

**PREVALENCE AND EXPRESSION OF BULIMIC
SYMPTOMS AMONG ABORIGINAL AND NONABORIGINAL WOMEN**

by
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Abstract

Previous cross-cultural research in the area of eating disorders has, for the most part, neglected Native American women. The purpose of this study was to determine the prevalence and expression of eating disordered attitudes and behaviours among Canadian Native women. It was expected that a higher percentage of Native women would be classified as potential bulimics than nonNative women. It was also expected that Native women, on average, would score higher on measures of eating disordered attitudes and behaviours (i.e., body dissatisfaction, bingeing and purging behaviour) than their nonNative counterparts. A secondary goal was to determine the correlation between the degree and type of acculturation and the severity of eating disordered symptoms among Native women. The sample consisted of 79 women ranging in age from 17 to 50 years (mean age was 23.6 years) recruited from urban areas in Manitoba and Ontario. Measures included the Bulimia Test-Revised (BULIT-R; Thelen et al., 1991), The Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash & Prozinsky, 1990), the Figure Ratings Scale (Fallon & Rozin, 1985) and the Relational Attitudes Scale (RAS; Restoule, 1994). Results indicated that 25.9% of Aboriginal women, 8.1% of Caucasian women, and 28% of women not born in North America were classified as potentially bulimic. The women's scores on multiple measures of body image did not differ significantly between groups. For Aboriginal women a significant positive correlation was found between Marginalization and severity of reported bulimic symptoms. These findings are discussed in the context of previous comparative studies . Implications for the development of prevention and intervention programs targeting Aboriginal women are also addressed.

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TABLE OF CONTENTS

	Page
ABSTRACT	iv
ACKNOWLEDGMENTS	v
LIST OF TABLES	ix
INTRODUCTION	1
Overview	1
Incidence and Prevalence of Mental Health Problems among Native Americans	4
Eating Disorders and Associated Behaviours and Attitudes Among Ethnic Minorities : Research and Methodological Issues	6
The Relationship Between Acculturation and Eating Disturbances	9
Eating Disturbances and Disorders Among Native Americans	10
Limitations of Cross-Cultural Research	12
Rationale for Proposed Study	13
Hypotheses	15
METHOD	16
Participants	16

TABLE OF CONTENTS (Continued)

Measures	19
Procedures	24
RESULTS	25
Participant Characteristics	25
Incidence of Potential Bulimia Cases	27
Incidence of Disordered Eating Behaviour	28
Magnitude of Bulimic Symptoms	29
Body Image Preoccupation and Dissatisfaction	31
The Relationship Between Acculturation and Eating Disturbances	32
BMI as a Function of BULIT-R Classification	36
Qualitative Information	38
DISCUSSION	40
Incidence of Potential Bulimia Cases and Disordered Eating Behaviours	40
Magnitude of Bulimic Symptoms	44
Body Image Preoccupation and Dissatisfaction	45
The Relationship Between Acculturation and Eating Disturbances	47

TABLE OF CONTENTS (Continued)

Participant Characteristics	52	
Methodological Limitations and Future Research Directions	52	
APPENDICES		
APPENDIX A	Participant Consent Form	56
APPENDIX B	BULIT-R Constellation Items	58
APPENDIX C	Relational Attitudes Scale	60
APPENDIX D	Demographic Questionnaire	67
APPENDIX E	BULIT-R Items Selected to Determine Incidence of Disordered Eating Behaviours	69
REFERENCES		72
VITA AUCTORIS		78

LIST OF TABLES

TABLE		PAGE
1	Demographic Characteristics of Participants By Group	18
2	Percentage of Disordered Eating Behaviours Across Groups	30
3	Intercorrelations Between Age, BMI and Measures of Body Image	33
4	Group Means and Standard Deviations for Six Measures of Body Image	34
5	Intercorrelations Between BULIT-R Scores and Subscales of the Relational Attitudes Scale	35
6	Group Means and Standard Deviations for BMI by BULIT-R Classification	37

INTRODUCTION

Overview

There are approximately 1.8 million Native Americans, from nearly 300 different tribal groups, living in reserves and cities across Canada and the United States (Dana, 1986). In Canada alone, Natives comprise about 3.6% of the total population (Kirmayer, 1994). Despite comprising an important part of our population, until recently little attention was given to the problems and obstacles that Native Americans faced. They often live in poverty, and are dependent on the government. They experience rates of unemployment, physical illness, infant mortality, alcohol abuse, school dropout, inadequate housing, accidents, domestic violence and child sexual abuse that are two to ten times higher than for other Canadians (Dana, 1986; Darou, Hum, & Kurtness, 1993). Natives in Canada also have significantly higher mortality rates. Their average life expectancy is approximately 10 years shorter than the average Canadian (Kirmayer et al., 1994).

Little attention has been given to Native mental health and there is a corresponding lack of psychological research conducted with Native Americans. Recently, there has been an increase in the amount of Native mental health research in the past decade. This increase in research has led to an increasing awareness of the disturbing conditions and problems faced by Native Americans. For example, there is now evidence that Native Americans are at a higher risk than the dominant culture, and even other ethnic minority groups, for numerous mental health problems including depression, suicide and substance abuse (Kirmayer et al., 1994). Recent reviews of Native mental health research (Kirmayer, 1994; McShane, 1988) suggest that the knowledge of the mental health problems of Native Americans is sketchy at best, and that there is a great need for more research. One area of Native mental health that has been almost

completely overlooked is the study of the nature and prevalence of eating disorders, and associated subclinical attitudes and behaviours among Native women.

Eating disorders (anorexia nervosa and bulimia nervosa) are characterized by disturbed eating behaviours (including fasting, and binge-purge behaviours) and negative and overvalued attitudes towards one's body shape and weight. Anorexia nervosa is defined by the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV; American Psychiatric Association, 1994) as the refusal to maintain body weight at a level for particular height and weight that is considered healthy; an intense fear of fat, or becoming fat; an overvaluation of one's body image and a denial of one's current weight; and the cessation of menstruation. Women with this disorder may literally starve themselves to death. The prevalence of this disorder among adolescent and young adult women is estimated at between one in 100 and one in 250 (Cash & Prozinsky, 1990). Relatively more common, the prevalence of bulimia nervosa among young women has been estimated at 1 to 3 % (DSM-IV, 1994). The prevalence of bulimia nervosa among college women has been estimated to be even higher than this rate. The reported prevalence rates among this population have ranged from 2.8% to 12% (Hart & Ollendick, 1985; Healy, Conroy & Walsh, 1985; Herzog, Norman, Riagotti & Pepose, 1986). Bulimia nervosa is characterized by discrete periods of bingeing (excessive eating with the feeling of lack of control) and related purging behaviour (including self-induced vomiting, misuse of laxatives or diuretics, fasting or excessive exercise). For the diagnosis to be made, these behaviours have to occur at least twice a week for at least three months. Bulimia nervosa is also characterized by the important role that body shape and size plays in one's self-evaluation (DSM-IV, 1994).

The subclinical attitudes and behaviours associated with eating disorders are even more common. Disordered eating behaviours and attitudes have been conceptualized as occurring on a continuum with clinical eating disorders occurring at one end and a

"normative discontent" with our bodies occurring at the other end (Cash & Prozinsky, 1990).

There has been a traditional belief that eating disorders and associated attitudes and behaviours are characteristically the problem of white middle to upper-class women (Dolan, 1991; Pate et al., 1992). This belief was based primarily on a few early epidemiological and clinical case studies, conducted in North America, that found that the prevalence of eating disorders among ethnic minority women was very low (e.g., Johnson, Lewis, Love, Lewis, & Stuckey, 1984; Jones, Fox, Babigan, & Hutton, 1980, as cited in Dolan, 1991). This assumption has been recently criticized and challenged by investigators, and many researchers studying Black and Hispanic women now believe that eating disorders and their associated attitudes and behaviours are increasing in minority populations (Fisher et al., 1994; Hsu, 1987; Siber, 1986). There is also a growing amount of evidence that suggests that the prevalence of eating disorders is increasing among women from lower socioeconomic backgrounds, and that there is no longer any significant differences in the rates of eating disorders as a function of socioeconomic status (e.g., Pope, Champoux, & Hudson, 1987; Rand & Kulda, 1992; Rosen, Silburg, & Gross, 1988; Schmolling, 1988).

Despite the findings that Native Americans are at a higher risk for many mental health problems, and the results of more recent cross-cultural studies that suggest that eating disorders are on the rise among ethnic minority women, only a handful of studies have investigated the prevalence of eating disorders and associated attitudes and behaviours among Native women. The results of these studies (Rosen et al., 1988; Smith & Krejci, 1991; Snow & Harris, 1989) suggest that Native women are at high risk for developing eating disorders, and may have more disordered eating attitudes and behaviours than White women. These conclusions are still tentative due to the paucity of research in this area. There are only three published studies and they have only used American samples. Due to the great regional, cultural, and national diversity among

Native peoples (Dana, 1986; Kirmayer, 1994; Young, 1988), one cannot generalize findings from studies using American samples to Canadian Native women. Research is needed not only to ensure that our "discussions and theories of disordered eating have validity beyond the white, middle-class, female stereotype" (Root, 1990, p. 534), but to prevent neglect of minority group women, and misdiagnoses that are based on an erroneous assumption. Research is also necessary to design appropriate prevention and intervention programs targeted at Native women.

The remainder of this discussion will critically review the studies that have been conducted regarding Native mental health, cross-cultural research on eating disorders and associated attitudes and behaviours, and the three studies that have utilized Native American samples. The limitations and problems inherent in cross-cultural research will also be addressed.

Incidence and Prevalence of Mental Health Problems among Native Americans

The overall prevalence rate for mental health problems among Natives is estimated to be between 20 and 63% (Kirmayer et al., 1994). This wide variation in estimated prevalence rates is due to the variation in the number and type of disorders surveyed, and the inclusion criteria used in each study (Kirmayer et al., 1994). Despite the disputes over prevalence rates, it has been established that Natives have higher anxiety and lower self-esteem (Dukes & Martinez, 1994; Pine, 1985), and are at a higher risk than the general population for developing depression, committing suicide, and abusing substances (Kirmayer et al., 1994).

There appears to be little hard data on the prevalence of psychiatric disorders in Native communities. Kirmayer et al. (1994) found only four published community epidemiological studies of psychiatric prevalence rates among Natives. The most recent study (Kinzie et al., 1992; as cited in Kirmayer, 1994) used structured diagnostic interviews based on the DSM-III-R with 200 adult Native Americans in a Northwest Coast village. The researchers found that 31.4% of the adults met criteria for a DSM-III-

R diagnosis, rates much higher than those found in the general US population (Kirmayer et al., 1994). Alcohol-related disorders and affective disorders were the major mental health problems for this community. Alcohol disorders had a prevalence rate of 18.8%, 7% were diagnosed with Affective disorders, 2.1 % were diagnosed with Schizophrenia , 2.1% with Post-Traumatic Stress disorder, and 1% with personality disorders (Kinzie et al., 1992, as cited in Kirmayer et al., 1994). Despite limited epidemiological data, many mental health researchers have reported that there are high rates of major depressive disorder and dysthymia in many Native communities (Kirmayer et al., 1994). These disorders have been considered the most common diagnoses in Native communities (Kirmayer et al., 1994).

Canadian Aboriginal people also have one of the highest rates of suicide in the world. The Aboriginal suicide rate is three times higher than the Canadian average (Kirmayer, 1994). The statistics for Aboriginal adolescents are even more disturbing. Adolescent Aboriginal men are more than 5 times more likely to commit suicide than the average Canadian male adolescent (Kirmayer, 1994). Aboriginal adolescent women are 7.5 times more likely to commit suicide than their counterparts in the general population (Kirmayer, 1994). One important finding is the wide regional variations in the suicide rate that makes estimating the prevalence rate of suicide more difficult to determine (Kirmayer et al., 1994).

Native Americans also suffer from high rates of alcoholism and other substance abuse (Darou, Hum, & Kurtness, 1993; Kirmayer, 1994; Kirmayer et al., 1994; McShane, 1988; Young, 1988). Researchers agree that alcohol and substance use and abuse occur at higher rates among Natives than in the non-Native population (Kirmayer et al., 1994; Young, 1988). In a review of adolescent Native mental health, McShane (1988) concluded that substance abuse is the most extensively researched area in Native mental health. The results of one study he cited (Oetting et al., 1980) demonstrate the severity of the problem. The researchers found that by the eleventh grade 97% of Native adolescents

were using some form of alcohol, 75% of Natives beyond grade six had tried marijuana, and 30% had used inhalants. McShane also concluded that the rates of substance use and abuse are increasing, and more significantly, substance use has been associated with 75% of Native deaths and 80% of Native suicides. Overall Native Americans have higher rates of alcohol use and abuse, marijuana use, and inhalant use than the general population. No differences have been found between the Native population and the general population in the rates of other drug use (Young, 1988).

In conclusion, research in the area of Native mental health suggests that Native Americans are at increased risk of developing mental health problems, especially substance abuse, depression, and suicide. Unfortunately the area is plagued with many methodological and conceptual problems related to doing cross-cultural research (this topic will be further discussed in a later section). Some of the limitations specific to this research area include the absence of studies that assess mental health problems among Natives residing in urban areas (McShane, 1988). For example, research on suicide and substance abuse have rarely utilized an urban Native population (McShane, 1988). This is a serious gap in the research considering that over 75% of Canadian Natives live off reserves (Kirmayer et al., 1994). There has also been little mental health research that has focused specifically on Native women (Kirmayer et al., 1994; McShane, 1988). Finally, there is great regional and intertribal heterogeneity found within the Native population for all mental health problems (Dana, 1986; Kirmayer et al., 1994; McShane, 1988; Young, 1988).

Eating Disorders and Associated Behaviours and Attitudes Among Ethnic Minorities: Research and Methodological Issues

Until recently, ethnic minority women, particularly those from a lower socioeconomic status (SES), have been thought to be less susceptible to developing eating disorders than Caucasian North American women (Dolan, 1991; Pate et al., 1992; Root, 1990). This belief was established and perpetuated by both theory and clinical

epidemiological surveys. It has been suggested by some that ethnic minority women were less prone to developing eating disorders due to their separate and unique cultural context and their acceptance of a larger body-shape (Root, 1990). Ethnocentricity on the part of the medical establishment and stereotypes of Black, Hispanic, or Native American women as being overweight may have also contributed to the belief that minority women are less likely to develop eating disorders (Root, 1990). Early North American epidemiological surveys and clinical case studies perpetuated this belief by reporting that the incidence of eating disorders among ethnic minority women was minimal (Dolan, 1991). For example, one study (Jones, Fox, Babigan & Hutton, 1980; cited in Dolan, 1991) estimated the incidence of anorexia nervosa in ethnic minority women to be 0.42 per 100,000, eight times less than the rate for white women. Low health care access and help-seeking behaviour in many ethnic minority communities may have also contributed to low prevalence rates in clinical settings, which in turn reinforces the assumption (Root, 1990).

The assumption that minority women are at less risk for developing eating disorders is damaging. Ethnic minority women have been neglected in research for many years because of this belief, and may be misdiagnosed because risk factors and symptoms that may vary cross-culturally remain virtually unknown. The assumption has recently been criticized and challenged by investigators (Root, 1990; Thompson, 1992; Dolan, 1991) who have given alternative explanations and pointed out limitations and problems inherent in clinical studies and surveys that supported this assumption.

One important limitation of case studies is that they underrepresent the true prevalence rates in minority populations (Dolan, 1991; Rosen et al., 1988) since only those individuals who come to the attention of psychological or medical services are assessed (Dolan, 1991). The SES and ethnicity of women may influence service availability and usage; women from minority groups may be reluctant or unable to use these services, and therefore go unnoticed and untreated (Dolan, 1991).

Early epidemiological surveys have also been problematic. Many surveys in North America usually did not give the ethnic breakdown of the samples they surveyed. When an ethnic breakdown was given, often the size of the ethnic minority was too small to estimate prevalence (Dolan, 1991). For example, Johnson et al. (1984), surveyed 1268 woman adolescents to assess DSM III symptoms of bulimia, and concluded that these symptoms were not disproportionately represented in any age or racial group. However, the small number of minority group women in their sample (25 Hispanics and 8 Native Americans) makes their generalization to all ethnic minorities questionable.

The small number of ethnic minority women in survey studies may be partially due to the use of samples of convenience (e.g., university students, suburban high schools) which underrepresent ethnic minorities (Root, 1990). Most epidemiological studies which have focused on ethnicity utilized Black women as subjects (e.g. Abrams et al., 1993; Gray, Ford, & Kelly, 1987). Generalizations made to all ethnic minority women on the basis of such findings clearly ignore the heterogeneity of ethnic minorities. Dolan (1991) concluded that, based on the available findings, “the true prevalence figures for anorexia nervosa and bulimia in the general nonwhite populations is still unclear” (p.70).

Many cross-cultural researchers studying Black and Hispanic women now believe that eating disorders and their associated attitudes and behaviours are increasing in minority populations (Fisher et al., 1994; Hsu, 1987; Siber, 1986). It is not clear whether this increase in reported rates is a function of improved methodology or if eating disorder behaviours have been increasing among these women. It is most likely due to a combination of these factors. More recent studies have, for example, involved the comparison of ethnic minorities and Caucasian women in nonclinical samples. In these studies, the researchers have measured both eating disorders and the subclinical levels of eating disordered attitudes and behaviours. In the majority of these studies, Black female university students (e.g., Abrams et al., 1993; Gray, Ford & Kelly, 1987; Rosen et al.,

1991) and Black and Hispanic female high school students (e.g., Fisher et al., 1994; Lachenmeyer & Muni-Brander, 1988; Pumariega, 1986; Gross & Rosen, 1988; VanThorre & Vogel, 1985) have been compared with Caucasian women. Overall, the results of these studies suggest that Caucasian women in high school and university populations have significantly higher rates of disordered attitudes and behaviours than minority group women. The studies using Black women as subjects have found that fewer Black women than white women report that they are overweight or want to lose weight (Abrams et al., 1993; Grey, Ford & Kelly, 1987; Rosen & Gross, 1987) and Black women report less bingeing and purging behaviour (Fisher et al., 1994; Grey, Ford, & Kelly, 1987; Gross & Rosen, 1988; Lachenmeyer & Muni-Brander, 1988). However the prevalence of these eating-disordered attitudes and behaviours among minority women are higher than previously assumed. For example, in one study (Fisher et al., 1994), 15% of Black and Hispanic high school women were considered “high scorers” on a measure of disordered eating attitudes and behaviours, as compared to 17.5 % for Caucasian women.

The Relationship Between Acculturation and Eating Disturbances

Few studies have attempted to examine the role of acculturation to the dominant North American culture in the development of eating disorder symptoms among ethnic minority women. Yet among the etiological theories of eating disorders, sociocultural factors, such as the ideal thin body-image perpetuated in North American society, have played an important role in understanding the disorders (Striegel-Moore, Silberstein, & Rodin, 1986). Women within an ethnic minority are still subjected to the images of ideal North American beauty and expectations of the dominant culture, particularly if their culture is devalued by the dominant culture (Root, 1990). If the adolescent or young adult is attempting to be accepted by the dominant culture she may devalue or reject her own ethnic identity and take on the values of the dominant culture, including the North American standards of body shape and eating behaviour (Root, 1990).

Given the above observations, there may be a relationship between the degree of assimilation or valuing of the dominant culture, and the level of eating disordered attitudes and behaviours. The results of studies that have measured the degree of acculturation (Abrams et al., 1993; Pumariega, 1986) of Black and Hispanic women have supported this hypothesis, and have found a positive correlation between the degree of assimilation and the level of disordered eating attitudes and behaviours. For example, in Pumariega's (1986) study of Hispanic and white female high school students, a significant positive correlation was found for the Hispanic women between a measure of eating disorder symptoms (Eating Attitudes Test, EAT; Garner & Garfinkel, 1979) and a measure of acculturation. Abrams et al. (1993) found a similar positive correlation between degree of assimilation and disordered eating attitudes and behaviours among Black female university students.

Eating Disturbances and Disorders Among Native Americans

The majority of cross-cultural studies have not utilized Native American women, and the results from other cross-cultural studies using Black and Hispanic women cannot be automatically generalized to this population. The few researchers who have focused on Native American women have found that their results are in the opposite direction from what would be expected based on previous research with ethnic minority women. The first of three studies that have focused on Native Americans was conducted by Rosen et al. (1988). They administered the Michigan State University Weight Control Survey, a measure that was originally developed to assess eating behaviour of athletes, and which measures types of weight loss techniques employed by women and the frequency and duration of weight loss attempts. They surveyed 85 Chippewa women (from the ages of 12 to 55) from a reservation and surrounding rural community in Michigan, to determine the prevalence of pathogenic weight control behaviours. These behaviours were defined as any weight loss behaviour that is likely to be dangerous if practiced over time

(including vomiting, fluid deprivation, prolonged fasting, laxative and diuretic use). They found that 74% of the women were trying to lose weight, and out of these women, 75% were using pathogenic weight control behaviours. The most common techniques were diet pills (41%) and prolonged fasting (33%). A total of 24% of the women trying to lose weight were using one or more purging behaviours including vomiting (12%), laxative use (6%) and diuretics (6%). Many of the women were using a combination of these methods. Rosen et al. concluded that Native American women should be considered as a group at risk for eating disorders. However they acknowledged that their measure was incomplete as only one aspect of eating disorders (purging behaviour) was studied.

Snow and Harris (1989) investigated the incidence of bulimia in 82 Pueblo Native American and Hispanic female high school students from a rural New Mexico community. They employed a more thorough measure of eating disorders by constructing an 8-item questionnaire derived from DSM III criteria. Using this measure they found no significant between-group differences in the mean number of items endorsed by Hispanic and Native American women. As the girls' weight increased, so did symptoms of disturbed eating. Snow and Harris concluded that 11% of their sample could be diagnosed as potentially bulimic. Although they lacked a Caucasian comparison group, Snow and Harris concluded that the rate of eating disorders in their sample of Hispanic and Native American girls was at least as great as, or greater than, that found in samples of Caucasian high school women.

Smith and Krejci (1991) also studied Hispanic and Native American female high school students in New Mexico, but their sample was much larger than the Snow and Harris sample, and included a Caucasian comparison group. Using the Bulimia Test (BULIT) and the Eating Disorder Inventory (EDI), Smith and Krejci (1991) studied 327 Hispanic, 129 Native American, and 89 Caucasian students. They found that "the Native Americans consistently scored the highest on each of the seven items representing disturbed eating behaviours and attitudes" (p.179). For example, 56.6% of the Native

Americans, 46% of the Caucasians, and 42% of the Hispanics in their sample reported binge eating. Native American students reported more frequent self-induced vomiting (at least once a month), endorsed more negative attitudes towards gaining weight, and expressed greater body dissatisfaction than Hispanic or Caucasian students.

The results of these three studies suggest that Native American women are at high risk for eating disorders, and display higher rates of eating disordered attitudes and behaviours than previously assumed. Also, unlike the findings for Black women, they may be at greater risk than Caucasian women. However, more research is needed to make these conclusions. Only one out of the three studies used a Caucasian comparison group, and therefore it is difficult to determine if Aboriginal women are in fact at higher risk than Caucasian women for developing eating disorders, or if their rates of disordered eating attitudes and behaviours are higher than their Caucasian counterparts.

Additionally, all three studies reviewed were conducted in the United States and it cannot be assumed that these findings can be generalized to Canadian Natives. Tribal and regional differences can be important in assessment (Dana, 1986), and large tribal and community differences have been found among Native Americans in epidemiological mental health studies (Kirmayer et al., 1994, Mcshane, 1988 ; Young, 1988).

Limitations of Cross-Cultural Research

Many of the limitations and problems encountered in the research reviewed to this point are inherent in most cross-cultural studies. Most studies in the areas of Native mental health and cross-cultural studies of eating disorders have taken an etic approach to cross-cultural research (Dana, 1986; Kirmayer et al., 1994). The etic approach uses North American concepts and meanings of illness and behaviour. These meanings are assumed to be universal and absolute (Butcher, Narikiyo, & Vitousek, 1993). This "imposed etic" can be ethnocentric and may result in the loss of information and the potential for invalid findings when studying members of other cultures (Butcher et al., 1993).

Many problems frequently encountered in cross-cultural research are created by the etic approach (Dana, 1986). For example, when a clinical diagnosis is made (based either on structured interviews or self-report questionnaires), North American nosology and criteria for caseness are used (Dana, 1986). This may lead to under- or misdiagnosis of members of other cultural groups that may express the disorder differently (Dana, 1986). One's culture or ethnicity may increase or decrease the likelihood of displaying a particular symptom, or some symptoms may be modified, and therefore no longer fit the North American criteria for caseness (Maser & Dinges, 1993).

In a related area, the assessment tools used in many cross-cultural studies may not have been appropriate or may not have measured the constructs they were designed to (Dana, 1986). Many researchers have not established or validated the functional, conceptual, and linguistic equivalence of their assessment tools when using their measures in a different culture (Dana, 1986). Therefore, we must be cautious when interpreting test score differences as they may not reflect an actual difference in behaviour (Kirmayer et al, 1994). Additionally, many studies using standardized tests in cross-cultural research have used the norms of the dominant culture. This may render their results invalid because norms should be used only in the culture that they were derived from (Dana, 1986).

Many of the problems and limitations outlined in this discussion can not be easily addressed by this study. However, due to the minimal amount of knowledge in the area of eating disturbances among Native women, this study is an important first step in obtaining information in this area.

Rationale for Study

There is a lack of research on the incidence, prevalence, and expression of eating disorders among Native American women. Only three published studies focusing on Natives were located in the search of the literature and all of these employed American

samples. A study is needed that employs a Canadian sample of Native women to determine if previous findings can be generalized.

A study is also needed that utilizes a Caucasian comparison group, as two out of the three U.S. studies did not include one. A Caucasian comparison group with similar background characteristics is crucial to understanding the relative severity of Native American women's attitudes and behaviours. The available studies are also limited in that disordered eating attitudes were not thoroughly assessed. For example, the fear of gaining weight, and body dissatisfaction and preoccupation were not fully measured. The two studies that did report data relating to body image and fear of weight gain based their conclusions on responses to single items from questionnaires, rather than validated measures. This is an important dimension to measure, as body image dissatisfaction has been shown to be an important risk factor in the later development of eating disorders (Attie & Brooks-Gunn, 1989). A study is also needed that uses measures that incorporate the changes in the diagnostic criteria for bulimia in the DSM III -R . The previous literature used measures based on the DSM III criteria for bulimia that did not include new criteria such as a minimum frequency of bingeing and purging set to twice a week, and the addition of the criterion of negative and overvalued body image.

Finally, it is important to assess the levels of acculturation in Canadian Native women. To this point, acculturation as a mediating variable in the degree of disordered eating behaviours and attitudes has not been studied in the Native American population. There is reason to believe that acculturation is an important variable. Results of cross-cultural studies of eating disorders suggest that more assimilated ethnic minority women have more eating disordered symptoms (Abrams et al., 1993; Pumariega, 1986). However, Native mental health researchers that have studied the relationship between the degree of acculturation and severity of mental health problems among Native people suggest that a different relationship exists. There is evidence to suggest that marginalization, the lack of identification with either the dominant culture or one's own

culture, rather than assimilation, is related to severity or degree of mental health problems (Berry, 1976; Kirmayer et al., 1994, Maser & Dinges, 1993). For example, in Kirmayer's (1994) review of research on suicide, he reported that Native American communities with more contact with the dominant culture have higher rates of suicide, and concluded that "cultural marginalization" may leave Native youth more vulnerable to suicide (Kirmayer, 1994). Therefore, it is important to determine what type of relationship exists between acculturation and disordered eating behaviours among Native women. The literature reviewed in this area suggests conflicting hypotheses as to the nature of this relationship. Assimilation and marginalization among Native women need to be assessed to determine which variable is more related to the severity of eating disorder symptoms.

Hypotheses

In light of the previous research (Rosen et al., 1993; Smith & Krejci, 1991; Snow & Harris, 1989), it was expected that Canadian Aboriginal women would score higher on measures of eating disordered behaviours and attitudes than nonAboriginal women.

More specifically, the following hypotheses were tested:

1. The percentage of Aboriginal women who are defined as "potentially bulimic" will be significantly higher than the percentage of potentially bulimic Caucasian women.
2. Aboriginal women will have significantly more bulimic symptoms than Caucasian women.
3. Aboriginal women will score significantly higher on multiple measures of body image preoccupation and dissatisfaction than Caucasian women.
4. For Aboriginal women a significant positive correlation will exist between the degree or type of acculturation and magnitude of eating disordered symptoms.

METHOD

Participants

Participants in the current study were recruited through several different procedures including requests in university and college classes, Native student counselling offices, posters, and ads in the university paper. The majority of the Caucasian women were recruited from introductory psychology classes at the University of Manitoba. The remainder of the Caucasian sample was recruited through contacts at Fanshawe College in London, Ontario. The Aboriginal women were recruited at the University of Manitoba, the University of Winnipeg, the University of Windsor, and at Fanshawe College, primarily through the help of Native student counselling offices. In addition to university and college campuses, Native women were also recruited from an adult education centre affiliated with a university and a Native women's shelter. The women recruited from undergraduate psychology classes received experimental credit for participating in the study, the remainder of the women were included in a \$100 raffle. A total of 84 women living in urban areas in Manitoba and Ontario agreed to participate in the study. The majority of the total sample (82%, $N=65$) were undergraduate university students. Two questionnaires were discarded due to incomplete responses or contradictory or random responding. In addition, three more questionnaires were discarded because the participants did not meet the criteria for inclusion in the study, resulting in a final sample size of 79 women.

The women in the sample ranged in age from 17 to 50 years, with a mean age of 23.6 years ($SD = 6.5$ years). The mean height of the women was 1.7 meters ($SD = 0.1$) and the mean weight was 62.4 kg ($SD = 12.1$). A Body Mass Index (BMI; kg/m^2) was calculated for each participant. The mean BMI for the participants was 23.3 ($SD = 3.92$). Socioeconomic status was determined by using two separate measures. The first measure was based on participants' postal codes (Statistics Canada, 1990) and provided an estimate of median total income for families and individuals living in different postal

code areas. The mean estimated family income for the sample was 16,756.9 dollars ($SD = \$4,310.8$). The second measure was a socioeconomic index constructed by Blishen, Carroll, and Moore (1987). The unidimensional index is based on data from the total Canadian labour force derived from the 1981 Census. For purposes of this study, the highest scoring parental occupation was used for each participant. The mean value for this sample was 50.4 ($SD = 12.1$).

The sample was subdivided into three groups based on their self-reported ethnic identity. Forty seven percent of the women ($n = 37$) identified themselves as Caucasian. Thirty five percent of the women ($n = 28$) identified themselves as Native or of Aboriginal descent (9 identified themselves as Metis, 5 identified themselves as non-status, 13 as status, including members of the Ojibway, Cree, Souix, Cayuga, Oneida, and Iriquois First Nations, and one women identified herself as Inuit). The third group (18% of the sample, $n = 14$) consisted of those women who reported that they were not born in North America . Of those women, 8 identified themselves as Chinese, 5 as European, and one as Arab. The means for each group for the variables of age, height, weight, BMI, and SES are presented in Table 1.

The third group of women was not an anticipated comparison group. The decision to include them in the study, and identify them as a unique group, was made only upon completion of data collection and the subsequent analysis of reported ethnic identities. No hypotheses were made as to the nature or prevalence of eating disorder symptoms among these women, or how these rates would compare to the other women in the study. However, they were included in the study as the information they provided was deemed to be valuable and unique. Although these women were from diverse ethnic backgrounds, they were similar to the Aboriginal women, in that both groups were not born into the dominant North American society. Therefore the inclusion of the third group of women helped to clarify the effects of not being part of the dominant society, and the influence of cultural transition, on the expression of disordered eating attitudes and behaviours. Due to

Table 1
Demographic Characteristics of Participants By Group

Characteristic	<u>Aboriginal women</u>			<u>Caucasian women</u>			<u>NBNA women^a</u>		
	M	SD	(n)	M	SD	(n)	M	SD	(n)
Age	27.18	8.92	(28)	22.16	3.95	(37)	20.28	1.27	(14)
Height (m)	1.64	0.07	(28)	1.67	0.07	(37)	1.64	0.06	(14)
Weight (kg)	67.89	13.47	(28)	62.42	11.10	(37)	56.85	8.57	(14)
BMI	25.58	6.22	(28)	22.39	3.23	(37)	21.21	2.43	(14)
SES1 ^b (est. family income)	15.30	4.86	(28)	17.62	3.10	(37)	17.39	5.35	(14)
SES2 (Blishen et al., 1987 index)	52.87	11.96	(18)	49.06	12.59	(32)	49.35	111.74	(13)

^a These women include 14 women who were not born in North America (8 identified themselves as Chinese, 5 as European, and one as Arab/Moslem).

^b in thousand dollar units

the post hoc nature of this group, their numbers are small, and information that would otherwise have been collected specifically about these women, such as their length of time residing in North America, or their acculturation attitudes, was not collected. Therefore the information available regarding the third group of women was limited.

Measures

1. The Bulimia Test - Revised (BULIT - R; Thelen, Farmer, Wonderlich, & Smith, 1991).

The BULIT-R is a self-report inventory containing 36 multiple-choice questions that assess binge eating and purging. The BULIT-R was designed as a revision to the original instrument, the Bulimia Test (BULIT; Smith & Thelen, 1984). This revision was made to accommodate the changes made to the criteria for bulimia in the DSM III-R (for example the criterion of depression was dropped and new criteria were added, including a specified minimum frequency of binges and an over concern with body shape and weight). The correspondence between the two scales is very high. The correlation between the original BULIT and the BULIT-R is .99 (Thelen et al., 1991). The BULIT-R was also designed to identify bulimic individuals in clinical and nonclinical samples.

Of the 36 questions on the BULIT-R, eight are filler items and are not included when computing the total bulimia score. Examples of items used in computing the bulimia score include, " There are times when I rapidly eat a very large amount of food" and " How often do you intentionally vomit after eating?". The responses are specific to the question content and are rated on a five point Likert scale from 5, indicating extreme bulimic symptomology, to 1 which indicates the absence of the behaviour or attitude. There is one overall score derived from the responses on the items. The possible scores range from 28 to 140, with the higher scores indicating more severe eating disordered behaviours. In a study comparing university control women and bulimic women on the BULIT-R, their mean scores were respectively, 117.95 and 57.50 (Fischer & Corcoran,

1994). Thelen et al. suggest that for research purposes, and to reduce the number of false negatives, a cutoff score of 85 should be used. Anyone scoring above 85 would be considered potentially bulimic.

The BULIT - R has been demonstrated to discriminate women diagnosed with bulimia from female university students (Thelen et al., 1991). It is also a reliable and valid predictor of bulimia in a nonclinical sample. Its test-retest reliability was .95 over a two month period and it correlated highly with other measures of bulimia (Thelen et al., 1991). In a study of its psychometric properties, the BULIT-R demonstrated good internal consistency, with a coefficient alpha of .92 (Brelsford, Hummel &Burrios, 1992). Its construct validity was further supported by its high correlation with a measure of self-monitored frequency of binge eating and purging (Brelsford, Hummel &Burrios, 1992).

The BULIT-R was chosen over other measures of disordered eating in order to maintain some continuity between the results of this study and Smith and Krejci's 1991 study. In this study, group means on the BULIT-R were compared. In addition, the percentage of women in each group who scored above the established cutoff score of 85 were compared. The cutoff scores were derived from norms that did not include Native women. Therefore, as a precaution, Smith and Krejci's (1991) method of creating a constellation of items from this test that correspond to the DSM-IV criteria of bulimia was adapted (see Appendix B). In between-group comparisons the percentage of women who endorsed the items in this constellation were compared.

2. The Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash & Prozinsky, 1990).

The MBSRQ contains 69 items that measure attitudes and feelings about one's body image and related behaviours. It is a modification of the Body-Self Relations Questionnaire (BSRQ; Winstead & Cash, 1984; as cited in Fischer & Corcoran, 1993) which assesses three different psychological dimensions towards one's body: Evaluation, Attention/Importance, and Action/Activity. It also covers the three domains of the body:

Appearance, Fitness, and Health. The combination of these dimensions creates nine conceptual subscales . The MBSRQ is based on the factor analysis of the BSRQ items, and the collapsing of the Attention/Importance and Action/Activity domains into one domain labeled Orientation. The resulting subscales are Appearance Evaluation, Appearance Orientation, Fitness Evaluation, Fitness Orientation, Health Evaluation, Health Orientation and Illness Orientation. The MBSRQ also includes the Body Areas Satisfaction Scale (BASS; 9 items) which assesses how satisfied one is with various body parts, and items to measure Subjective Weight (SW; average of two items) and Weight Preoccupation (WP; average of four items).

The subscales of interest in this study are Appearance Evaluation, Appearance Orientation, the BASS, SW, and WP. Items on the Appearance Evaluation subscale include, "I like the way I look without my clothes " and "I am physically unattractive". On the Appearance Orientation subscale items include, "Before going out in public I always notice how I look" and " I check my appearance in the mirror whenever I can." There are five response options for these items on a Likert type scale that range from definitely agree to definitely disagree. The BASS includes nine different body areas, and the response items range from very dissatisfied to very satisfied. The SW subscale items include " I think I am.." and responses range from very underweight to very overweight. The WP items include " I constantly worry about being or becoming fat" and responses range from definitely agree to definitely disagree. Scores for Appearance Orientation, Appearance Evaluation, and BASS subscales are derived by summing the corresponding items for each scale (after reverse scoring certain items). The scores for WP and SW are derived by averaging the corresponding items.

The MBSRQ has demonstrated very good reliability and validity (Cash & Prozinsky, 1990; Fischer & Corcoran, 1993). The reported internal consistency of the subscales ranged from an alpha level of .75 to .90 (Cash & Prozinsky, 1990). Its stability was demonstrated with a test-retest of .78-.90 over two weeks (Cash &

Prozinsky, 1990). Concurrent validity has also been established in other studies that found that the MBSRQ subscales correlated with other health and body image measures (Fischer & Corcoran, 1993).

3. Figure Ratings Scale (Fallon & Rozin, 1985).

The figure rating scale is comprised of nine different figure drawings ranging from very thin to very overweight figures. Each figure is associated with a corresponding number from 10 (for the smallest figure) to 90 (for the largest figure). Participants are asked to indicate which figure best represents their current weight (CURRENT) and to indicate which figure represents what they would like to look like (IDEAL). Body dissatisfaction is derived from the difference in scores between one's current figure and ideal figure (CURRENT-IDEAL). Internal consistency is not applicable to this scale, and test-retest correlations have not been given. This scale is widely used and has demonstrated good construct validity (Cash & Prozinsky, 1990).

4. Relational Attitudes Scale (Restoule, 1994).

Most acculturation scales for Native Americans include three dimensions: language, attitudes and values, and economic and educational status (Dana, 1986). Unfortunately most of these scales are unavailable in the popular literature or are tribal specific. An urban sample of Native women may potentially be from more than one tribe (e.g., Cree and Ojibway). Therefore a general measure designed and validated by Restoule for use with Ojibwa people (1994) based on Berry's earlier measure (1976) was used. This measure assesses attitudes towards types of group relations between the Native and dominant culture (see Appendix C). This self-report inventory raises two questions: whether traditional culture should be kept and valued or given up; and whether one wants relations with the dominant society or whether one prefers to stay distant from the dominant society. These two questions are combined to create four subscales: Integration (valuing the traditional culture and wanting positive relations with the dominant culture), Rejection / Separation (valuing the traditional culture and wanting to remain distant from

the dominant culture), Assimilation (giving up the traditional culture and wanting positive relations with the dominant culture), and Deculturation / Marginalization (not valuing the traditional culture or the dominant culture). There are 52 items on the scale that contribute to four subscales. Responses to each item are on a 7 point Likert scale from definitely disagree (1) to definitely agree (7). This scale demonstrated relatively good reliability. The reported internal consistency of subscales ranged from an alpha level of .65 to .78 (Restoule, 1994). Validity was established through the use of separate questions relating to acculturation. In addition the measure that this questionnaire was based on has been shown to be valid in multiple studies with Canadian Natives (Berry, 1976). For the purposes of this study the scale was adapted for more general use; the term Ojibwa was replaced with the term Aboriginal.

5. Demographic Questionnaire.

This questionnaire was developed by the researcher and contains questions pertaining to the racial identity of the participants. It also includes items regarding the participants' age, height, weight , and university or high school membership. To assess socioeconomic status the participant's postal code and parental occupations were requested (see Appendix F). Socioeconomic status was determined by using two separate measures. The first measure is comprised of estimated family incomes which are derived from participants' postal codes (Statistics Canada, 1990). These estimates are based on data obtained from the 1988 Canadian Census that provides demographic and income statistics for Canadian postal areas. For the purpose of analysis income levels will be expressed in terms of 1000 dollar units. The second measure is a socioeconomic index constructed by Blishen, Carroll, and Moore (1987). The unidimensional index is based on data from the total Canadian labour force derived from the 1981 Census. It calculates SES scores for each of 514 occupational categories according to the Canadian Classification and Dictionary of Occupations (CCDO). The index ranges in values from 17.81 to a maximum of 101.74, with a mean of 42.74 and a standard deviation of 13.28.

The index also lists income and educational levels and gender composition for each occupational category. It is an effective index of SES when only occupational information can be obtained (Blishen et al., 1987).

Procedures

When women were contacted they were given a brief description of the study. If they agreed to participate they either completed questionnaires during previously scheduled time periods in groups of five to fifteen, or they filled them out individually at the Native Student Counseling offices or at other locations. Before their participation, women were given a description of the study and asked to read and sign consent forms (see Appendix A). Participants completed the questionnaire booklets (approximately 40 minutes) and returned the booklets and consent forms to the examiner either in person or by mail. On completion, the participants received feedback sheets which included information on when the results of the study would be available, and a list of phone numbers of agencies available for any participant who might be concerned about themselves or someone they know. A sign-up sheet was also made available for those participants who wanted the results of the study mailed to them upon completion.

RESULTS

Prior to conducting statistical analyses, a strategy was decided upon for comparing the three groups of women in the study. There were no hypotheses made as to the nature of the relationship between the women not born in North America (NBNA) and the Aboriginal and Caucasian women. The NBNA group was not anticipated, and therefore the existing hypotheses that were to be tested were confined to comparisons between the Aboriginal and Caucasian women. It was decided that to test any hypothesis pertaining to the influence of ethnic identity, three separate analyses would be conducted. The comparisons would include one based on the hypothesized relationship between Aboriginal and Caucasian women. The subsequent comparisons would be exploratory in nature, and would be made between the third group of women and Aboriginal women, and the third group of women and the Caucasian women. To ensure that the family wise error rate for the three analyses remained at or below an alpha level of .05, the alpha level for each comparison was set at .01, thereby reducing the probability of encountering Type I errors. This strategy was used to test every hypothesis pertaining to the comparison of ethnic groups in the study.

Participant Characteristics

Prior to testing the main hypotheses, analyses were conducted to determine if there were significant group differences for participant characteristics of age, Body Mass Index, and SES. A one-way between subjects analysis of variance (ANOVA) was performed for each of these variables. Prior to these analyses, evaluations of the assumptions of normality and homogeneity of variances uncovered significant levels of heterogeneity of variances between groups for the variable of age and BMI. Despite the reported robustness of the F test under the violation of this assumption, it was deemed necessary to further control for Type I error due to small unequal sample sizes. Box's (1954, as cited in Howell, 1992) correction for heterogeneity of variances was used for

these two dependent variables. This correction involves substituting $(1, n-1)$ for the degrees of freedom when obtaining the critical F . Under these conditions there remained significant group differences for the variable of age, $F(1, 13) = 8.20, p < .05$. To compare group means the Games and Howell procedure (1976, as cited in Howell, 1992) was used to control for the influences of heterogeneity of variances in conjunction with unequal sample sizes. This procedure revealed that Aboriginal women ($M = 27.18$ years) were significantly older than Caucasian women ($M = 22.16$ years) and that Aboriginal women were also significantly older than women not born in North America, (the NBNA group; $M = 20.29$ years). Caucasian women were also significantly older than NBNA women.

Significant group differences were also found for the variable of BMI, $F(1,13) = 6.02, p < .05$. The Games and Howell procedure revealed that Aboriginal women had significantly higher BMI scores ($M = 25.58$) than Caucasian women ($M = 22.39$) and NBNA women ($M = 21.21$). Caucasian and NBNA women did not differ significantly on their BMI scores.

Because of the likelihood that the two separate measures of SES would be correlated, a Bonferroni correction was used to control family-wise error rate for these two analyses. No significant differences were found for either measure of socioeconomic status, [for SES1, $F(2, 76) = 2.59, p > .025$, and for SES2, $F(2, 60) = 0.53, p > .025$]. Group means and standard deviations for these participant characteristics are displayed in Table 1.

In summary, significant group differences were found for participants' age and BMI. In both cases Aboriginal women were significantly higher on these variables. They were older than both of the other groups of women and the Aboriginal women had higher BMIs. In subsequent analyses it was therefore necessary to determine if these characteristics correlated with dependent variables, to assess if they should be used as covariates. This was done to determine if once the influence of age and BMI were controlled for in subsequent analyses if group differences would still remain.

Incidence of Potential Bulimia Cases

For the first hypothesis, that the percentage of Aboriginal women that were defined as "potentially bulimic" would be significantly higher than the percentage of Caucasian women, a chi square analysis was conducted. Two separate chi square analyses were also conducted to determine if the percentage of Aboriginal women classified as potentially bulimic significantly differed from the percentage of NBNA women, and to determine if the percentage of NBNA women given this classification significantly differed from Caucasian women.

As previously discussed, the BULIT-R provides a standardized cutting score of 85 for classifying those individuals who are potentially bulimic (Thelen et al., 1991). When this classification was used with the total sample it was found that 17.9% ($n = 14$) fell into the category of potentially bulimic. When broken down into groups, 25.9% of the Aboriginal women ($n = 7$), 8.1% of the Caucasian women ($n = 3$), and 28.6% of the NBNA women ($n = 4$) were classified as potentially bulimic.

The constellation items were included in the study as an alternative method of classification that did not depend on normative data. This was done to determine if incidence rates would vary as a function of the type of classification method used. However, the percentage of women who endorsed the constellation items was very similar to the percentages obtained by using the standardized cutting score. A total of 21.7 % of the women ($n = 17$) in the sample endorsed the constellation items. When this number was broken down by groups, it was revealed that nine women from the Aboriginal group (33.3%) , four women from the Caucasian group (10.8%) and four women from the NBNA group (28.5%) endorsed the constellation items.

Unfortunately, due to small sample sizes, and the small number of women classified as potentially bulimic, there remained one expected frequency below five in each analysis. The chi-square test requires that expected frequencies in each cell cannot fall below 5 for more than 20% of the cells in the analysis (Siegel & Castellan, 1988).

When this requirement is not met the test cannot be meaningfully used (Siegel & Castellan, 1988). However, according to Howell (1992) the requirement of at least five for all expected frequencies is a conservative cut off. Citing Bradley et al. (1979) he reported that the actual percentage of Type I errors rarely exceed .06. Camilli and Hopkins (1979; as cited in Howell, 1992) demonstrated that even with small expected frequencies, the test produced few Type I errors as long as the total sample size was greater than eight. According to Howell, "power is more likely to be a problem than inflated Type I error rates " (p. 141). Therefore three 2 x 2 Pearson chi-square analyses were run to determine if the percentage of women classified as potentially bulimic significantly differed between Aboriginal and Caucasian women, Aboriginal and NBNA women, and Caucasian and NBNA women. The results of the first analysis revealed that there were significantly more Aboriginal women classified as potentially bulimic (25.9%) than Caucasian women (8.1%), $\chi^2(1, N = 64) = 3.76, p < .05$. The percentage of NBNA women classified as potentially bulimic (28.5%) did not significantly differ from the percentage of Aboriginal women, $\chi^2(1, N = 41) = 0.03, p > .05$. Nor did the percentage of women with this classification significantly differ between NBNA women and Caucasian women, $\chi^2(1, N = 51) = 3.59, p > .05$, although this difference approached significance ($p = .06$).

Incidence of Disordered Eating Behaviour

To maintain continuity between this study and previous research in this area, and for comparative purposes, the responses to certain BULIT-R items were analyzed to determine the percentage of women in the sample who reported engaging in various forms of disordered eating behaviour (i.e., bingeing and purging behaviours). Appendix E displays the BULIT-R items selected for this analysis. Twenty eight per cent of the women in the total sample reported binge eating at least two to three times a month. Seventeen per cent of the women reported using some form of restrictive or extreme

measures to control their weight frequently (these measures included strict dieting, fasting, laxatives, diuretics, self-induced vomiting, or rigorous exercise) . The most common extreme method of controlling their weight that the women reported was fasting or strict dieting. Eighteen per cent of the women reported that they engaged in this behaviour at least four to five times in the past year. Twelve per cent of the women reported that they exercised more than average to burn calories, 9% reported self-induced vomiting at least two to three times a month, 6% reported using diuretics to control their weight, and 4% reported using laxatives. The comparison of the percentage of women engaging in these behaviours across ethnic groups is displayed in Table 2. Unfortunately, due to the small sample size, chi-square analyses could not be performed to determine if the frequencies were significantly different between groups .

Magnitude of Bulimic Symptoms

For the second hypothesis, that Aboriginal women would have significantly more bulimic symptoms than Caucasian women, an independent one-tailed t-test was conducted to determine the influence of ethnic membership on BULIT-R means. To compare the third group of women with Aboriginal and Caucasian women, two separate two-tailed t-tests were conducted.

It was first necessary to determine if age and BMI were significantly correlated with BULIT-R means. Pearson product-moment correlations were computed to assess the relationship between age and BULIT-R scores and BMI and BULIT-R scores. The correlations obtained were respectively, $r = -0.06$, and $r = 0.18$. Neither correlation reached significance, $t(76) = -0.52$, $p > .05$, and $t(76) = 1.59$, $p > .05$ respectively. Therefore it was deemed unnecessary to control for these variables by using them as covariates in this particular analysis. This is because covariates are suited for those

Table 2

Percentage of Disordered Eating Behaviours Across Groups

	<u>Aboriginal women</u>	<u>Caucasian women</u>	<u>NBNA women^a</u>
Behaviours	(n = 27)	(n = 37)	(n = 14)
Bingeing	37.0	18.9	35.7
Restrictive Behaviour	25.9	2.8	35.7
Fasting/Strict Dieting	29.6	8.1	21.4
Exercise	18.5	10.8	0
Self-Induced Vomiting	14.8	2.8	14.3
Diuretic Abuse	11.1	0	14.3
Laxative Abuse	0	0	21.4

^a women who immigrated to North America.

variables that not only differ significantly between groups, but also correlate with the dependent variables in the analysis (Tabachnick & Fidell, 1989).

The evaluation of assumptions for these analyses were determined to be acceptable. One case was deleted from the analyses due to missing data. The alpha level for each analysis was set at .01 to control for Type I error. The resulting t-tests revealed no significant group differences. There was no significant difference, $t(62) = -1.87$, $p > .01$, for mean BULIT-R scores between Aboriginal women ($M = 61.67$) and Caucasian women ($M = 51.62$). However, these differences in means of the BULIT-R did approach significance ($p = .07$). There were also no significant group differences on BULIT-R means between Aboriginal women and NBNA women ($M = 64.86$), $t(39) = 0.36$, $p > .01$; or between Caucasian women and NBNA women, $t(49) = -1.94$, $p > .01$, although this difference did approach significance ($p = .06$).

Body Image Preoccupation and Dissatisfaction

The third hypothesis tested in this study pertains to women's attitudes about their bodies, particularly body image preoccupation and dissatisfaction. To test the hypothesis that Aboriginal women would score significantly higher than Caucasian women on multiple measures of body image (group means on the Appearance Evaluation, Appearance Orientation, Body Areas Satisfaction Scale, Weight Preoccupation and Subjective Weight subscales of the MBSRQ; and Self-Ideal scores on the Figure Rating Scale), a one-way between groups multivariate analysis of covariance (MANCOVA) was conducted with weight controlled for by using the variable of BMI as a covariate. In addition, two more MANCOVAs were conducted to determine if there were significant group differences between the NBNA women and the Caucasian women, and between the NBNA women and the Aboriginal women, on the same dependent variables. The alpha level for each comparison was set at .01.

Prior to conducting these analyses Pearson product-moment correlations were performed for the participant characteristic variables of age and BMI and the dependent variables mentioned above. Table 3 displays the correlations between these variables. Due to the significant correlation between BMI scores and subjective weight subscale scores ($r = .76$) and the significant correlation between the Self-Ideal scores of the Figure Ratings Scale and the BMI scores ($r = .61$), the subsequent analysis of these variables included BMI as a covariate. Evaluation of the assumptions of the analysis revealed that the assumptions of normality, linearity and multicollinearity were satisfactory. However due to unequal sample sizes and heterogeneity of variances, it was decided that Pillai's criterion (instead of Wilke's lambda) be used to evaluate multivariate significance.

With the use of Pillai's criterion, after adjusting for differences on the covariate, the difference between Aboriginal and Caucasian women on the multiple measures of body image was not significant, approximate $F(6, 56) = .67, p > .01$. There were also no significant differences found between the Aboriginal and the NBNA women on these measures, approximate $F(6, 33) = .30, p > .01$, or between the NBNA women and the Caucasian women, approximate $F(6, 42) = .53, p > .01$. Group means and standard deviations for the six measures of body image by group are displayed in Table 4.

The Relationship Between Acculturation and Eating Disturbances

For the hypothesis that there would be a significant positive correlation between type of acculturation (either Marginalization or Assimilation) and the level of disturbed eating attitudes and behaviours for Aboriginal women, Pearson product-moment correlations were conducted on the scores of the subscales of the Relational Attitudes Scale and BULIT-R means. Age and BMI were also included in these analyses to determine if these participant characteristics significantly correlated with any of the other variables. Table 5 displays the intercorrelations and the correlations between the subscale scores and the BULIT-R scores, BMI, and age. There were no significant correlations

Table 3

Intercorrelations Between Age, BMI and Measures of Body Image

Variables	Age	BMI	BAS	AO	AE	SW	WP	S-I
Age	—	0.34	-0.06	-0.01	0.04	0.30	0.06	0.13
BMI		---	-0.23	-0.01	-0.26	0.76*	0.15	0.61*
BAS			----	-0.33	0.69*	-0.46*	-0.59*	-0.70*
AO				----	-0.24	0.19	0.55*	0.32
AE					----	-0.50*	-0.57*	-0.56*
SW						----	0.42	0.72*
WP							----	0.61*
S-I								----

Note. BMI = Body Mass Index; BAS = Body Areas Satisfaction; AO = Appearance Orientation; AE = Appearance Evaluation; SW = Subjective Weight; WP = Weight Preoccupation; S-I = Self-Ideal figure ratings.

*p < .01

Table 4

Group Means and Standard Deviations for Six Measures of Body Image

Measures	<u>Aboriginal women</u>		<u>Caucasian women</u>		<u>NBNA women^a</u>	
	M	SD	M	SD	M	SD
	(n = 27)		(n = 37)		(n = 14)	
BAS	23.11	7.04	24.84	4.13	24.71	4.65
AO	41.86	8.20	43.27	5.80	43.79	7.54
AE	21.00	5.58	22.16	3.71	21.86	4.09
SW	3.64	0.76	3.29	0.55	3.14	0.74
WP	2.96	1.24	2.70	0.89	2.86	1.10
S-I	15.26	12.60	8.62	7.39	10.07	9.56

Note. BAS = Body Areas Satisfaction; AO = Appearance Orientation; AE = Appearance Evaluation; SW = Subjective Weight; WP = Weight Preoccupation; S-I = Self-Ideal figure ratings.

^a These women immigrated to North America.

Table 5

Correlations and Intercorrelations Between BULIT-R Scores and Subscales of the Relational Attitudes Scale

Variables	BULIT-R	INT	ASSIM	SEP	MARG	AGE	BMI
BULIT-R	-----	.01	.04	.22	.37*	.06	.18
INT		-----	-.49	-.18	-.65**	.12	-.21
ASSIM			-----	-.14	.47	-.19	.28
SEP				-----	.38	.01	.07
MARG					-----	-.28	.28
AGE						-----	.23
BMI							-----

Note. INT = Integration; ASSIM = Assimilation; SEP = Separation; MARG = Marginalization; BMI = Body Mass Index.

* $p < .05$, ** $p < .01$

between the subscale scores of the Relational Attitudes Scale and the variables of age and BMI. The analysis did reveal that Marginalization had the highest correlation ($r = .37$) between type of acculturation and BULIT-R scores. This correlation was also significant, $t(24) = 2.06, p < .05$. The other acculturation strategies did not significantly correlate with BULIT-R scores.

Participants' dominant or preferred acculturation strategy was assessed by determining which of the four subscale scores was the highest for each participant. The vast majority of Aboriginal women in this sample, 85% (22 out of 26) would be classified as favoring Integration. Fifteen percent (4 out of 26) of Aboriginal women would be classified as favoring Separation. The two remaining subscales were not dominant for any participant.

Body Mass Index (BMI) as a Function of BULIT-R Classification

As mentioned previously, the correlation between the measure of relative weight (BMI) and scores on the BULIT-R was not significant, $r = .18, t(76) = 1.59, p > .05$. However, when a one-way between groups analysis of variance (ANOVA) was conducted between those women classified as potentially bulimic and those women that fell below the cutoff score, significant group differences were found for the variable of BMI, $F(1, 76) = 4.80, p < .05$. The women who were classified as potentially bulimic were significantly heavier ($M = 25.32, SD = 6.33$) than the women who did not receive this classification ($M = 22.60, SD = 3.59$).

Unfortunately, due to the small number of women classified as potential bulimic in each ethnic group, analyses could not be performed to determine which ethnic group may have influenced this finding. The mean BMI scores and standard deviations of women classified as potentially bulimic and women that fell below the cutoff score by group are displayed in Table 6.

Table 6

Group Means and Standard Deviations for BMI by BULIT-R Classification

Classification	BMI <u>Aboriginal women</u>		BMI <u>Caucasian women</u>		BMI <u>NBNA women^a</u>	
	M	SD	M	SD	M	SD
	(n = 27)		(n = 37)		(n = 14)	
Potentially Bulimic (n = 14)	26.99 (n = 7)	8.84	23.45 (n = 3)	1.71	23.79 (n = 4)	1.51
Not Potentially Bulimic (n = 64)	24.33 (n = 20)	3.98	22.30 (n = 34)	3.33	20.18 (n = 10)	1.90

^a These women immigrated to North America.

Qualitative Information: Comments Made by Aboriginal Women

Although there were no open-ended questions in the questionnaire package, many women wrote comments on the questionnaires. Interestingly, the majority of comments were made by Aboriginal women (12 out of 15). No formal qualitative analysis could be done as most phenomenological or qualitative research designs involve unstructured or semi-structured interviews in order to obtain unbiased meanings. However, despite the inability to obtain meanings and construct themes organizing these meanings, the comments provided important additional information and often gave a more personal and experiential quality to the data.

The comments ranged from clarifications of participants' answers (i.e., "I don't eat traditional food- bannock-yes, deer- no") to insightful comments about Aboriginal culture and Canadian society. There were many comments about the items of the Relational Attitudes Scale, some were helpful in pointing out errors or oversights in the questions (e.g., in regard to an item about Native language that only included two Native languages, one woman responded that "there are far more native languages that are applicable by tribe. It is not like Western society with only English or French to choose from"). Others expressed pride in their culture and anger at the way Canadian society has treated Aboriginal people in the past. For example, in regard to an item about sharing Aboriginal values and traditions with other Canadians, one woman responded that "sharing would be difficult because of the condescending attitudes of most Canadians." In response to an item regarding the teaching of Canadian versus Aboriginal history, one woman wrote, "Aboriginal is Canadian history." Another woman wrote that Aboriginal history was valuable "but it's biased, written by white men, should learn it from the elders and the Great Law, not from textbooks". In response to an item concerning Aboriginal control of social programs with guidance from Canadians, one woman responded that "we know what we need to do and how to do it. It's in our Great Law, we don't need guidance."

In addition, a few of the Aboriginal women made comments on the questions related to disordered eating attitudes and behaviours. The comments, as before, included clarifications, such as "I train, but not to burn calories," which were sometimes humorous (e.g., on the figure ratings task, one participant answered the question "What is most attractive to males" with "Big breasts mostly.") Others made more insightful comments, for example, in response to the question asking them to compare themselves to women their age, and to determine if they were average, or above or below average when it came to preoccupation with their weight and body shape, one woman responded "What is average? Who is average?" Others expressed their frustration; for example with the item "I am satisfied with my eating patterns," one woman wrote " I would like to be able to eat something besides salads without feeling like I've just gained five pounds!" Others showed the continuing struggle to overcome their problems with disordered eating. One woman who had previously suffered from anorexia reported that "the only thing that counted was being thin; bad hair, skin and teeth didn't concern me when I was really sick" and that she still has " occasional bouts of bulimia but for the most part I am very restrictive even when I binge its a low-fat bender." However, her growth and healing were also reflected in her comments. She responded to an item about obsession over size and shape of body with "Always, but becoming a bit less so, starting to realize that basing self-worth on a scale is feeble and that there are more important things in life. "

DISCUSSION

Incidence of Potential Bulimia Cases and Disordered Eating Behaviours

The primary purpose of the current study was to determine the prevalence of eating disordered attitudes and behaviours among Aboriginal and nonAboriginal women. Specifically, it was hypothesized that the percentage of Aboriginal women classified as potentially bulimic would be significantly higher than the percentage of nonAboriginal women. This hypothesis was supported by the finding that almost 26% of Aboriginal women were classified as potentially bulimic, significantly higher than the 8% of Caucasian women who were given the same classification. In addition, 28% of the women who immigrated to North America were classified as potentially bulimic. These percentages are very high, much higher than rates reported in the DSM-IV (1994) which estimate the prevalence of bulimia nervosa among young women to be at 1 to 3 %, and higher than rates reported in studies of female college students which range from 2.8% to 12% (Hart & Ollendick, 1985; Healy, Conroy & Walsh, 1985; Herzog et al., 1986).

The finding that Aboriginal women were classified as potentially bulimic more than Caucasian women lends support to previous research (Smith & Krejci, 1991) that suggests that Aboriginal women are at higher risk than Caucasian women for developing eating disorders. Therefore, the current study extends previous findings to a Canadian sample of Aboriginal women, and to classifications based on DSM IV (1994) criteria. In addition, the finding that 28% of the women who immigrated to North America (4 out of 14) were classified as potentially bulimic also lends support to previous studies in the area of cross-cultural eating disorder research that suggest that women who immigrate to North America may be at high risk for developing eating disorders (Dolan, 1991; DSM IV, 1994). Although the resulting comparison of the percentage of cases of potential bulimia between Caucasian women and these women was not statistically significant, this difference did approach significance, and most likely would have been significant if a larger sample of women who were not born in North America had been obtained.

When the incidence of specific eating disorder behaviours were assessed in the current study the rates were also consistent with previous findings (Rosen et al., 1988; Smith & Krejci, 1991; Snow & Harris, 1988) with Aboriginal women. For example, in the current study the most common method of restrictive behaviours among Aboriginal women were fasting and strict dieting. A total of 30% of the women reported this behaviour at least 4-5 times in the past year. It was also the most common method found in Rosen et al.'s (1988) and Smith and Krejci's (1991) studies, with 33% and 41% of Aboriginal women reporting this behaviour respectively. The rate of self-induced vomiting was also comparable between Aboriginal women in the current sample and Aboriginal women in previous studies. Fifteen per cent reported this behaviour at least 2-3 times a month in the current study, as compared to 11% (Smith & Krejci, 1991) and 12% (Rosen et al., 1988) in previous studies. The rates of binge eating across studies did vary more than other behaviours measured. In this study 37% of Aboriginal women reported binge eating as compared to previous rates of 14% (Smith & Krejci, 1991) and 53% (Snow & Harris, 1989). Therefore the current rate of reported binge eating behaviour among Aboriginal women falls somewhere between the two previous rates. This variability in estimated rates is most likely due to different criteria used in each study to determine incidents of binge eating. Overall, however, rates of disordered eating behaviours were very similar across previous studies employing Aboriginal women and the current sample of Canadian Aboriginal women.

The finding that Aboriginal women may be at higher risk than Caucasian women from developing eating disorders is alarming. The fact that 7 out of the 27 Aboriginal women in the current study were classified as potentially bulimic is clinically significant. There is no harm in educating Native student counsellors, social workers, and other health care professionals who work with the Aboriginal community about the problems and symptoms of eating disorders, and alerting them to the fact that these disorders can and do occur among Aboriginal women. In addition, the finding that 4 out of 14

immigrant women in the current study were classified as potentially bulimic is also clinically significant. Therefore, international student organizations and health care professionals should be alerted and educated about women who immigrate to North America, as they may be at even higher risk than other women from developing eating disorders.

Caution, however, should be taken in interpreting these rates. The sample of women in this study was small, and as a consequence sampling bias may have more likely influenced the results. Particularly, there may have been a self-selection bias, in which those women with an interest in eating disorders or experience with the problems may have been more motivated to volunteer and complete the study, thereby inflating the rates of disordered eating. Another important limitation in the current study was that the majority of the Aboriginal women in the sample were university students which limits one's ability to generalize these findings to the many Aboriginal women not in university. However, the three previous studies conducted with Aboriginal women in this area have found very similar findings when studying high school students (Smith & Krejci, 1991; Snow & Harris, 1989) and adults who had not attended university (Rosen et al., 1988).

In addition caution should be taken when interpreting the findings of the third group of women. They were not a planned comparison group, and therefore the sample is very small, and relatively smaller than the other two groups in the study. In addition, there is important information about these women that was not collected and remains missing, such as information on when they immigrated to North America. Caution should also be taken in interpreting findings as these women are not from a homogenous ethnic background, and included Asian, European and Arab women. Conclusions made about any ethnic group in particular based on this mixed sample would neglect the heterogeneity among these different ethnic groups. However, despite these caveats, the results obtained in the present study still lend support to the growing body of evidence

that women who immigrate to North America are a high risk group for the development of eating disorders.

Finally, the measure used to classify potential bulimic cases and to determine frequencies of disordered eating behaviours was a paper and pencil test. This is another important limitation, as by itself it is not adequate for a diagnosis without a clinical interview. Therefore it is likely that there were a number of false positives in the percentage of potential bulimic cases and the incidence of disordered eating behaviours.

Due to these limitations the conclusions based on these results are only tentative. This study was also limited to the assessment of disordered eating behaviours and attitudes related to bulimia, as anorexia was not studied directly with this current sample. Studies are needed that employ a large sample of women to determine the true prevalence rates of both forms of eating disorders among Aboriginal and immigrant women. In addition, future studies should attempt to incorporate clinical interviews whenever possible and attempts should be made to sample Aboriginal women from diverse First Nations communities and from diverse social, and economic backgrounds. The further study of immigrant women is also warranted. A large scale study that incorporates information about when the women immigrated, and their country of origin, should be undertaken to uncover the true prevalence rates of eating disordered attitudes and behaviours among this group of women.

In addition future research is needed to determine why Aboriginal women appear to be at higher risk for developing eating disorders than Caucasian women. The dominant etiological theories of eating disorders and risk factors such as family dynamics, influence of sociocultural variables, sexual abuse, and factors that have been associated with eating disorders such as depression and anxiety (Striegel-Moore, Silberstein & Rodin, 1986) could be assessed among Aboriginal women to determine what variables or factors in their lives are putting them at higher risk. The same research directions could

also be taken with women who immigrate to North America as the reason why these women appear to be at high risk still remains virtually unknown.

Finally, the current findings also point to the need for studies that look at many different ethnic minority groups at the same time, to understand important ways in which they are similar and in which ways they differ. The current finding that both Aboriginal and immigrant women had more cases of potential bulimia than Caucasian women is noteworthy. Why both groups would have more cases of potential bulimia than the Caucasian women, who previously had been characterised as the most at risk group, is still a mystery. Perhaps some factor that both the Aboriginal women and the immigrant women have in common, such as cultural transition, may play an important role in the high incidence of eating disordered behaviour among these women.

Magnitude of Bulimic Symptoms

In relation to the first hypothesis, it was expected that Aboriginal women, on average, would have significantly more bulimic symptoms than Caucasian women. However this hypothesis was not supported by the current findings. There were no significant differences between Aboriginal and Caucasian women in the magnitude of symptoms they reported. There were also no significant differences between the immigrant and the Caucasian women in the magnitude of symptoms they reported. This may have been due to the relatively small sample size used in the current study, however, and the differences did approach significance in both cases. The trend was that Aboriginal and immigrant women both reported more symptoms, on average, than Caucasian women. Perhaps the lack of significant results was due to taking an average score, which may not be appropriate with this particular measure (as the BULIT-R is primarily used as a classification instrument).

Future research should explore these possibilities with a larger sample to determine if differences, on average, exist between Aboriginal and Caucasian women,

and immigrant women and Caucasian women, in the amount of eating disorder symptoms reported. If this difference does not exist, it may be that although more Aboriginal and immigrant women are classified as potentially bulimic than Caucasian women, on average, the women in all groups suffer from the same amount of "normative discontent" (Striegel-Moore, Silberstein & Rodin, 1986) and the same amount of dieting behaviour. Previous research in this area have not made similar types of comparisons between groups. However, they have studied the percentages of women engaging in different disordered eating behaviours and have consistently found that there were more or equal number of Aboriginal women and immigrant women engaging in these behaviours than Caucasian North American women (Dolan, 1991; Pate et al., 1992; Rosen et al., 1988; Smith & Krejci, 1991; Snow & Harris, 1988).

Body Image Preoccupation and Dissatisfaction

Another important hypothesis in this study pertained to women's attitudes about their bodies, particularly body image preoccupation and dissatisfaction. The hypothesis that Aboriginal women would score significantly higher on multiple measure of body image preoccupation and dissatisfaction than Caucasian women was not supported by the current findings. There were no significant differences between groups on measures of appearance evaluation, appearance orientation, a body satisfaction scale, weight preoccupation, subjective weight or body image dissatisfaction. In addition, there were no significant differences on these variables between women who immigrated to North America and Caucasian women. The lack of significant findings may be due to several factors. The use of small, unequal sample sizes likely reduced the statistical power in this study, therefore only allowing for the detection of the strongest effects. In addition, there was a great amount of variability within groups, and taking the average may have masked any differences in a subset of the sample. There is also the possibility that in fact Aboriginal women, immigrant women, and Caucasian women are very similar in their

attitudes about their bodies and about gaining weight. The average scores of all three groups were in fact very similar for most of the measures, and for all three groups these means were often in the direction of more negative attitudes about their body weight and shape than the reported norms for the measures. For example, the normative score for the Body Areas Satisfaction Scale is 30.4 for women (Fischer & Corcoran, 1993) as compared to 23.1 for Aboriginal women, 24.7 for women who immigrated to North America, and 24.8 for Caucasian women, in the current study's sample. Therefore the women in the current study reported more dissatisfaction with their bodies than normative rates.

Previous studies with Aboriginal women have found that they are significantly more afraid of gaining weight and are more dissatisfied with their body shape than Caucasian women (Smith & Krejci, 1991; Snow & Harris, 1989). However, the two studies that did report data relating to body image and fear of weight gain based their conclusions on responses to single items from questionnaires, rather than validated measures. Perhaps when body image variables are more thoroughly assessed as they were in the current study, these differences disappear.

Previous studies with immigrant women, especially those from Non-Western cultures, have also reported equal or higher rates of fear of gaining weight and body dissatisfaction among these women than Caucasian women (Dolan, 1991; Pate et al., 1992). If there is no difference between Aboriginal, immigrant, and Caucasian women on attitudes towards their bodies, perhaps the discrepancy between this finding and the finding that there were more Aboriginal and immigrant women classified as potentially bulimic may be an indication that the expression of eating disorders varies cross-culturally. Perhaps for Aboriginal women and for immigrant women, weight preoccupation, fear of gaining weight and weight dissatisfaction are not as prominent symptoms in the expression of bulimia as they have traditionally been among white North American women.

Future research could therefore be taken on a larger scale with a sample of Aboriginal women who have been diagnosed with eating disorders, to determine the role and prominence of eating attitudes in the expression of eating disorders among Aboriginal women. The same design could also be used for immigrant women, with the inclusion of the study of length of time living in North America, and country of origin, as potential mediating variables.

The Relationship Between Acculturation and Eating Disturbances

The mediating influence that acculturation strategies may have on the magnitude of eating disordered attitudes and behaviours had not, to this point, been studied among Aboriginal women. Due to conflicting evidence derived from related research areas it was uncertain as to whether assimilation (the devaluing of one's own culture and wanting positive relations with the dominant culture) would be related to high scores on the BULIT-R or if high scores would be related to marginalization (not valuing either one's own culture or the dominant culture). It was hypothesized that for Aboriginal women a significant correlation would be obtained between the degree of either assimilation or marginalization and magnitude of disordered eating behaviours and attitudes. This hypothesis was supported by the finding of a significant positive relationship between Marginalization and scores on the BULIT-R. As the women's feelings of marginalization increased so did the degree of eating disorder symptoms they reported.

This finding is consistent with Aboriginal mental health research that has found marginalization is related to higher rates of mental health problems among Aboriginal people (Berry, 1976; Kirmayer et al., 1994, Maser & Dinges, 1993; Restoule, 1994) and extends their findings to include eating disorders among the list of mental health problems studied. However, this finding contradicts cross-cultural eating disorder research that has been conducted with Black and Hispanic women. When acculturation was assessed with these women (Abrams et al., 1993; Pumariega, 1986), a positive

correlation between the degree of assimilation and the level of disordered eating attitudes and behaviours was found. This discrepancy between current findings and previous cross-cultural findings may have several different explanations. The most evident explanation is that Aboriginal women are different from other ethnic minority women in the type of acculturation strategy that appears to mediate eating disorder symptoms. However, other explanations are also feasible. It is not clear, for example, as to whether previous studies used measures of acculturation that included marginalization as an option. It appears that the measures used were unidimensional (i.e., on a continuum from not acculturated and taking pride in one's culture, to completely assimilated and devaluing one's own culture). If this is the case perhaps it may account for the apparent discrepancy in findings, as participants may have chosen marginalization if it was made available as an option.

Unfortunately, information is not available about the acculturation strategies of the immigrant women in the current sample. They emerged as a group only after data collection, and therefore they were not given the additional acculturation measure to determine if marginalization or assimilation played a role as mediating variables in their level of disordered eating behaviours and attitudes. Previous research would suggest, however, that as these women become more acculturated to North American society they are at increased risk for developing eating disorders (Dolan, 1991; Pate et al., 1992). It is unclear as to the type of acculturation measured among these women. Many studies that have focused on women who immigrate to North America have speculated at the important role that cultural transition and acculturative stress plays in the development of eating disorders among these women (e.g., Bryant-Waugh & Lask, 1991; Mildred, Paxton & Wertheim, 1995; Mumford, Whitehouse & Platts, 1991; Schmidt, 1993). However, few studies have directly assessed this relationship to determine what type of acculturation strategy may be most likely influencing this relationship or what characteristics of immigrant women may put some at higher risk than others. Future investigations may find it valuable to study acculturation among these women more

closely to determine the relationship that it may have with eating disorder symptoms. This information could then be used in determining which women may be at higher risk, and provide a basis for prevention and intervention strategies.

The discrepancy in findings between the current study and previous cross-cultural research may also point to what may be the key component within both acculturation strategies influencing eating disordered behaviour. The one aspect that both assimilation and marginalization have in common is lack of pride in one's own heritage and a devaluing of one's own culture. However at this point this is merely speculation and is useful in stimulating directions for future research. For example, diverse ethnic minority groups could be studied, using a multidimensional acculturation scale that allows for marginalization, to determine if previous findings are replicated. In addition the study of the influence of what appears to be the common component in both types of acculturation strategies implicated, the devaluing of one's own culture, should be specifically studied to determine its relationship with eating disorder symptoms.

The current finding that marginalization and bulimic symptoms are related among Aboriginal women also has implications for both research and theory. It highlights the importance of not assuming that all ethnic minority women are a homogeneous group and the importance of limiting conclusions based on research conducted with one ethnic minority group. In addition, it highlights the importance of using a measure of acculturation that allows for more than a unidimensional construct of acculturation (Berry, 1976). The finding that marginalization rather than assimilation may be the important mediating type of acculturation strategy is incongruent with one of the major etiological theories of eating disorders: the influence of sociocultural factors. These factors, such as the ideal thin body-image perpetuated in North American society, have played an important role in understanding the disorders (Striegel-Moore, Silberstein, & Rodin, 1986). In addition, previous cross-cultural studies that have found that women who are more assimilated into the Western society had more eating disorder symptoms

have lent much support to this theory. However, the current findings could still be incorporated into the theory. A woman who devalues her own culture is still subjected to the images of ideal North American beauty. Although she may not value or want relations with Western society, or feel accepted by it, she is still inundated with images of the ideal thin body shape produced by the mass media and this may be enough to influence her attitudes. The finding in the current study that there were more cases of potential bulimia among both women who immigrated to North America and Aboriginal women, also lends support to the importance of acculturation, and the stresses involved in cultural adaptation, in the development of eating disorders. Any future research with ethnic minority groups in North America or with immigrant women should assess acculturation as a mediating factor in the development of eating disorders, as it may be the key as to why these women have higher rates of disordered eating behaviours and attitudes than Caucasian North American women.

The current findings may also have important implications in clinical practice. If this finding is replicated in future research it may lead to important guidelines for prevention and intervention strategies targeting Aboriginal women. A strong identification with one's traditions and culture has been lost by many Aboriginal youth today, especially those living in urban areas. In addition, many have great difficulty being accepted into the dominant culture and are left feeling isolated and marginalized. Preventative measures for eating disorders could be taken by empowering the youth and teaching them their heritage and the importance of taking pride in their traditions and values. In terms of intervention, and as an important aspect to any treatment modality, we should be culturally sensitive in treatment and familiarize ourselves with traditional Aboriginal healing, such as talking circles or sweat lodges, and allow for Aboriginal clients to pursue these forms of treatment (McEvoy & Daniluk, 1995).

Caution should be taken in interpreting the finding, as there were a number of limitations related to it. For example, the acculturation scale used in this study is

relatively new and is therefore not an established reliable and valid measure of acculturation. In addition, this measure is limited in that it only assesses one component of acculturation, the participants' attitudes. There is no measure of their behaviours related to different acculturation strategies (i.e., what community groups they belong to, language spoken at home) and there may be a discrepancy between these behaviours and attitudes. Therefore it would be of interest for future studies to develop an acculturation measure that incorporates both attitudes and behaviours, and use this measure to determine the relationship between actual and attitudinal acculturation strategies with magnitude of eating disordered attitudes and behaviours.

Finally, caution should be taken in interpreting the relationship between marginalization and magnitude of eating disorder symptoms. Due to the nature of the relationship between the variables (correlational) one must be careful not to imply causation and be open to the possibility of alternative explanations. For example, there may be a third factor, like depression, low self-esteem, or alienation, that may be influencing the relationship. Therefore it may be of value to study this relationship more thoroughly, with other potential mediating variables controlled for or evaluated, to delineate more clearly the relationship between this acculturation strategy and eating disorder symptoms.

Participant Characteristics

The finding that Aboriginal women in this sample were significantly older and heavier than the Caucasian women has important implications. Although in some respects this finding may be interpreted as a limitation of the study, it is also interesting to note that despite these characteristics significantly more Aboriginal women were classified as potentially bulimic. This is surprising because previous epidemiological findings suggest that women who suffer from bulimia are usually normal weight or only slightly above or below normal weight (DSM IV, 1994). In addition, many believe that this disorder is

prevalent among women in their late teens and early twenties (Rand & Kuldau, 1992). The finding that the women classified as potentially bulimic in the current sample were significantly heavier than the women who were not, is also at first surprising. It is likely that the relative weight of Aboriginal women classified as potentially bulimic strongly influenced this finding as 50% (or 7 of the 14 women) that received this classification from the total sample were Aboriginal women. These findings, however, are similar to previous studies of Aboriginal women, that have found that the women with disturbed eating behaviours were often older and heavier, two groups previously considered at low risk from developing eating disorders. For example, Rosen et al. (1988) found that the average age of Aboriginal women using purging techniques was 29 years. In addition, it has also been found that disordered eating behaviours increased among Aboriginal women as their weight increased (Rosen et al., 1988; Snow & Harris, 1989). These findings suggest that perhaps the expression of disordered eating behaviour and bulimia may be different for Aboriginal women. This may be an indication that there should not be a limit on a sample's age or controls for weight when studying Aboriginal women. This finding also has important implications for clinical practice. Aboriginal women who are significantly heavier should not be disregarded as possibly suffering from eating disorders. However, these conclusions are again only tentative and the study of age and weight as mediating variables in the expression of eating disorders warrants further study on a larger scale before firm conclusions can be made.

Methodological Limitations and Future Research Directions

Despite attempts to control for factors that would limit the validity of this study there were some important methodological limitations. Most likely one of the most important and far reaching limitation involved the size of the sample. Although attempts were made while conducting the study to obtain sufficient and equal numbers of Aboriginal and Caucasian women the resulting number of women in the final sample was

relatively small and the sample sizes of Aboriginal and Caucasian women remained discrepant. In addition, the number of women who had immigrated to North America was also very small, and relatively smaller than the other groups. The small number of women and the unequal sample sizes reduced the power of statistical tests and likely increased Type II error a great deal. For example, many trends were uncovered that supported certain hypotheses, such as the differences in the average magnitude of bulimic symptoms across groups which approached significance. These trends would have likely been statistically significant if a larger sample had been employed. The small sample also reduced the ability to generalize the current findings beyond the characteristics of this sample. For example, although the Aboriginal women in the sample came from diverse First Nations, the majority of the women were university students. This limits the discussion to Aboriginal women with similar demographic characteristics.

These limitations highlight the importance of conducting studies on a much larger scale. The most important direction for future investigations is an integrative comprehensive epidemiological study of eating disorders, that include clinical interviews when possible, which assess Aboriginal women from diverse demographic backgrounds and First Nations communities, to truly estimate the prevalence rates of the disorders and their subclinical attitudes and behaviours associated with the disorders. The research conducted to this point warrants further study as there is now a strong suggestion that Aboriginal women are a high risk group for the development of eating disorders. In addition, the results from the current study also warrant a large scale study of the prevalence of eating disorder symptoms among immigrant women, with the inclusion of acculturation and country of origin as mediating variables.

In addition to the limitations and problems already outlined, further problems are encountered when conducting research with Aboriginal people. A major problem encountered is the great amount of intertribal and interregional differences that are found among Aboriginal people (Dana, 1986; Kirmayer et al., 1994, Mcshane, 1988; Young,

1988). Therefore, although attempts were made to recruit women from urban areas who were originally from many different First Nations communities, general statements about Aboriginal women are difficult to make, and thereby likely further reduces the generalizability of the current study's results.

Caution should also be taken in the interpretation of conclusions based on the third group of women in this study. The sample was very small, and there was important information about these women that was not collected and remained missing, such as information on when they immigrated to North America, and their acculturation strategies. These women are not from a homogeneous ethnic background, and included Asian, European and Arab women. Conclusions made about any ethnic group in particular based on this mixed sample would neglect the heterogeneity among these different ethnic groups. However, despite these caveats, the results obtained in the present study still lend support to the growing body of evidence that women who immigrate to North America are a high risk group for the development of eating disorders.

Many of the problems and limitations inherent in most cross-cultural research designs could not be easily addressed by this study. For example, the questionnaires used in this study were designed, validated, and normed on predominantly white women, and therefore limit the interpretations of Aboriginal women's and immigrant women's scores on these measures. In addition the meanings given to many of the constructs being measured may also differ cross-culturally, and there is the chance that cultural misunderstandings may have occurred. Many researchers (e.g., Kirmayer et al., 1994) suggest that to overcome these problems, cross-cultural researchers should combine the traditional etic approach with ethnographic studies. Ethnographic studies take an emic approach by allowing for the culture of interest to be understood on its own terms. This approach allows for the meaning of the construct being studied to be derived from within the culture (Butcher et al., 1993; Dana, 1986; Kirmayer et al., 1994).

Studies that go beyond self-report paper and pencil inventories not only deal with many of the problems inherent in cross-cultural research but also allow for the free expression women. In conclusion, it is only through these types of integrative, and comprehensive research designs that we will gain a more complete understanding of the prevalence and expression of eating disorders among Aboriginal women, and among ethnic minority women in general.

APPENDIX A

University Participant Consent Form

University Participant Consent Form

I am a Psychology graduate student from the University of Windsor and I would like you to participate in a study that assesses the prevalence of eating disorder symptoms including behaviours, attitudes and feelings, among Aboriginal and nonAboriginal women.

If you decide to participate in this study, it will take approximately 40 minutes of your time. You will be requested to fill out three questionnaires, involving eating disordered behaviours (e.g. bingeing, self-induced vomiting, laxative use) , attitudes about your body, and a questionnaire on your ethnic identity and feelings. Volunteering in this study may educate you about the dangerous effects of these attitudes and behaviours, and the risk factors of eating disorders. At any point, if you have any questions regarding the study please feel free to ask me.

Your participation is voluntary and you may withdraw from the study at any time. Your grades will not be affected in any way. Your answers will be anonymous and will only be presented in summary form. If you wish you may contact the Chairperson of the Ethics Committee (Dr. Sylvia Voelker) at the University of Windsor, Department of Psychology - (519) 253-4232 Ext. 2249 .

If you have any questions please contact me (at 284-5186), or my thesis supervisor, Dr. Cheryl Thomas (Department of Psychology - (519)253 - 4232, Ext. 2252). Once the study has been completed, you may receive a copy of the study results if you wish, by leaving your name (or envelope number) and address on a sign-up sheet after completing the questionnaires. Thank you for your cooperation.

Please read the following paragraph:

I, (name of participant), have read the description of the study and understand its purpose. I understand that my answers will be kept confidential and that my name will not be associated with my answers. I voluntarily consent to participate.

Signature.

Date

APPENDIX B

Proposed Constellation Items For The Bulimia Test Revised (BULIT-R)

Proposed Constellation Items For the Bulimia Test-Revised (BULIT-R)

<u>Item #</u>	<u>Item Content</u>
4.	I am satisfied with the shape of my body - endorsed if answer "occasionally," "rarely", or "never"
5.	When I feel my eating behaviour is out of control, I try to take extreme measures to get back on course (strict dieting, fasting, laxatives, diuretics, self-induced vomiting, or rigorous exercise). - endorsed if answer "frequently", "almost always", or "always"
8.	There are times when I rapidly eat a very large amount of food - endorsed if answer "twice a week" or "more than twice a week"
9.	How long have you been binge eating (eating uncontrollably to the point of stuffing yourself)? - endorsed if answer "3 months to 1 year", "1-3 years", or "3 or more years"
14.	I feel tormented by the idea that I am fat or might gain weight - endorsed if answer " always", "almost always", or "frequently"

APPENDIX C

Relational Attitudes Scale

Relational Attitudes Scale

In the following pages you will find a list of statements concerning a number of thoughts and behaviours. After reading each statement please choose an answer that fits closest to your present view. Using the scale below, indicate your answer by entering it to the right of the number of the statement.

1	2	3	4	5	6	7
Definitely disagree	Mostly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Definitely agree

1. ___ I think it is important to learn to speak both English and Ojibwa or Cree as an Aboriginal youth in Canada.

2. ___ To maintain our Aboriginal culture, we must concentrate our efforts in maintaining and teaching Aboriginal language rather than English.

3. ___ I often feel helpless because I can't seem to express my feelings and thoughts into words.

4. ___ English is the only language we need to know in order to succeed in Canada.

5. ___ We should learn formal Canadian education while also learning traditional Aboriginal teachings and customs for future success.

6. ___ Teachings in the traditional Aboriginal ways and customs is more important than a formal Canadian education.

7. ___ Education serves no purpose in my life.

1	2	3	4	5	6	7
Definitely disagree	Mostly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Definitely agree

8. ___ Learning about traditional Aboriginal teachings and customs only creates barriers with other Canadians. We should try to be like other Canadians.
9. ___ The kind of relationship I have with other Aboriginal people are valuable while the kind of relationships I have with other non-Aboriginal people are also valuable.
10. ___ Most of my friends are Aboriginal and not non-Aboriginals because I feel very comfortable around Aboriginal people.
11. ___ These days it's hard to find someone I can really relate to and share my feelings with.
12. ___ Most of my friends are non-Aboriginal people and not Aboriginal people because I feel comfortable around non-Aboriginal people.
13. ___ To be successful, we must participate fully in various aspects of Canadian society while maintaining Aboriginal culture and heritage.
14. ___ It is best for Aboriginal people to stick together in order to be successful rather than joining Canadian society.
15. ___ Success only depends on being in the right place at the right time.
16. ___ To be a successful Canadian, we must give up our traditional Aboriginal values and traditions.
17. ___ I have pride in our Aboriginal values and traditions and I think it should be taught to our youth and shared with Canadians.
18. ___ Aboriginal values and traditions are sacred and should not be shared with Canadians.

1	2	3	4	5	6	7
Definitely disagree	Mostly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Definitely agree

19. ___ Nothing can be learned from our past.

20. ___ Aboriginal values and traditions have no place in Canadian society so Aboriginal youth should be taught in the Canadian way.

21. ___ It is important for Aboriginal youth to know about both Aboriginal and Canadian history.

22. ___ Aboriginal youth should learn all there is to know about Aboriginal history but there is little in Canadian history that is of interest.

23. ___ Taking a course in history is a waste of time since it does not help you learn anything to get a job.

24. ___ There is no use in learning about Aboriginal history and Aboriginal youth should only learn about Canadian history.

25. ___ My ideal mate, whether Aboriginal or non-Aboriginal, should have the same interests and values as myself.

26. ___ If I had a choice, I would marry someone who holds the same Aboriginal values and beliefs as myself.

27. ___ There's no such thing as an ideal mate, marriage only creates problems.

28. ___ If I had a choice, I would marry a non-Aboriginal person who has the same interests and values as myself.

1	2	3	4	5	6	7
Definitely disagree	Mostly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Definitely agree

29. ___ Having Aboriginal control of social programs, with guidance from Canadian society, is important to the development of Aboriginal communities.

30. ___ We should focus our attention on developing better Aboriginal controlled social programs, such as health, so we can reduce our need to be controlled by Canadian society.

31. ___ Social programs, such as health, don't solve any of society's many problems.

32. ___ It is unnecessary for Aboriginal people to control their own social programs, this is being done efficiently by Canadians.

33. ___ We should participate in Aboriginal organizations, such as friendship centres or dance/drum troupes, to represent Aboriginal interests in Canada, while taking part in non-Aboriginal organizations.

34. ___ Canadian society has not looked after Aboriginal interests in the past, so Aboriginal people must stick together and help each other.

35. ___ It's hard to work with other people since most people are interested in their selfish gains.

36. ___ Encouraging Aboriginal people to stay together as a group only causes problems for our acceptance into Canadian society.

37. ___ I think it is possible to retain our Aboriginal heritage and values and still participate fully in all aspects of Canadian society.

38. ___ We must emphasize our distinct Aboriginal identity and restrict our association with Canadians.

1	2	3	4	5	6	7
Definitely disagree	Mostly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Definitely agree

39. ___ I feel like an outsider in Aboriginal and non-Aboriginal society, so I don't feel like I belong anywhere.

40. ___ In order to survive as equals in Canada, that means giving up our traditional way of life and adopting a Canadian lifestyle.

41. ___ I would adopt the Canadian way of childrearing by encouraging independence and individuality while also teaching the Aboriginal virtues of respect for the family, elders, people, nature and the values of school and work.

42. ___ If I were a parent I would adopt the Aboriginal way by teaching my children the virtues of respect for the family, elders, people, nature and the values of school and work.

43. ___ Present society is changing so fast it's hard to teach children how to live and be happy.

44. ___ If I were a parent, I would adopt the Canadian way of childrearing by encouraging independence and individuality.

45. ___ A well-balanced diet should include both traditional food, such as wild meat and bannock, and store bought food, such as cereal, and cheese.

46. ___ Traditional foods have all the nutrients I need for a well-balanced diet so I have no need for store bought food.

47. ___ I have no concern in eating a well-balanced meal.

48. ___ Store bought food provides me with all of the nutrients and choice I need so I have little use for traditional foods.

1	2	3	4	5	6	7

Definitely disagree	Mostly disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Mostly agree	Definitely agree

49.____ I think family is very important for both Aboriginal and non-Aboriginal people alike.

50.____ The extended family is important to Aboriginal people but not non-Aboriginal people.

51.____ Family only causes problems for me.

52.____ The extended family (grandparents, aunts, uncles, cousins) is not as important as the Canadian structure of a nuclear family (parents and children).

APPENDIX D

Demographic Questionnaire

Demographic Questionnaire

1. Age _____
2. Height (in feet)_____
3. Current Weight (in pounds)_____
4. Are you in High school ? yes no
5. Are you in University ? yes no
 -If you answered yes, what year are you in?_____
6. What is your postal code? _____
7. Were both your parents born in North America ?_____
 If no, please specify where your mother was born _____
 please specify where your father was born _____
8. Where were you born?_____
9. What is your cultural or ethnic background?_____
10. If you answered that you are Aboriginal or First Nations,
 are you treaty, non treaty, Metis, or Inuit ? _____
 If you are treaty, what Indian Band are you registered with?_____
11. Is your father
 Unemployed Disabled
 Working Retired
 If he is working, what is his job?_____
12. Is your mother
 Unemployed Disabled
 Working Retired
 If she is working, what is her job?_____

APPENDIX E

BULIT-R Items Selected to Determine Incidence of Disordered Eating Behaviours

BULIT-R Items Selected to Determine Incidence of Disordered Eating Behaviours

<u>Behaviour</u>	<u>Item #</u>	<u>Item Content</u>
Bingeing	34.	<p>In the last 3 months, on the average how often did you binge eat (eat uncontrollably to the point of stuffing yourself)?</p> <p>- endorsed if answered "2-3 times a month" or more</p>
Restrictive Behaviour	5.	<p>When I feel that my eating behaviour is out of control, I try to take rather extreme measures to get back on course (strict dieting, fasting, laxatives, diuretics, self-induced vomiting, or rigorous exercise).</p> <p>- endorsed if answered "frequently", "almost always", or "always"</p>
Fasting/Strict Dieting	19.	<p>I have tried to lose weight by fasting or going on strict diets.</p> <p>- endorsed if answered "4-5 times in the past year", or "more than 5 times in the past year"</p>
Exercise	20.	<p>I exercise vigorously and for long periods of time in order to burn calories.</p> <p>- endorsed if answered " more than average", "much more than average", or "a great deal more than average"</p>
Self-Induced Vomiting	15.	<p>How often do you intentionally vomit after eating?</p>

- endorsed if answered "2-3 times a month",
"once a week", or "2 or more times a week"

Diuretic Abuse

27.

I use diuretics (water pills) to help control
my weight.

- endorsed if answered "sometimes",
"frequently", or "very frequently"

Laxative Abuse

31.

I use laxatives or suppositories to help
control my weight.

- endorsed if answered "sometimes",
"frequently", or "very frequently"

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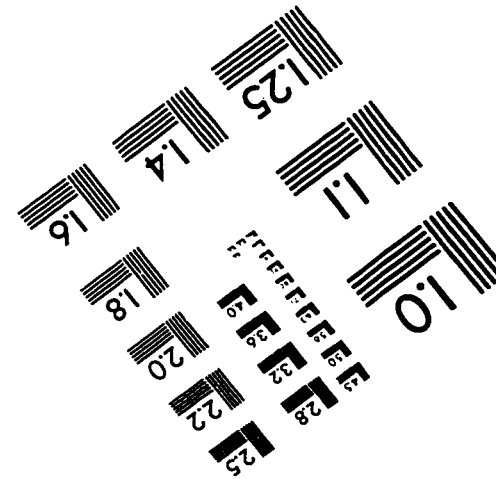
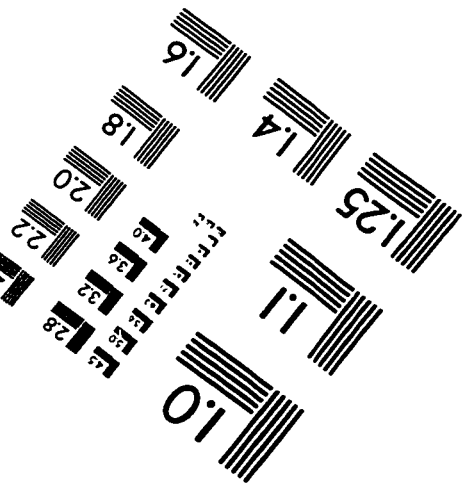
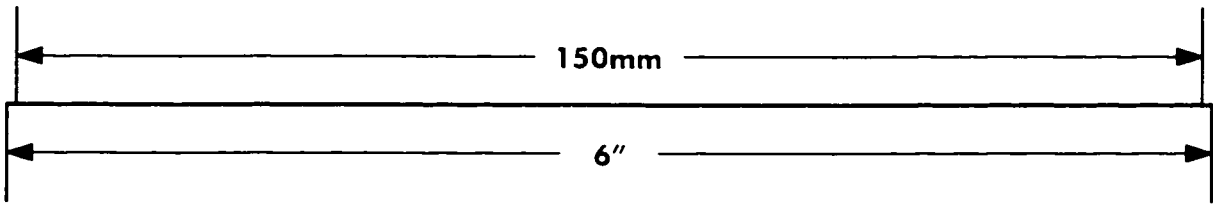
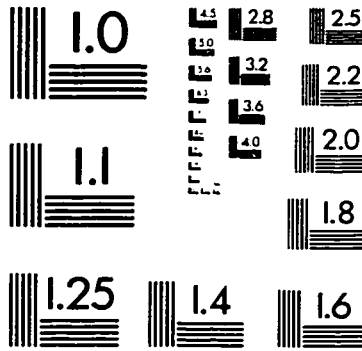
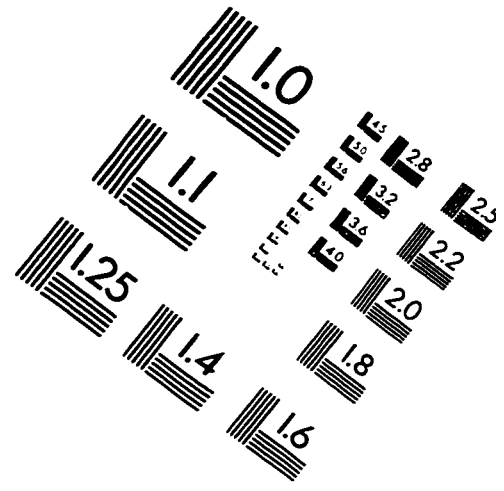
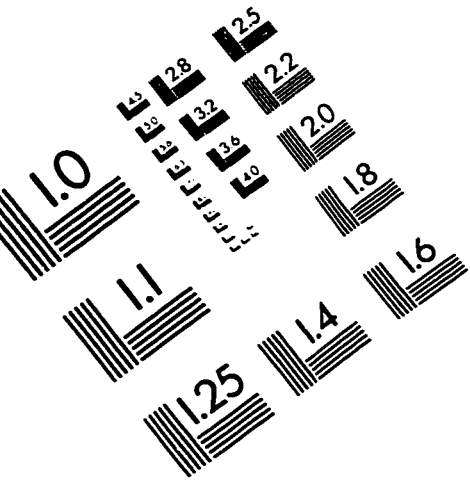
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IMAGE EVALUATION TEST TARGET (QA-3)



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