouped with a majority of their own culture. For instance, in Fort Smith, the majority of students were Indian/Metis as the region is populated by a majority of that group. In Kitikmeot the majority of students were Inuit as the region is populated by a majority of that group. In a situation where there is the influence of only one culture felt, there is a tendency not to assimilate with the other cultures in

the territory. This effect would be seen in the use of language. The Inuit group has many dialects of Inuktituk. The Indian/Metis have various dialects used by the Dene people. The Non-Native have English as a primary language. The majority of health information in the Northwest Territories is printed in English, although there is some translation being done in one of the dialects of Inuktituk. This limits the diffusion of health education content. Some parents do not read or speak English and therefore, would not easily gain information to pass on to their children. Some parents do not read Inuktituk or the dialect being used and do not benefit from printed material in their own language.

In a setting where there is a lack of assimilation with other cultures and limited diffusion of health information at an appropriate readability level, there would tend to be a lower level of perceived vulnerability. Gochman (1971) stated that health as a motive for action was not a high priority in children's cognitive worlds and therefore the perceived vulnerability is not very high. The Non-Native children may have a higher level of perceived vulnerability because of exposure to health information and the influence of more knowledgeable parents and peers.

Another factor that would influence the level of perceived vulnerability is the comparative grade level of the ethnic groups. If one ethnic group was functioning at a lower level than another, then the level of cognitive development may be affected. Gochman (1971) stated that it was around the age of ten that the child began to differentiate the abstractions of health and illness. The child of ten is usually in grade three or four. A study undertaken by Kelly (1985) in Inuvik, Northwest Territories has tested the development of academic performance in the students and has found that the Inuit and Indian/Metis students are on the average two years behind the development of the Non-Native students. If the academic level of the students is lower, then possibly the students are not functioning at a formal operational level and therefore are unable to deal cognitively with the abstraction of health and their own perceived vulnerability. (M. Kelly, personal communication, September 9, 1985).

Even when there is assimilation within a Non-Native population, there are problems as noted in this comment about Indian students. "The distorted reflection of himself which is presented to the Indian child is not even the chief source of incongruity which most Indian children experience

in the White school system. Far more significant and handicapping is the fact that verbal symbols and the theoretical constructions which the Indian child is asked to manipulate bear little or no relation to the social environment with which he is most familiar." (Frideries, 1983).

There was a significant difference in the mean score for the Non-Native group when compared with the lower mean score of the Indian/Metis group but not with the lower mean score of the Inuit. There was no significant difference between the Non-Native and Inuit group mean scores. There was no particular indication of why the Indian/Metis group was significantly lower than the Non-Native group. This is an area that requires more research to be able to explain the results.

In each ethnic group, the female mean score was higher than that of the male, although the variable itself was not significant in relationship to perceived vulnerability. This pattern was shown in Gochman's study of children between the ages of 7 and 17. (Gochman, 1970) In nine out of the ten questions that were asked, there was a pattern shown that the females perceived themselves as more vulnerable to the selected health problems. As well, in a

study by Gochman and Saucier (1982) with an American and French-Canadian adolescent sample group, the females in four different sample groups had a higher level of perceived vulnerability and had a lower preventive attitude than the males in the sample. A rationale for this pattern could be the explanatory models proposed by Nathanson for the high morbidity of the female. (Nathanson, 1975). Nathanson (1975) states that "women report more illness than men because it is culturally more acceptable for them to be ill, the sick role is relatively compatible with women's other role responsibilities, and incompatible with men, and women's assigned roles are more stressful than those of men and consequently, they have more illness."

Gochman (1970) identified perceived vulnerability as a stable construct. Gochman and Saucier (1982) found a significant relationship between perceived vulnerability and anxiety. This finding has implications for the importance of perceived vulnerability in health education curriculum planning. "While research and health education programs have typically attempted to increase levels of perceived vulnerability in target populations, in young populations, perceptions of being vulnerable to health problems are not associated with preventive beliefs, attitudes or behaviors

in a consistently happy way. A more compelling objective would be the determination of what the optimum levels of perceived vulnerability are as bases for preventive attitudes and behaviors." (Gochman & Saucier, 1982)

Gochman (1971) suggested the increasing of children's perceived vulnerability to increase the likelihood of promoting preventive health behaviors. However in later studies, Gochman and Saucier (1982) determined that there is a level of anxiety that can be reached where preventive action is blocked by the level of anxiety felt by the students. "To the degree that perceived vulnerability is an anxiety-like state, some of the known properties of anxiety become relevant. Accumulated research evidence suggests that high levels of anxiety facilitate the learning of simple tasks but impede more complex learning. While moderate levels of anxiety do not facilitate simple learning, they do facilitate complex learning. If target populations can be shown to have relatively high levels of perceived vulnerability to health problems, indirect educational and informational programs possibly might be less effective than direct ones." (Gochman & Saucier, 1982)

It is necessary to study the relationship between perceived vulnerability and anxiety more completely.

## Hypothesis 2

Hypothesis 2 tested the relationship between sex and ethnicity and health locus of control. Ethnicity was the variable that was found to have significance. The Non-Native group had a significant level of internality as compared to the Indian/Metis and the Inuit group. There were no significant differences between the Indian/Metis and the Inuit group. The implication was that the Non-Native group viewed their control over their own health as coming from their own efforts. The other two ethnic groups were alike in that their orientation was much more external. The background of the Inuit and the Dene Indian population suggests that a belief in traditional medicine with shamans or medicine men having control over health may have some impact on these findings.

Another reason that the Indian/Metis and the Inuit group would feel that their locus of control was more external is because of the way in which the medical services function. Professionals, who are for the most part Caucasian and unable to speak the native languages, service the community through stations and fly out the most ill. The ill individual usually leaves the community alone and is



treated without loved ones to give support. The patient becomes totally dependent upon the system. The Report of Advisory Commission on Indian and Inuit Health Consultation (1980) gave some interesting perspectives on the lack of control felt by the Inuit and the Dene people. The Indian point of view was expressed in the following comments: "To be forced to live a life that is totally out of one's control is a source of constant stress, and leads to the weakness and demoralization of individuals and entire communities." (Sealy, 1980). The Inuit point of view was indirectly expressed in the comments made by Jean Briggs at the Churchill Health Conference, 1975, when discussing the difficulty that the Inuit have in accepting treatment imposed on them by the Caucasian medical professional. The difficulty arises "because of the very strong value that Inuit place on autonomy and non-interference." (Churchill Health Conference, 1975). One who requires treatment is always given a choice, even if they are a small child.

There were two Inuit settlements where the teacher reported that the students had difficulties with abstractions that related to being lucky and having a choice about health. The philosophical base for the Inuit is a wholistic one, where the body and the spirit cannot be

separated. "There are three interrelated causes that are perceived for those kinds of things that are defined as seriously wrong....both painful physical illness and disturbed states of mind could traditionally be caused by tungngait, spirits with malevolent intent...the second type of cause...is someone else's brooding...thirdly, one can do injury to oneself by thinking too much." (Churchill Health Conference, 1975). There is little room for luck in this philosophy. There were three subscales being developed for the Children's Health Locus of Control Scale: internal, chance, and powerful others. If the students were responding in an external direction and if the concept of luck or chance was not a familiar concept, then it would be the powerful others that would be the source of the external locus of control. Further research with definite subscale development could draw more definite conclusions.

In each ethnic group the means for the female subjects were higher, indicating a higher level of internality, although sex was not a significant variable in relation to health locus of control.

The Non-Native group had both a higher level of internality as well as a higher level of perceived vulnerability than the other two groups. If the student

feels that through personal effort there is more control over health, then coupled with the increased perceived vulnerability, the student is in a better position to take preventive action.

### Hypothesis 3

Hypothesis 3 tested the relationship between ethnicity and the ranking of perceived vulnerability scores. There was a difference in the ranking, but there also was a consistency in the nature of the health problems which were the most likely and the least likely to occur. All three ethnic groups indicated that a cold was in the top three of the problems most likely to occur. An upset stomach and a headache were mentioned by two of the three ethnic groups. All three ethnic groups indicated that an accident and a cracked tooth were the least likely problems to occur. A pulled tooth was mentioned by two of the three ethnic groups as being least likely to occur.

Harvey et al. (1984) determined in an analysis of patient visits in the Northwest Territories for the 12 month period ending July 1984 that two of the top three categories of disease that were identified for the 6 to 12 year old group were injury and poisonings, and diseases of the

respiratory system. In the 13 to 18 age group, injury and poisoning exceeded diseases of the respiratory system as the top category responsible for patient visits. These two categories of disease represent the main reason that children and adolescents visit the doctor, nurse, or nursing station. The students in the study have concurred with the finding that respiratory system disease is a major affliction by indicating that colds and headaches are the most likely health problems to occur. In addition, the symptoms of headache, stomach upset and cold are commonly found occurring with a respiratory infection. The child would feel less able to control a virus than an accident. However, in the area of injuries and poisonings, the students indicate that these are one of the least likely health problems to occur. Radius et al. (1988) in a study of adolescent perspectives on health and illness noted that "despite their recognition of potentially dysfunctional behaviors, few youths accepted responsibility for their own health." As well, the study found that "adolescents do not relate their behavior...to negative health outcomes, and that youths' level of concern about personal health, about becoming sick, and so forth are predictable linked to their performance of certain less-desirable behaviors." (Radius et

al., 1980). This might explain the lack of awareness of the high occurrence of accidents in the student group because the students cannot relate their actions to the traumatic events.

#### Comparison to Other Studies

The findings of this study are similar to the results obtained by Stone and Crouch in their study entitled "Children's Perceptions of Vulnerability to Health Problems From a Cross-Cultural Perspective," (1979). Ethnicity was the only significant variable that related to perceived vulnerability and health locus of control. As well, there was a difference in ranking on the perceived vulnerability instrument according to ethnic group.

In this study, there was a consistency in the ranking of the selected health problems in the Gochman Perceived Vulnerability instrument in that each of the three ethnic group had similarities in indicating the three least likely and the three most likely problems to occur. These observations were similar to those found in the cross-cultural study by Gochman and Sheiham (1978).

Gochman (1971) demonstrated that "the relationship between perceived vulnerability and potential health

behavior is mediated by locus of control and the degree to which children perceive health as salient as well as the child's age, sex, and social economic status. (Kainins & Love, 1982). There is a similarity with this study in that the Non-Native group had both a higher level of perceived vulnerability and a greater level of internality of health locus of control than either the Indian/Metis group or the Inuit group.

A recent article by Janz and Becker (1984) entitled "The Health Belief Model: A Decade Later" critically reviewed 46 studies using the Health Belief Model. "Perceived barriers" proved to be the most significant dimension of the model. "Perceived susceptibility" was the most significant dimension of the model in understanding preventive health behaviors and "perceived benefits" was the most significant dimension for understanding sick role behaviors. This study noted that ethnicity was a significant variable in determining the level of perceived vulnerability (perceived susceptibility) but did not look at future health behaviors and their relationship. "The notion of prevention is a concept which requires the understanding of physical causality between two events most often separated by a great expanse of time. In addition, there

must be understanding that an event might occur and that current action might affect the occurrence of another action in the future. The research on causality...shows clearly that causality is poorly understood until the advent of formal thought in early adolescence." (Kalinins & Love, 1982). As indicated in the Kelly study (1985), the Inuit and Indian/Metis students may not be functioning at the same formal operational level as the Non-Native students. The ultimate goal of health education is to effect voluntary changes towards preventive health behavior. The study of dimensions of the Health Belief Model as it relates to a specific population adds valuable information about the student to the planning of a health curriculum, but does not delineate effective strategies to bring about the positive preventive health behaviors. There is much research to be done in this area.

#### Limitations

In the light of certain limitations, the conclusions must be viewed with caution. The questionnaires used the self-report method and used closed questions to gather the data. Another method such as the personal interview might elicit less limited responses. As well, the instruments were

to be administered as a paper and pencil test in a class-room setting.

The teacher was to read each question to his/her class to maintain standardized administration of the test. The investigator relied on others to administer the questionnaire, so that standardization of administration may not have been consistent.

The instruments had been tested for validity and reliability with an American population which was different in many ways from the tested sample in the study. Both of the instruments had been modified in order to reduce the readability level. The use of these instruments and the resulting data could only be considered a pilot or an exploratory study of the population.

The sample group was stratified according to sex and ethnicity, but not totally randomly selected. They were selected by cluster sampling. The findings, therefore cannot be generalized beyond the cross-cultural population used in this study. This method of selection increased the possibility of the internal threat to validity of differential selections of the subjects. The selection method could have also increased the possibility of differential selection interacting with history and



maturational experiences.

## Recommendations

### Implications of Findings for Health Curriculum Development by Health Educators in the School System

Programs in health must continue to be translated at an appropriate readability level and diffused effectively for the Inuit and the Indian/Metis.

The type and timing of programs must be reviewed so that the students are receptive to the content and able to relate the concepts. A multitargetted approach has been suggested by Gochman (1982) "health promotion campaigns and programs might be more successful if they try simultaneously to change beliefs about being vulnerable to a larger number of problems."

The results of the study showed that students were not as aware of the priority of safety as they might be. The reason why is an area that requires thoughtful research.

Educators should have time devoted to orientation and continuing education for the promotion of the awareness of the cultural beliefs and attitudes of their students and should include this perspective in the planning of programs for these students. The educators should be supported in maintaining an open, flexible, non-judgmental attitude

towards a multi-cultural student body.

The level of anxiety experienced by a developing student should be a consideration in health education curriculum planning. An increasing level of anxiety will help learning at a moderate level and will hinder learning at too high a level.

The level of perceived vulnerability is affected by the developmental age of the student. The younger child cannot deal with the abstractions of the concept of health and illness. A question to be answered is - when does perceived vulnerability become a stable construct for the child and does this age differ according to cultural background?

If it can be stated affirmatively (Gochman & Saucier, 1982) that those possessing an internal orientation take more preventive action, then an acceptable educational goal would be to develop programs that promote educating for internality. Rather than having one program for all, several strategies for learning have to be developed because of the influence of other factors. Poverty relates positively to an external locus of control. What are the effects of societal norms that are based on generations with a lower socioeconomic status. The focus of an internally oriented program would be lost on a student who is

externally oriented. The power to change could not be identified as being internal. The group process could be used, for example, to discuss the concept of 'personal' versus 'powerful other' power. The contract method could be used with a student who is internally oriented to build on already identified inner resources.

The Non-Native student was more aware of a vulnerability to health problems and was significantly more internally oriented. These students would be more likely to take preventive action. The Inuit group were not significantly different from the Non-Native group in their level of perceived vulnerability. The focus of health education planning for the Inuit should be to increase the level of internal locus of control. The Indian/Metis group need a focus taken that looks at increasing their level of perceived vulnerability and increasing their internal locus of control.

If the level of perceived vulnerability in the student is increased, then the health educator must also deal with the increasing anxiety that comes from this awareness. The anxiety can reach a level where the student's locus of control becomes more external. It is important to include information about how the student can deal with the health

problems. If the students have a high level of external orientation, then health education planning should work within this frame of reference and within the fabric of the culture that generated this orientation. If the students have a moderate level of external orientation and a more internal orientation would not create conflicts within their cultural environment, then the health educator should promote internality. If the students have an internal orientation, then this should continue to be promoted. Means of evaluating progress should be incorporated into the teaching plan.

#### Implication of Findings for Health Educators in the Health Care System

The translation of programs for health education must be tailored to the readability level and the cognitive level of the group receiving the program. It is difficult to translate programs into the large number of dialects that are used in the Northwest Territories, but it might be useful to use key words or phrases for better understanding or to use an interpreter when the program is administered.

The multitargetted approach is suggested by Gochman (1982) as a more successful approach to health education

programming than concentrating on a single problem such as smoking. It was noteworthy that the students were less aware of their vulnerability to accidents and trauma than to other health problems. The current approach to health education in this area should be reviewed.

An important consideration of health educators in the health care setting is that they themselves can serve as an external influence on the students' view of their locus of control by nature of the dependency fostered by the medical care system. If internality is to be developed, then efforts must be made to transfer the control over health matters to the clients. The team approach should be fostered in which the client has an integral role in decision-making. To make knowledgeable decisions about health, the client must have the knowledge base to work with. The role of the health educator would be to assist clients within their own cultural attitude and belief system to gain the knowledge necessary to become effective members of the health team and more in control of their own health and that of their family.

#### Research Recommendations

There is more research needed using the Health Belief

Model and relating its dimensions to predicting preventive health behaviors and in the development of effective strategies to bring these behaviors about.

Further research is needed into cross-cultural populations. This study should be replicated to include variables such as social economic status, self concept, and age.

Further research should be done to determine the level of anxiety that is necessary to bring about effective learning about health without causing a rebound effect, for example, blocking the information.

More research is needed into the cultural beliefs and attitudes of the population in the Northwest Territories and the implications for health education. No one educational approach can be used when there is a rich variety of cultural backgrounds affecting the learning environment.

It would be useful to replicate this study to determine if the findings are similar with another sample of the population.

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## APPENDIX

1. Teacher Questionnaire
2. Teacher Letter
3. Student Instructions
4. Teacher's Instructions
5. Questionnaire
6. Map of Northwest Territories
7. Causes of Death by International Classification of Disease, Ethnicity, and Sex.
8. Causes of Death by International Classification of Disease, Age, and Sex.



APPENDIX 1

TEACHER QUESTIONNAIRE: re "Cross-Cultural Survey of Health Attitudes and Beliefs for Selected Grade Five Students in the Northwest Territories".

WHEN THE SURVEY HAS BEEN COMPLETED, WOULD YOU PLEASE CONSIDER THE FOLLOWING QUESTIONS.

Did you have any difficulty with the Teacher's Instructions? If so, describe in the following space.

Did the students have any difficulty with the Student Instruction Section of the survey? If so, describe as best you can any difficulty that they experienced.

Were there any questions in the survey that the students had difficulty with? If so, please state the section and number of the question and describe as best you can the difficulty that they experienced.

Are there any other comments that you would like to add? Please use the other side of the paper to comment.

Faculty of Education  
University of Manitoba  
Winnipeg, Manitoba R3T 2N2

Re: A CROSS-CULTURAL SURVEY OF THE HEALTH BELIEFS AND  
ATTITUDES OF SELECTED GRADE FIVE STUDENTS IN THE NORTHWEST  
TERRITORIES

Dear Teachers:

Enclosed please find a description of the survey that is to be administered as part of the School Health Program. There are samples of the teacher's and student's instructions as well as of the survey included.

The survey should take forty-five minutes to one hour of class-time to complete as each of the questions is read by the teacher to the group. It is hoped that the information collected will aid in the development of a health education curriculum that is tailored to the needs of the children in the Northwest Territories.

If there are any questions that you might have, please direct your letter to the Faculty of Education at the University of Manitoba.

Thank-you in anticipation of your participation.

Yours truly,

Susan M. Fred  
Graduate Student

APPENDIX 3

STUDENT INSTRUCTIONS:

This survey is not a test. The purpose of the survey is to ask you questions about what you believe about health. There are two parts to the survey.

BACKGROUND INFORMATION:

Please give the following information by placing an X in the box beside the correct answer.

A. Are you a male or a female?      Male     

Female     

B. What is your age now?      8     

9     

10     

11     

12 or more     

C. What is the month of your birthday?

January       July

February       August

March       September

April       October

May       November

June       December

D. Which of the following ethnic groups do you belong to?

Inuit     

Indian     

Metis     

Non-Native

TEACHER'S INSTRUCTIONS:

The enclosed survey consists of two sections. Section A is the Gochman Perceived Vulnerability Instrument and it is composed of 14 questions. Section B. is the Parcel-Meyer Children's Locus of Control Scale and it is composed of 20 questions.

The administration should take one hour of class time.

The teacher should assist the students to fill out the demographic data on the first page. The teacher should then read the instructions of the first section and direct the students through the practice loop.

Read each question through to the students and have them answer each one at a time.

Proceed in the same manner for Section B.

On completion of the survey, please return it to the following address where it will be forwarded to the principal investigator.

Northwest Territories Education

Yellowknife

Attention: Helen Balanoff

Coordinator, Drug and Alcohol Program

Program Services Division.

Thank-you for your assistance in the administration of this survey.

Part A. GOCHMAN'S PERCEIVED VULNERABILITY INSTRUMENT

FOR THIS SET OF QUESTIONS, CIRCLE THE ANSWER THAT BEST DESCRIBES WHAT YOU THINK? The next question is a sample question. I will read the question to you and then you will circle one answer.

a. What chance is there of your going to a movie during this next year?

NO CHANCE                      MAYBE                      FOR SURE

WAIT UNTIL THE INSTRUCTION TO BEGIN IS GIVEN, THEN LISTEN TO EACH QUESTION AS IT IS READ TO YOU. PLEASE ANSWER EVERY QUESTION.

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1. What chance is there of your having a bad accident - like breaking your arm - during this next year?

NO CHANCE                      MAYBE                      FOR SURE

2. What chance is there of your getting a rash during this next year?

NO CHANCE                      MAYBE                      FOR SURE

3. What chance is there of your running a fever (temperature) during this next year?

NO CHANCE                      MAYBE                      FOR SURE

4. What chance is there of a dentist pulling one of your teeth during this next year?

NO CHANCE                      MAYBE                      FOR SURE

5. What chance is there of your getting a sore throat during this next year?

NO CHANCE                      MAYBE                      FOR SURE

6. What chance is there of your getting a toothache during this next year?

NO CHANCE                      MAYBE                      FOR SURE

7. What chance is there of your catching a cold during this next year?

NO CHANCE

MAYBE

FOR SURE

8. What chance is there of the gums in your mouth bleeding during this next year?

NO CHANCE

MAYBE

FOR SURE

9. What chance is there of your having an upset stomach during this next year?

NO CHANCE

MAYBE

FOR SURE

10. What chance is there of your being sick enough to miss a week of school during this next year?

NO CHANCE

MAYBE

FOR SURE

11. What chance is there of your having a cavity in your teeth during this next year?

NO CHANCE

MAYBE

FOR SURE

12. What chance is there of your having a bad headache during this next year?

NO CHANCE

MAYBE

FOR SURE

13. What chance is there of your breaking or cracking a tooth during this next year?

NO CHANCE

MAYBE

FOR SURE

14. What chance is there of your cutting a finger accidentally during this next year?

NO CHANCE

MAYBE

FOR SURE

INSTRUCTIONS: WAIT UNTIL THE NEXT INSTRUCTIONS ARE GIVEN BEFORE YOU START PART B. OF THE SURVEY.

APPENDIX 5 PART B

PART B. CHILDREN'S HEALTH LOCUS OF CONTROL

We would like you to learn about different ways children look at their health. Here are some statements about health or illness (sickness). Some of them you will think are true and so you will circle the YES. Some you will think are not true and so you will circle the NO. Even if it is very hard to decide, be sure to circle YES or NO for every statement. Never circle both YES and NO for one statement. There are no right or wrong answers. Be sure to answer the way you really feel and not the way other people might feel.

PRACTICE: Try the statements below.

YES NO a. Children can get sick.  
If you think this is true, circle...YES  
If you think this is not true, circle...NO

YES NO b. Children never get sick.  
If you think this is true, circle...YES  
If you think this is not true, circle...NO

Try one more statement for practice.

YES NO c. When I am not sick, I am healthy.

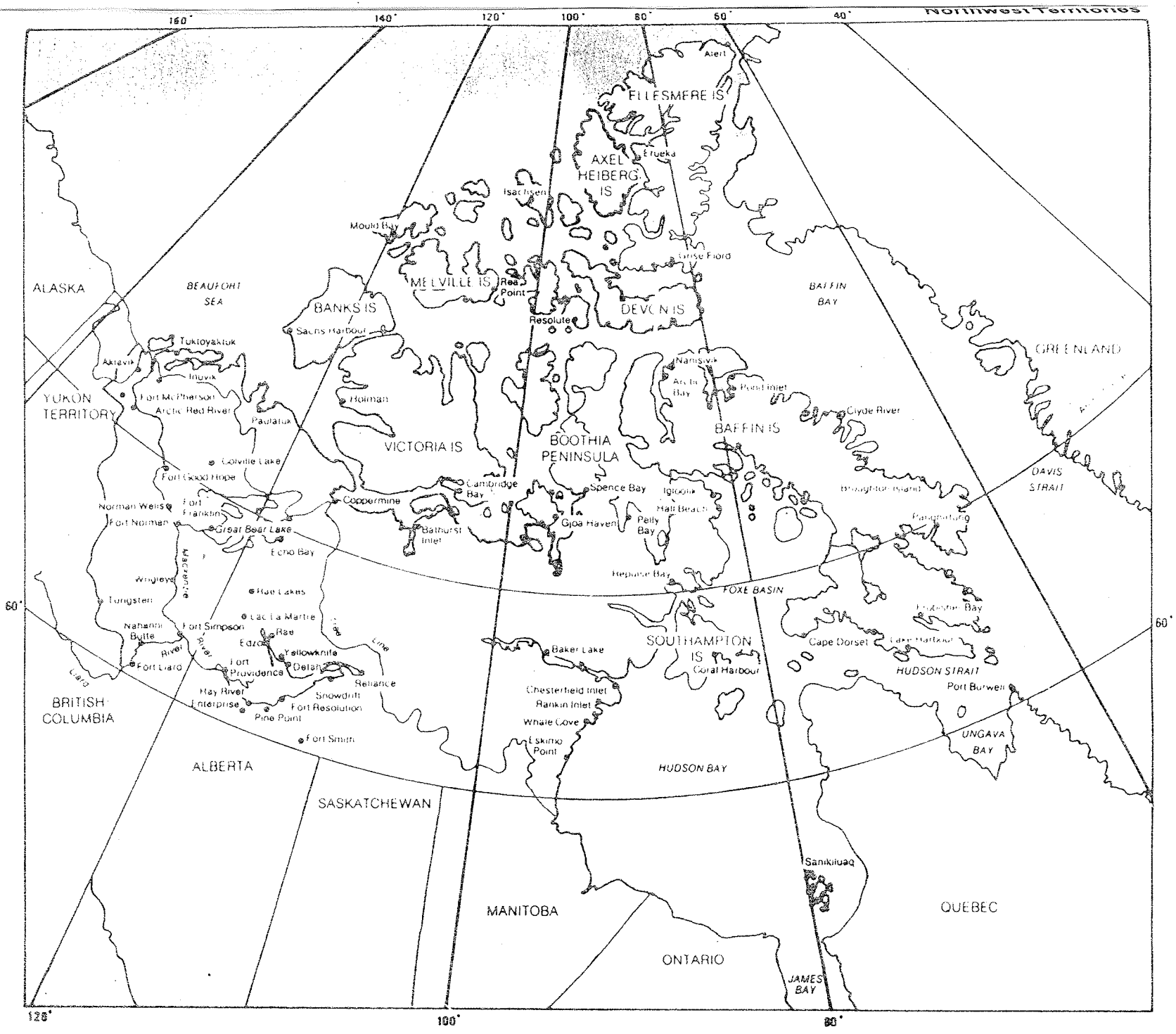
NOW DO THE REST OF THE STATEMENTS THE SAME WAY YOU PRACTICED.

- YES NO 1. Good health comes from being lucky.
- YES NO 2. I can do things to keep from getting sick.
- YES NO 3. Bad luck makes people get sick.
- YES NO 4. I can only do what the doctor tells me to do.
- YES NO 5. If I get sick, it is because getting sick just happens.
- YES NO 6. People who never get sick are just plain lucky.
- YES NO 7. My mother must tell me how to keep from getting sick.
- YES NO 8. Only a doctor or a nurse keeps me from getting sick.
- YES NO 9. When I am sick, I can do things to get better.
- YES NO 10. IF I get hurt it is because accidents just happen.

- YES NO 11. I can do many things to fight illness.
- YES NO 12. Only the dentist can take care of my teeth.
- YES NO 13. Other people must tell me how to stay healthy.
- YES NO 14. I always go to the nurse right away if I get hurt at school.
- YES NO 15. The teacher must tell me how to keep from having accidents at school.
- YES NO 16. I can make many choices about my health.
- YES NO 17. Other people must tell me what to do when I feel sick.
- YES NO 18. Whenever I feel sick I go to see the school nurse right away.
- YES NO 19. There are things I can do to have healthy teeth.
- YES NO 20. I can do many things to prevent accidents.

THANK YOU FOR YOUR HELP IN ANSWERING THIS SURVEY.





Source: Health and Welfare Canada (1982)

CAUSES OF DEATH  
BY INTERNATIONAL CLASSIFICATION  
OF DISEASE, ETHNICITY AND SEX

CAUSE OF DEATH	INDIAN			INUIT			OTHER			TOTAL		
	M	F	% OF TOTAL DEATHS	M	F	% OF TOTAL DEATHS	M	F	% OF TOTAL DEATHS	M	F	% OF TOTAL DEATHS
1. Infectious & Parasitic Diseases	1	1	0.9	0	1	0.4	1	0	0.4	2	2	1.7
2. Neoplasms	5	3	3.5	11	7	7.8	12	4	7.0	28	14	18.3
3. Endocrine, Nutritional & Metabolic Diseases & Immunity Diseases	0	0	0.0	0	0	0.0	0	1	0.4	0	1	0.4
5. Mental Disorders	0	3	1.3	1	2	1.3	1	1	0.9	2	6	3.5
6. Diseases of the Nervous System & Sense Organs	0	1	0.4	0	1	0.4	0	0	0.0	0	2	0.9
7. Diseases of the Circulatory System	10	2	5.2	9	8	7.4	18	1	8.3	37	11	20.9
8. Diseases of the Respiratory System	1	2	1.3	6	2	3.5	3	3	2.6	10	7	7.4
9. Diseases of the Digestive System	0	0	0.0	0	0	0.0	2	0	0.9	2	0	0.9
10. Diseases of the Genitourinary System	1	0	0.4	0	1	0.4	1	0	0.4	2	1	1.3
14. Congenital Anomalies	0	0	0.0	1	1	0.9	2	1	1.3	3	2	2.2
15. Certain Conditions Originating in the Perinatal Period	0	1	0.4	3	2	2.2	0	0	0.0	3	3	2.6
16. Symptoms, Signs and Ill-Defined Conditions	4	5	3.9	6	4	4.3	2	0	0.9	12	9	9.1
17. Injury & Poisoning	8	2	4.3	18	7	10.9	25	11	15.7	51	20	30.9
TOTAL	30	20		55	36		67	22		152	78	

CAUSES OF DEATH  
BY INTERNATIONAL CLASSIFICATION  
OF DISEASE, AGE AND SEX

CAUSE OF DEATH	UNDER 15		15-24		25-34		35-44		45-54		55-64		65+		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1. Infectious and Parasitic Diseases	0	0	0	0	0	2	0	0	0	0	0	0	2	0	2	2
2. Neoplasms	1	0	0	0	0	1	2	2	5	4	4	3	16	4	28	14
3. Endocrine, Nutritional & Metabolic Diseases & Immunity Diseases	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5. Mental Disorders	0	1	0	0	2	1	0	0	0	1	0	1	0	2	2	6
6. Diseases of the Nervous System & Sense Organs	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
7. Diseases of the Circulatory System	1	0	3	2	0	0	0	1	4	0	9	2	20	6	37	11
8. Diseases of the Respiratory System	1	0	0	0	1	0	2	0	0	0	0	2	6	5	10	7
9. Diseases of the Digestive System	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2	0
10. Diseases of the Genitourinary System	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	1
14. Congenital Anomalies	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
15. Certain Conditions Originating in the Perinatal Period	4	3	0	0	0	0	0	0	0	0	0	0	0	0	4	3
16. Symptoms, Signs, & Ill-Defined Conditions	3	1	0	0	1	0	0	1	2	0	1	1	5	6	12	9
17. Injury & Poisonings	9	3	16	7	8	5	7	4	3	0	6	0	2	1	51	20
TOTAL	21	12	19	10	13	9	11	8	15	5	20	9	53	25	152	78