Examining the Socioeconomic Patterns of Service Utilization among Canadian Women at Risk for Developing Eating Disorders: A Prevalence Study

Jenni Hotte

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Examining the Socioeconomic Patterns of Service Utilization among Canadian Women at Risk for Developing Eating Disorders: A Prevalence Study

By

Jenni Hotte

A Dissertation
Submitted to the Faculty of Graduate Studies through the School of Social Work in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy at the University of Windsor

Windsor, Ontario, Canada

2018

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DECLARATION OF ORIGINALITY

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ABSTRACT

This study adapted Andersen’s behavioural model of service utilization (1995) to explore health and mental health service utilization amongst women at risk for developing an eating disorder in Canada. Specifically, secondary data analysis using the Canadian Community Health Survey (2012) were used to examine the relationship between body dissatisfaction, socioeconomic variables (ethnicity and income), and service utilization (health care utilization, mental health care utilization and unmet needs) amongst Canadian women. Results indicated that body dissatisfied women had high health and mental health service utilization, and higher reported unmet needs. Furthermore, increased age and lower educational attainment were associated with disparities in mental health service utilization. Finally, the majority of reasons that body dissatisfied women provided for unmet needs were based on structural barriers. This study highlighted significant barriers to service utilization for women at risk of eating disorders in Canada. Due to the high individual and social costs to eating disorders, barriers creating inequitable health services and mental health services need to be addressed in clinical practice, organizational structures, policy, and in research to improve treatment pathways.
DEDICATION

This dissertation is dedicated first and foremost to my children James and Samuel. James you are so kind, smart, and inquisitive. You have a strong and genuine spirit that will guide you throughout your days. Samuel, you have a smile that has brightened up every single one of my days, and an openness that will allow you to experience all of life’s gifts. You are both so amazing and I hope that you both continue to be inquisitive and inspirational.

Secondly, I dedicate this dissertation to my brother, Rob and my sister in law, Sharon. Thank you for being my rock, my saving grace, and my guidance. I thank God every day for all that you have done for my boys and I.

Lastly, I wish to dedicate this dissertation to my mother and father, Fran and Walter. Although mom, you didn’t get to see me finish this journey, I know how very proud you and dad are of me. Thank you for always being proud of me.
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On a personal note, I want to acknowledge my grandfather and grandmother, who taught me to stand up against social injustice- you are always in my mind. Dank
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CHAPTER 1
INTRODUCTION

The Problem Statement

Eating disorders are an interrelated array of chronic disorders with significant consequences for human suffering and social costs to individuals, families, and communities. The disease burden of eating disorders is substantial due to associated diverse morbidities (Rome & Ammerman, 2003; Fichter & Quadflieg, 2016; Smink, Hoeken, Oldenhinke, & Hoek, 2014), poor quality of life (Mond, Hay, Rodgers, & Owen, 2012; Wagner, Stefano, Cicero, Latner, & Mond, 2016; Winkler, Christiansen, Lichtenstein, Hansen, Bilenberg, & Støving, 2014), high mortality rates (Fichter & Quadflieg, 2016; Herzog et al., 2000; Huas et al., 2013; Sullivan, 1995), significant psychological and social impairments (Fitcher & Quadflieg, 2016; Klump, Bulik, Kaye, Treasure, & Tyson, 2009), and increased utilization of health services (Ágh, Kovacs, Supina, Pawaskar, Herman, Voko, & Sheehan, 2016; Arcelus, Mitchell, Wales, & Nielsen, 2011; Hay & Mond, 2005; Rome & Ammerman, 2003; Smink, van Hoeken, & Hoek, 2012).

Health service utilization means “getting the right services at the right time to promote improved health outcomes” (Andersen & Davidson, 2007, p. 3) and is an important indicator to understand disease burden. It represents the cumulative economic burden of direct costs, such as costs of health and mental health services, indirect costs, such as time lost from work or due to travel requirements, and expenses due to care of dependents (Kessler et al., 1999; Stuhldreher, Konnopka,
Paradoxically, despite their high rates of utilization of health services, individuals with eating disorders often do not receive the specialized treatments necessary for recovery (Cachelin, Veisel, Barzeganazari, & Striegel-Moore, 2000; Kazdin, Fitzsimmons-Craft, & Wilfley, 2017; Mond, Hay, Rodgers, & Owen, 2007; Mond et al., 2009; Mond, Myers, Crosby, Hay, & Mitchell, 2010; Striegel-Moore et al., 2008). For example, their increased rate of health care utilization is often related to comorbid mental health illnesses such as depression or anxiety (Evans et al., 2011; Johnson, Spitzer, & Williams, 2001; Lule, Schulze, Bauer, Scholl, Muller, Fladung, & Uttner, 2014; Mond et al., 2007) rather than for treatment of the eating disorder itself. Further, although finding and utilizing specialized treatment is essential to minimize the significant individual and systemic effects of eating disorders (Klump et al., 2009; Simmons et al., 2008), many people affected by eating disorders seek out weight loss advice instead (Evans et al., 2011; Mond et al., 2007; Striegel-Moore et al., 2007).

Development of a strategy to improve use of specialized eating disorder treatments begins with examining current utilization patterns. Examination of barriers to service utilization are lacking in the literature, with a recent systematic review highlighting the paucity of research examining barriers to accessing services (Innes, Clough, & Casey, 2017). Canadian-specific data on eating disorder service utilization are scarce. However, a recent Alberta study by Boisvert and Harrell (2014) underscores how little data exist on the influence of socioeconomic factors
on treatment utilization. Unfortunately, Canadian national databases on eating disorders are limited and out-dated. The most recent data on eating disorders were collected in 2002 as part of the Canadian Community Health Survey (CCHS). Since then, items on eating disorder were removed from the CCHS and a more updated survey (CCHS, 2012) does not contain detailed data on eating disorders.

Understand eating disorder health service utilization requires that research undertakings are connected with clinical needs. Accordingly, this dissertation identifies individuals at risk for eating disorder development, situates them within socioeconomic contexts, and examines their service utilization patterns. Andersen’s (1995) behavioural model of health service use is incorporated in this analysis.

Health services for eating disorders are not equitably available across Canada. In November of 2014, the Standing Committee on the Status of Women released a governmental report, “Eating Disorders among Girls and Women in Canada,” which indicated uneven availability of specialized eating disorder services to individuals with eating disorders across Canada (House of Commons, 2014). This report was drafted after various Canadian leading stakeholders, including service users, family members, eating disorder service providers, and academic researchers, testified to the dire nature of eating disorder treatment in Canada.

These findings were quickly dismissed and Kirsty Duncan (2014), Member of Parliament for Etobicoke North, stated that this government report “was a political exercise meant to appease a constituency - an effort meant to look like action was being taken” (p. 71). She pointed out that this report did not address the numerous recommendations to develop a centralized database of treatment programs, address
challenges in treating eating disorders (including inadequate and uneven distribution of programs across Canada and excessive wait times), and the absence of pan-Canadian, evidence-based treatment standards (Duncan, 2014). In other words, fundamental systemic barriers to service utilization for eating disorders services in Canada were not adequately addressed in the Standing Committee document.

Such shortcomings were also reported by the Academy for Eating Disorders (AED, 2012), a leading professional association of eating disorder researchers and practitioners in the United States. According to the AED (2012), eating disorder treatment is in a critical state. This position paper highlighted the unjustified exclusion of eating disorders from health-related decision makers' discussions. Klump and colleagues (2009) provided examples from the United States and internationally where eating disorders are not included as a serious mental illness, leading to insufficient political and financial support for treatment. This omission in the report disregards the necessity of specialized treatment and highlighted inconsistent availability of these essential services. Although Canada was not directly mentioned in Klump and colleagues’ (2009) paper, Canadian policy makers have recently taken a similarly dismissive stance, as highlighted by the position of the Standing Committee (House of Commons, 2014). Beyond this report, there appears to be little information on the patterns of health service utilization of women affected by eating disorders in Canada, including the impact of socioeconomic characteristics. In the absence of this information, treatment and
utilization will remain insufficient, inaccessible, and ineffective for individuals with eating disorders.

Eating disorder service utilization surveys from the United States (Lipson, Jones, Taylor, Wilfley, Eichen, Fitzsimmons-Craft, & Eisenberg, 2016; Striegel-Moore et al., 2007) and the United Kingdom (Thompson, Shaw, Harrison, Gunnell, & Verne, 2004) to date have focused on individual factors, such as personal motivation and a lack of perceived need. In most cases broader systemic factors, such as socioeconomic contexts, are missing from the academic literature. Canadian research is also significantly scarce in this domain. These research limitations have significant consequences, as Mikkonen and Raphael (2010) identified that the most important factors shaping the health of a population are the living conditions of the population, such that those living in poverty typically experience poorer health (Marmot & Allen, 2014; Myers, 2009; Raphael, 2009; 2010; 2016; Raphael et al., 1999). People with eating disorders are likely also affected by socioeconomic conditions, and use of specialized eating disorder services may be inequitable across economic and social conditions. However, the current state of the knowledge base does not provide a clear picture, mainly due to the lack of research done in this area.

At the same time, assessing the association between socioeconomic factors and eating disorders is a difficult endeavour. Part of this difficulty lies in the continued use of homogeneous samples from economically advantaged white women, and much of this field’s extant knowledge is most generalizable only to the economically advantaged white female group (Miller & Pumariega, 2001; Thompson & Park, 2016). This results in a significant paucity in the literature on the various
socioeconomic conditions of individuals affected by eating disorders. These limitations highlight the need to examine key socioeconomic indicators and their impact on service utilization.

**Body Dissatisfaction and Eating Disorders**

Researchers have concluded that a critical diagnostic feature of eating disorders is body dissatisfaction (Delinsky, 2011; Rohde, Stice, & Marti, 2015). Body dissatisfaction consists of negative evaluative beliefs and feelings about one’s weight, and/or appearance (Crowther & Williams, 2011). Body dissatisfaction often leads to the development and maintenance of eating disorders by promoting dieting and negative affect according to longitudinal, prospective, and meta-analytical studies (Johnson & Wardle, 2005; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Rhonde et al., 2015; Stice, 2001; 2002; Stice, Gau, Rohde, & Shaw, 2017; Stice, Marti, & Durant, 2011; Stice & Shaw, 2002). A meta-analysis by Stice (2002) identified body dissatisfaction as “one of the most consistent and robust risk and maintenance factors for eating pathology” (p. 833). Stice, Marti, and Durant (2011) used a classification tree analysis with lagged predictors to determine a 3-way interaction that suggested that body dissatisfaction, depressive symptoms, and dieting predicted eating disorder onset. Moreover, Stice and colleagues (2011) found that body dissatisfaction was associated with a four-fold increase in eating disorder onset among adolescent females in the upper quarter of body dissatisfaction.

Body dissatisfaction, or body discontent, is considered a “normal part of the female experience” in Western culture (Silberstein, Striegel-Moore, & Rodin, 1987,
leading to the claim that there is a ‘normative discontent’ of their body among women in the United States (Fredrick et al., 2012; Tantleff-Dunn, Barnes, & Larose, 2011). Women consistently show greater body dissatisfaction than men do (Fallon, Harris, & Johnson, 2014). This dissatisfaction is often expressed differently and needs to be studied separately, as women typically seek a ‘thin ideal,’ whereas men seek a ‘muscular ideal’ (Ferguson, 2013; McCabe & Ricciardelli, 2003).

**Prevalence of Body Dissatisfaction and Eating Disorders.**

**Estimate of body dissatisfaction.** Estimating the prevalence of body dissatisfaction is challenging due to significant limitations in the literature (Fiske, Fallon, Blissmer & Redding, 2014). In their meta-analysis, Fiske and colleagues (2014) found that many of the studies had inadequate samples, inconsistent psychometric tools, and poor operational definitions of body dissatisfaction. Accordingly, most of the primary studies included in their study based their findings on a single-item measure, which Fiske and colleagues (2014) identified as having poor psychometric properties. Further, inconsistent cut-off points for body dissatisfaction were identified throughout the studies, leading to a wide range of prevalence from 11% to 72% in women.

Many of the limitations identified in Fiske and colleagues’ review were addressed in a cross-sectional study by Fallon, Harris and Johnson (2014). Fallon and colleagues (2014) used an internet-based, opt-in survey of adults in the United Stated to assess body dissatisfaction prevalence. They used the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000) to assess dimensions such as body area satisfaction, appearance evaluation, fitness evaluation, health
evaluation, and overweight preoccupation. Fallon and colleagues (2014) identified the prevalence rates to be 13.4% to 31.8% among women. This difference is due to the inclusion of both conservative and liberal cut-off protocols of the MBSRQ (Cash, 2000): less than 2.75 and less than 3.0, as supported in the literature (Cash & Henry, 1995). Although Fallon and colleagues included a multidimensional measure assessing body dissatisfaction across adults, the majority of participants were white, middle aged, overweight adults. This is a significant limitation, as Grogan (2011) highlighted that body dissatisfaction likely varies across diverse subgroups.

In their review, Fiske and colleagues (2014) also found that only one primary study in their meta-analysis provided prevalence by ethnicity, suggesting that most reported prevalence rates may be limited to ethnically homogenized samples. This one study identified that, in comparison to white men and women, Hispanic and Black men and women had less body dissatisfaction (Frederick et al., 2006). In addition, other demographic factors, including body mass index differences, age groups, and sexual orientation, were only reported in single primary studies. One primary study found that increased weight in women led to higher body dissatisfaction (Frederick et al., 2006). Women between the ages of 18 and 34 had 6% to 9% lower body dissatisfaction than middle aged and older women (up to 69 years of age; Frederick et al., 2006). Moreover, heterosexual women had the highest prevalence of body dissatisfaction, followed by lesbian/homosexual women, gay/homosexual men, and heterosexual men in a systematic review study (Peplau et al., 2009). Considering that only two studies in this review provided differences
across subgroups in the United States, the generalizability of prevalence rates are questionable in a Canadian context.

Fallon and colleagues (2014) included subgroups based on age, ethnicity, and educational level. Despite the limited sample size of diverse subgroups, they identified a number of important trends that need further investigation. Both younger participants (18 to 24 years of age) and older adults (over 65 years of age) reported greater body satisfaction than middle aged adults, but not at a significant level, \( p < .08 \). Although white adults were found to be more preoccupied with overweight compared to black adults, the sample size was too inequitable to suggest prevalence differences. Similar to other studies, this study utilized a non-random convenience sample, not representative of the United States’ adult population. However, Fallon and colleagues (2014) suggested that future samples should utilize nationally representative samples that include diverse ethnic and educational populations.

**Eating disorder prevalence.** It is important to note that not all individuals endorsing body dissatisfaction develop clinical level symptoms of eating disorders. Body dissatisfaction is a core diagnostic criterion of all eating disorders, and thus it is important to understand eating disorder prevalence. According to an American survey, eating disorder prevalence rates among women are anorexia nervosa (0.9%), bulimia nervosa (1.5%), and binge eating disorder (3.5%; Hudson, Hiripi, Pope, & Kessler, 2007). As noted above, Canadian research on eating disorder prevalence is insufficient (House of Commons, 2014). However, Dr. Gail McVey, of the Ontario Community Outreach Program for Eating Disorders (OCOPED) and a
researcher at The Hospital of Sick Kids in Toronto, submitted a brief to the Standing Committee suggesting that as many as 600,000 to 990,000 Canadians, or 1.7% to 2.8% of the Canadian population, have clinical level eating disorders at any given time. Levine, McVey, Piran and Ferguson (2012) also reported the same statistic in their book on preventing eating-related and weight-related disorders.

To fully understand eating disorder prevalence, it is important to examine the continuum of disordered eating behaviours, from body dissatisfaction to disordered eating patterns, such as restrictive dieting, occasional binge eating, and compensatory behaviours, through to DSM-diagnosable eating disorders (Levine et al., 2012). Many individuals who do not meet diagnostic criteria for eating disorders exhibit significant eating disorder symptoms and substantial impairment (Mitchison & Hay, 2014). Considering this continuum, two Canadian studies have suggested that an additional 675,000 to 900,000 women, 15 to 29 years old could have significant subclinical, debilitating symptoms that do not meet criteria for an eating disorders (Jones, Bennett, Olmsted, Lawson, & Rodin, 2001; McVey, Pepler, Davis, Flett, & Abdolell, 2002). This means that well over one million Canadians, or over 5.2% of the population, are located along the continuum of disordered eating.

**Onset Rate**

In a recent longitudinal study identifying risk factors for eating disorders, increased body weight concerns resulted in an approximate 11% onset rate of sub-threshold and threshold eating disorders (Jacobi et al., 2011). This longitudinal study provides insight into eating disorder onset as well as a relatively representative and ethnically diverse sample comparable to both the United States
and Canada (Statistics Canada, 2006; United States Census Bureau, 2015). However, Jacobi and colleagues’ study (2011) has limitations in that the sample consisted of high-risk, college-aged women followed over three years from San Diego and San Francisco. Further, the researchers did not examine the moderating effect of ethnicity, and they did not acknowledge or account for socioeconomic differences of their sample. Again, due to these limitations, the study results should be interpreted with caution.

Both the body dissatisfaction and the eating disorder literature provide a wide range of prevalence rates. Despite a number of methodological strengths identified, there are a number of limitations that may contribute to this variability. Most notable is the use of homogeneous samples. More specifically, representative data from diverse socioeconomic populations are largely missing, and the identified prevalence rates are mostly generalizable to white, middle to upper class adults. In addition, Canadian specific prevalence rates are largely missing across these subpopulations, leading to limited understanding of the associated suffering and costs.

**Suffering and Costs of Body Dissatisfaction and Eating Disorders**

The associated suffering of women who are body dissatisfied is significant. Body dissatisfaction is related to depression (Brechan, & Kvalem, 2015; Stice et al., 2000), social anxiety (Cash & Labarge, 1996; Dakanalis, et al., 2014), sexual dysfunction (Carvalheira, Godinho, & Costa, 2016; Davidson & McCabe, 2005; Wiederman, 2012), suicidality (Kostro, Lerman, & Attia, 2014; Rodriguez-Cano, Beato-Fernandez, & Llario, 2006), and eating pathology (Delinsky, 2011; Rohde et al., 2015;
In addition, body dissatisfaction has been correlated with reduced likelihood of cancer screening self-exams (Ridolfi & Crowther, 2013), and increased pro-smoking attitudes and behaviours (Potter, Pederson, Chan, Auburn, & Koval, 2004). Considering that body dissatisfaction is on the continuum of disordered eating, the associated suffering experienced by women who are body dissatisfied aligns with the suffering and burden expressed in the eating disorder literature.

Eating disorders are among the most serious, yet misunderstood and persistent psychiatric illnesses. They impact not only individuals and families but communities as well, as they are also associated with great social costs due to significant attendant morbidities, mortality, relatively high health care service use, and poor quality of life (Jenkins, Hoste, Meyer, Conley, & Blissett, 2011; Keilen, Treasure, Schmidt, & Treasure, 1994; Mond et al., 2007; Winkler, Christiansen, Lichtenstein, Hansen, Bilenberg, & Støving, 2014). Eating disorders are associated with significant psychological and physical impairments, such as depression, anxiety, and substance abuse, and compromise the endocrine, skeletal, and cardiovascular systems (Academy for Eating Disorders, 2012; Fairburn & Harrison, 2003; Fischer & LeGrange, 2007; Hay & Mond, 2005; Mitchell, 2016; Stice, Hayward, Cameron, Killen, & Taylor, 2000).

Further underscoring the individual suffering and social costs of eating disorders, a population-based study estimated that the vast majority of people with anorexia, bulimia, or binge eating disorder also meet criteria for at least one additional DSM-IV-Axis 1 disorder, such as mood, anxiety, impulse control, and substance abuse disorders (Attia & Walsh, 2009; Herpertz-Dahlmann, Dempfle,
Konrad, Klasen, & Ravens-Sieberer, 2015; Hudson et al., 2007; Yao et al., 2016). In addition, mortality rates among cohorts of young adults with eating disorders are estimated to be 5% to 20% higher, on average, than the mortality rates associated with most other mental illnesses (Crow et al., 2009; Franko et al., 2013; Herzog et al., 2000; Hoang, Goldacre, & James, 2014; Huas et al., 2013; Sullivan, 1995; Suokas et al., 2014). One of the most common causes of death among people with eating disorders is suicide (Fichter & Quadflieg, 2016; Huas et al., 2013; Sansone & Levitt, 2002; Suokas et al., 2014; Westmoreland, Krantz, & Mehler, 2016). According to a recent meta-analysis by Chesney, Goodwin and Fazel (2014), anorexia, along with borderline personality disorder, depression, and bipolar disorder, had the highest suicide risks amongst all mental illnesses, which is approximately ten times higher than the general population’s risk (1.1 to 4.3%; Kessler, Borges, & Walters, 1999). Eating disorder mortality rates may even exceed those reported in the literature because the cause of death may not include the diagnosis of eating disorders that are directly related to the manner of the death, such as suicide (Arcelus et al., 2011), or as physical complications of the illness including organ failure (Fichter & Quadflieg, 2016), cardiac complications (Mehler, Kratz, Sachs, 2015; Trent et al., 2013; Westmoreland et al., 2016), gastrointestinal bleeding and malnutrition (Westmoreland et al., 2016).

Recent review evidence suggested that quality of life is also significantly impaired among those with subclinical and binge eating disorders (Jenkins et al., 2011). People with subclinical and binge eating disorders may also be affected by stressful living conditions, such as living in poverty. People with eating disorders tend to report more stress across home, personal, occupational, and social domains
(Franko, 2007), as well as more sadness and loneliness than do healthy comparisons (Crowther, Sanfter, Bonifazi, & Shepherd, 2001; Freeman & Gil, 2004). While they do not report more frequent daily hassles, they tend to report more intense feelings of stress, perhaps leading to eating disorder behaviours, such as binging, to distract from or cope with the stress of such hassles (Crowther et al., 2001). Considering the associated personal and social costs (Fischer & LeGrange, 2007; Hay & Mond, 2005; Stice et al., 2000; Striegel Weissman, & Rosselli, 2017), timely use of specialized eating disorder treatment can decrease the consequences of these costs.

**Impact of Unmet Treatment Needs**

Individuals with eating disorders have high unmet treatment needs (Striegel Weissman, & Rosselli, 2017). The resultant individual and societal costs associated with inadequate treatment utilization are significant. At the individual level, longer courses of eating disorders are associated with increased mortality rates and decreased recovery rates (Franko et al., 2013). Similar follow-up studies identified that up to 10% of people with anorexia will die within the first ten years, with the proportion doubling if the disease persists over 20 years (Hartman, 1995; Sullivan, 1995). Of interest, utilizing specialized services reduces both direct and indirect costs of this illness incurred over the lifespan of these individuals (Kessler et al., 1999; Stuhldreher, Konnopka, Wild, Herzog, Zipfel, Löwe, & König, 2012). Further, costs resulting from health care utilization and productivity loss are substantial for individuals with eating disorders (Stuhldreher, Wild, König, Konnopka, Zipfel, & Herzog, 2015). Indirect costs include reduced productivity from time lost from work and social activities, poor quality of life, and travel and childcare costs when
utilizing treatment. The direct costs include serious medical complications, long-term disability, acute care service utilization, and premature death.

The societal costs of eating disorder treatment are equally complex. According to Insel (2008), the costs of all mental disorders to the system are more indirect than direct compared to medical disorders. These systemic indirect costs are incurred through reduced labour supply, income support payments, and reduced educational attainment. Although there are little Canadian data on the economic burden of eating disorders, German data suggest that the hospitalization costs per eating disorder patient are more than triple average hospitalization costs (Krauth, Buser, & Vogel, 2002). In British Columbia, a 2003 study examined the cost of long-term disability among people with anorexia. The study estimated that the total annual cost of long-term disability payments ranged from $2.5 million to just over $100 million. These costs represented the lowest and highest benefits a person could receive under the disability program. The study noted that the high end of the range was 30 times the total yearly cost of all tertiary care services for eating disorders in the province (Su & Birmingham, 2003). A study from Australia estimated the financial costs associated with eating disorders are greater than that for anxiety and depression combined (Bailey, Parker, Colautti, Hart, Liu, & Hetrick, 2014). However, no recent studies outlining the costs of specialized eating disorder services for adults in Canada could be found by this author to expand on these statistics.

The economic burden of eating disorders has received minimal attention in international research literature, despite the importance of these data in making
appropriate decisions regarding resource allocation. This is due in part to a lack of primary data on the costs and outcomes of eating disorder treatment (Simon et al., 2005). Even though dated, a systematic review by Simon and colleagues in 2005 identified only six studies with data on cost of eating disorder service use. These six studies were from diverse countries that have different health care systems and often only reflected in-patient treatment. Many individuals with eating disorders utilize outpatient treatment and many more repeatedly utilize non-specialized eating disorder services. In a more recent review of 18 studies from predominantly the United States and Europe on cost-of-illness, Stuhldreher et al. (2012) reported that they were able to calculate that the annual disease-specific cost per patient ranged from USD 1,288 to 8,042 purchasing power parities. However, due to the heterogeneous methodological quality of the reviewed studies, it is difficult to confidently state the overall monetary cost. It can be assumed that based on the direct and indirect costs of eating disorders, inadequate utilization and unavailability of services will cost society more than timely and specialized care.

With the significance of the chronic disease risks, suffering, and social costs related with the continuum of eating disorders, including body dissatisfaction, researchers need to advance the understanding of barriers to more effective service utilization.
CHAPTER 2
LITERATURE REVIEW

Understanding service utilization for individuals at risk of developing eating disorders is crucial for the development of interventions and policies to address service barriers. In order to allocate funding in an equitable manner, the complexity of service utilization must be examined. Based on a generation of eating disorder research, there still seem to be large gaps in our understanding of these systemic contexts in Canada. Current understanding of barriers to eating disorder service utilization is examined. A proposed framework for examining service utilization is presented, and the strengths and limitations of this framework are examined in this section. The relevance for social work will be discussed.

Current Understanding of Barriers to Eating Disorder Service Utilization

Patterns of health service utilization in individuals with eating disorders are an essential indicator of clinical burden (Kessler et al., 1999). Specialized eating disorder treatment requires a multidisciplinary approach targeting medical, nutritional, and psychological interventions (Academy of Eating Disorders, 2012). Due to the complexity and severity of this disease, the Academy of Eating Disorders (2012) stipulates that health professionals must have expertise in eating disorders in order to provide optimal care. However, research reveals antithetical results between individuals with eating disorders utilizing general health services and individuals using specialized eating disorder treatment (Cachelin et al., 2000; Mond et al., 2007; Mond et al., 2009; Mond et al., 2010; Striegel-Moore et al., 2008).

Although eating disorder populations use health services, they are not being readily
identified or referred to specialized eating disorder treatment, thereby misusing other health and mental health service venues in the process (Evans et al., 2011; Johnson, Spitzer, & Williams, 2001; Mond et al., 2007). These venues include emergency room visits, family practitioner clinics, medical specialists, and general psychiatry. The economic burden of this misuse is even higher among individuals with eating disorders than other mental health service users. Indeed, research documents that individuals with eating disorders have higher general health services utilization than individuals with other forms of mental illness (Striegel-Moore et al., 2007; Thompson et al., 2004). However, it is not clear whether this applies to individuals from marginalized groups, i.e., lower socioeconomic status, non-White ethnicity, lower educational attainment, and lower income, because the results are based on White, economically advantaged homogenous samples. Further to this point, one American community-based study only gathered data from individuals holding a health care plan, omitting individuals who had Medicare, Medicaid, or no health insurance (Striegel-Moore et al., 2008). The use of homogeneous samples provides an inaccurate understanding of eating disorder service utilization in diverse populations.

Further evidence also suggests that individuals with eating disorders may seek treatment for weight loss (Evans et al., 2011; Johnson, Spitzer, & Williams, 2001; Mond et al., 2007) or for other health problems (Evans et al., 2011; Johnson, Spitzer, & Williams, 2001; Mond et al., 2007), rather than for their eating disorders (Klump et al., 2009; Simmons, Milnes, & Anderson, 2008). For instance, Mond and colleagues (2010) identified that, despite 60% of the eating disorder participants
not seeking treatment for an eating problem, more than 80% sought treatment for symptoms of anxiety and depression. Similarly, a community-based study showed that less than half of the eating disorder participants had received treatment for their eating disorder, yet over 70% of them received treatment for general mental health problems and/or weight loss (Mond et al., 2007). Interestingly, a qualitative study found that women were more likely to seek help for perceived overweight concerns, rather than for eating difficulties, yet would have been open to questions about their eating behaviours from health professionals (Evans et al., 2011). In such cases, these persons are not utilizing the appropriate treatment for their condition. Of more notable concern, the medical advice they receive may perpetuate their symptoms. For example, in cases of weight-loss the focus is placed on dieting and the medical advice given to lower body weight can perpetuate eating disorder symptoms, including body dissatisfaction.

Of significance, the majority of eating disorder individuals do not use specialized eating disorder treatment (Cachelin et al., 2000; Hudson et al., 2007; Kadzin et al., 2017; Mond et al., 2009; Mond et al., 2007; Mond et al., 2010; Rosselli et al., 2017). A recent systematic review conducted in Australia estimated that only about one of every four eating disorder sufferers ever actually seeks specialized medical or mental health eating disorder treatment (Hart, Granillo, Jorm, & Paxton, 2011). To offer some context, a similar research synthesis on people with depression estimated that 8 out of 10 seek treatment (Bristow & Patten, 2002). The treatment-seeking gap among people with eating disorders that was estimated by Hart and colleagues (2011) is probably an underestimate of the truth, as it was
based only on the experiences of those already diagnosed. In addition, nine of the studies came from the United States and five from Australia, and only three of the studies included in the meta-analysis used representative sampling methods. In addition, after pooling treatment seeking prevalence from multiple studies, Hart and colleagues (2011) estimated that up to 83% of individuals with eating disorders have unmet treatment needs.

Furthermore, this review highlighted that the complexity of service utilization comes from a number of barriers, including stigma as well as long wait lists and financial costs. Again, extant research underscores its current limitations and indicates the need for understanding barriers to utilizing mental health care in order to maximize treatment dissemination to individuals with eating disorders.

**Barriers to Service Utilization**

The majority of barriers identified in the eating disorder literature tend to focus on individual factors. For example, eating disorders are frequently unrecognized in primary care settings (Johnson, Spitzer, & Williams, 2001; Whitehouse, Cooper, Vize, Hill, & Vogel, 1992), yet typical explanations are individual factors, such as motivation, denial, and limited insight (Becker, Perole, & Eddy, 2009; Geller, Drab-Hudson, Whisenhunt, & Srikameswaran, 2004; Lipson et al., 2016; Vandereycken & Humckeck, 2008; Vitousek, Daly, & Heiser, 1991). Further to this point, no mention was made in these studies about whether or not there are adequately specialized eating disorder resources available in the geographic region, which may provide explanations for factors beyond individual factors. In addition, they did not acknowledge that clinical presentations may differ for diverse
populations, as found by Alegría and colleagues (2007) in their study of the effects of acculturation and enculturation of adult Latinos in the United States. Alegría and colleagues (2007) found that the current eating disorder diagnostic criteria might not be sufficient to capture the cultural differences in symptom presentation by Latinos. This can result in fewer instances of identification of eating disorders in primary health care, reduced referrals to specialized eating disorder services, poorer health outcomes, and a general lack of understanding of eating disorders in this population. Similarly, Franko, Becker, Thomas, and Herzog (2007) also found a lack of detection for visual minorities in their cross-cultural study on eating disorder symptoms between White, Black, Asian and Latino individuals. Considering these findings, it is likely that ethnic and cultural factors need to be considered when examining service utilization.

A recent prospective qualitative exploration of help-seeking behaviour amongst community women with bulimia-type eating disorders identified the following potential barriers: poor mental health literacy, shame and stigma, low motivation to change, cost, and negative belief about therapy (Evans et al., 2011). Even though systemic barriers such as cost were identified, many researchers continue to focus on individual factors that affect service utilization. Some researchers have even dismissed systemic claims. Cachelin, Rebeck, Veisel, and Striegel-Moore (2001) found that almost 60% of their sample identified financial difficulties as a barrier to seeking treatment. Despite this finding, the authors asserted that, “The lack of differences between groups in socioeconomic status and insurance coverage suggests that self-reports of not seeking treatment due to
finances and insurance may simply have been ready or convenient excuses” (p. 276). The authors do not address in their commentary the complexity of economic barriers, including the direct costs such as availability of funded treatment and indirect costs, such as time off work and travel. On the other hand, Becker and colleagues (2010) found that perceived barriers could be broken down into societal and cultural obstacles. Societal barriers include affordability and availability of services, whereas cultural barriers include shame, stigma, and social stereotypes, such as a “typical eating disorder weight” or “typical eating disorder ethnicity” (Becker et al., 2010). Even though ethnicity, education, income, and availability of specialized eating disorder services have been identified as barriers since the late 1980s (Cachelin et al., 2001), these factors have not been included in investigations. Very few studies of eating disorders have directly explored systemic barriers of service utilization (Reagan & Hersch, 2005; Striegel-Moore, 2005), with only a few referencing them as confounding variables related to symptomology and diagnosis. This was confirmed in a study which identified that education level significantly predicts remission from binge eating (Wilson et al., 2010). In addition, lower socioeconomic status and obesity are interrelated risk factors for binge eating disorder (Flegal, Carroll, Ogden, & Curtin, 2010; Marcus, Bromber, Wei, Brown, & Kravitz, 2007). Even though Becker and colleagues (2003) suggested that health care utilization may be correlated with socio-economic status or educational attainment, this conclusion may be invalidated due to the underrepresentation of ethnic minorities and lower socioeconomic groups in clinical samples (Franko,
Socioeconomic factors are salient correlates of eating disorders that have received little attention in Canadian data. Although in Canada there are some provincially funded programs, the distribution of these programs vary, leading to geographic barriers, additional travel, and other indirect costs, such as lodging close to treatment facilities, as well as increased wait-times due to demands. In a more recent study examining variables associated with health service utilization with bulimic-type eating disorders, Mond and colleagues (2009) addressed the issue of affordability of treatment in a narrower sense by limiting it to the direct cost issue without consideration of indirect cost. The authors suggested that because their American study site was a government funded outpatient treatment facility, cost was not considered as an issue. While publicly funded health care is ostensibly more accessible, other factors such as work schedule and transportation may still detract from a person’s ability to attend treatment (Raphael, 2009; 2010). Thus, individuals with lower-income levels may be most at risk of not receiving specialized eating disorder treatment.

Current understanding of barriers to service utilization largely focuses on individual factors, with minimal focus on broader socioeconomic factors. A model to understand how socioeconomic factors influence service utilization is needed in order to appropriately fund and service the needs of the population.

**Andersen’s Behavioral Model of Health Care Utilization**

The *Behavioral Model of Health Care Utilization* (Andersen, 1968) is one of the most frequently used frameworks for exploring use of health care services. Andersen developed this sociology-informed model to capture the various societal
and individual factors that impede or facilitate service utilization (Andersen, 1995). He posited that the model would be used to assist in developing policies to ensure equity in health care utilization (Andersen, 1995). The model has evolved over the past forty years to reflect growing research (Babitsch, Gohl, & von Lengerke, 2012) and has been subjected to extensive critiques (Aday & Awe, 1997) and numerous revisions (Aday & Andersen, 1974; Andersen, 1995; Andersen & Newman, 1973). Its fourth edition (1995) is the most frequently used (Babitsch et al., 2012) in current literature and research.
Figure 1. Andersen’s Behavioral Model of Health Care Utilization (1995)
Andersen’s behavioural model employs a systems perspective to integrate various individual and environmental variables associated with utilizing health care services (See Figure 1 for Andersen’s 1995 model). This fourth edition of the model demonstrates an interactive relationship among the major components. Beginning with the environment, this model highlighted that the health care system influences population characteristics as well as health outcomes. The model includes the societal and healthcare system context and three main individual factors to predict health care use, including: (1) predisposing factors (demographics, social structural, and attitudinal-beliefs), (2) enabling resources (family resources and community characteristics), and (3) need factors (perceived and evaluated illness). These three individual factors are influenced by the health care system and determine an individual’s utilization of health care services (Andersen, 1995).

*Predisposing factors* are socio-cultural characteristics, such as age, gender, and ethnicity which are present prior to the onset of the specific illness. Andersen (1995) has suggested that these characteristics influence an individual’s propensity to utilize health care and resultant satisfaction with health services.

*Enabling factors* are the resources found within the family and community which facilitate or inhibit health service utilization (Andersen, 1995). Examples of enabling factors are income, education, geographic location, employment status, and type of insurance plan. This factor also encompasses availability of health service and the individual’s indirect and direct financial costs for services.
**Need based factors** are those related to the perception of need for health care services due to functional and health problems (Andersen, 1995). How individuals perceive their own health and mental health is believed to impact health care utilization. In addition, this model examines the bidirectional relationship of individual behaviours between service utilization and their related outcomes, in their individual behaviours, their service utilization, and their resultant satisfaction, each of which actively influence one another.

Andersen (1995) identified that based on the various predisposing characteristics, enabling resources and need factors, individuals would use health services, such as visiting a family doctor, or visiting a mental health professional, or engaging in personal health practices in order to improve their health. Personal health practices are behaviours that individuals engage in to influence their health status (Andersen, 1995; Phillips, Morrison, Andersen, & Aday, 1998) such as diet and nutrition, exercise, self-care, and stress reduction. Phillips and colleagues (1998) hypothesised that these personal health behaviours would differ depending on the population and types of care studied.

**Outcomes of health behaviour** are also included in this model. Outcomes include perceived health status, or an individual’s assessment of their health, evaluated health status, or professional assessment of functioning and consumer satisfaction and unmet needs (Andersen, 1995). These outcomes can vary depending on the type of measure used by the researcher and/or practitioner (Phillips et al., 1998).
Finally, Andersen’s model includes a feedback loop such that both service utilization and outcomes provide feedback to individual behaviours. For example, if an individual has poorer perceived health after contact with ambulatory care, they may be hesitant to use those services a second time. This model’s inclusion of a feedback loop is essential for evidence-based practice.

Andersen’s framework has been adopted by biomedical researchers and applied to various populations to organize and understand factors affecting service utilization (Erickson et al., 2002; Gilbert, Branch, & Longmate, 1993; Lemming & Calsyn, 2006; Pandiani et al., 2005; True et al., 1997; Wu et al., 2001). A systematic review by Babitsch and colleagues (2012) found that Andersen’s model has been used to explain predictors of health care utilization within the general population, the elderly, adults with low incomes, immigrant populations, and those with mental illness. In addition, it has been investigated in numerous systematic reviews on varying aspects of health care utilization (deBoer, Wijker, & de Haes, 1997; Kadushin, 2004; McCusker, Karp, Cardin, Durand, & Morin, 2003; Phillips et al., 1998).

This same review by Babitsch and Colleagues (2012) found that predisposing factors were most frequently cited as being significantly associated with health service utilization. Furthermore, they identified that the way in which individual factors are operationalized varies tremendously between studies. Many enabling and predisposing variables have been labelled interchangeably or have been completely omitted from studies. Babitsch and colleagues (2012) suggested that these decisions are often made due to data availability, as most studies were using
secondary data that limit variable options. However, Andersen (2007) stated that the relative importance of each of the model components may differ based on the specific situations under which health care may be needed and the type of health service being utilized. Interestingly, enabling factors were studied less frequently, which is consistent with the scarce research on economic barriers to service utilization in eating disorder literature. At the same time, few studies that included enabling factors found that low income was associated with diminished service utilization and that need factors positively predicted service utilization (Babitsch et al., 2012).

Unfortunately, the focus on individual behaviours has also resulted in omitting the socio-environmental contextual component of this utilization model (Phillips et al., 1998). A systematic review of the environmental and provider-related variables in Andersen’s behavioural model of utilization by Phillips and colleagues (1998) identified that only 14% of 139 studies analyzed the societal health care context. This trend appears to have continued in the last 17 years. In a recent systematic analysis of studies employing Andersen’s behavioural model of utilization published between 1998 and 2011, Babitsch and colleagues (2012) found only two studies that emphasised contextual and community variables. As a result, Babitsch and colleagues’ (2012) systematic review predominantly focused on the individual predisposing, enabling, and need factors. Although they did suggest that the use of secondary data might have pragmatically influenced the focus on individual factors, they did not take the opportunity to provide future research needs that consider contextual understanding. This repeated focus on individual
behaviours in health care research creates too narrow a view on treatment and does not acknowledge broader aspects of the health care system, including the political, economic, and social forces that shape health care policy and service delivery (Bryant, Leaver, & Dunn, 2009).

Despite variations in both the aspects of the model represented, and the variables used to operationalize the data, researchers have consistently found that using Andersen's model explains disparities in service utilization and health outcomes among diverse populations. Further, the model's characterization of predisposing, enabling, and need factors has simplified the interpretation of study results without compromising the model's capacity to differentiate among systemic and population level influences on health service utilization. Andersen's model has proven useful for longitudinal, and cross-sectional designs and lends itself to using secondary or primary data. Furthermore, researchers have demonstrated that the findings from studies using the Andersen framework are instrumental in developing clinical guidelines, health policy recommendations, and public health interventions to ensure access to care services among different populations (Babitsch et al., 2012). As such, this dissertation will apply this well-researched and established model (Andersen, 1995) to women at risk for developing eating disorders in Canada.

The current conceptual framework aims to apply Andersen’s well-established behavioural service utilization model to existing eating disorder literature. It will illustrate how current understanding of eating disorder service utilization and barriers must be informed by the various socioeconomic contexts. In addition, integrating broader environmental and population specific factors is
essential to understanding the service utilization in Canada. Viewing Canadian
eating disorder service utilization through a complex lens that includes
environmental and behavioural factors will offer a new, more contextualized
perspective that leads to a more integrative, systemic understanding.

**Application of Andersen’s Behaviour Model to Eating Disorder Population**

Andersen's behavioural model of service utilization will be applied to the
current eating disorder literature in order to understand the complexity of service
utilization for diverse populations. Please refer to Figure 2 for the application of this
model.
Figure 2. Application of Andersen’s Behavioural Model of Health Care Utilization
Environmental Factors: Canadian Health Care System

Understanding the health care system is important because a universal single-payer health care system, such as that adopted by Canada, will impact the population and influence utilization differently than a multi-payer system, as exists in the United States. Situating the problem in an appropriate context is essential to understanding eating disorder service utilization and the potential barriers that exacerbate individuals utilizing essential services.

Beginning with the environmental or systemic variables, this model highlights the fact that the health care system influences population characteristics as well as health outcomes. In order to understand Canadian service utilization of individuals at risk of developing eating disorders, it is necessary to understand the multilayered (federal, provincial, and private) nature of the Canadian health care system. The Canadian health care system operates within a single-payer, public system with the majority of direct health care costs being paid by the 13 provincial/territorial governments (Parliament of Canada, 2005). The main role of the federal government is to regulate adherence to the principles of the Canadian Health Act (CHA) and to ensure that comprehensiveness, universality, portability, and accessibility are met for all medically necessary treatments (Parliament of Canada, 2005). Comprehensiveness means that individual provinces should insure all services that are medically necessary (Parliament of Canada, 2005). The act does not define these services, or the quantity of these services, leaving the decisions to the provinces. On the other hand, universality suggests that all residents must have
uniform access to public health care insurance (Parliament of Canada, 2005). Portability refers to services provided to residents when they are out of province. The act identifies that the provincial governments negotiate the costs of services rendered when services are provided outside of the resident’s province (Parliament of Canada, 2005). Finally, the act requires service to have accessibility. This means that all residents must have reasonable and uniform access to insured health services, free of financial or other barriers. In addition, access to services must be free from discrimination based on income, age, and health status (Parliament of Canada, 2005).

Although the federal government stipulates these conditions, there is great autonomy within the provinces. Most health care is publicly funded through Medicare but privately delivered by physicians (Marchildon, 2005). This allows physicians to have clinical autonomy and control over their medical practice as long as they conform to the standards set by the CHA. The majority of provinces/territories further decentralize the planning and provision of services to regional governing bodies (Marchildon, 2013). For example, in Ontario 14 geographically based Local Health Integration Networks (LHINs) were created in 2006 to monitor finances and performance of publically funded community service agencies. Although accountability is essential in this public system, decentralization has given discretion to individual governing bodies to determine which community care services will be provided or funded by the government.

In a review of the Canadian health care system, Marchildon (2013) identified that decentralization leads to decreased accountability and may contribute to
continued inequitable health care use. Even though decentralization creates the opportunity to understand the geographic and population needs specific to each region, it has been argued that it exacerbates inequalities across regions due to different tax bases (Tresch, 2002). In fact, Jiménez-Rubio, Smith, and Van Doorslaer (2008) identified that within area variation is the source of income-related health inequalities, which is driven by differences between provinces. The Fraser Institute (2013) confirmed the discrepancy across provinces and demonstrates the importance of examining potential systemic variation in inequities when examining service utilization. Between-province differences are in direct conflict with the Canadian Health Care Act’s principle on universality.

In addition to between-province differences, decentralization reduces the opportunity for collective health care advocacy. Federal requests can be deferred to the provinces, which in turn can be deferred to local regions, reducing collective power. This may provide insight into the reasons preventing the governmental report of the Standing Committee to provide solutions to the unmet health care needs of the eating disorder population at the national level. Although prevention and equitable accountability are provisions of the federal government, the requests put forward in the report deferred responsibility to the decentralized authorities (Marchildon, 2013). Understanding the Canadian health care system helps situate potential barriers and protective factors experienced by individuals.

**Individual Factors**

Many of the predisposing, enabling, and need factors identified in Andersen’s behavioural model are maintained in this study. While Andersen’s model labels
these factors as ‘individual,’ this author argues that the structural and hegemonic influences are always present. For example, although household income are experienced at the individual level, neoliberal capitalism is coincident with a transfer of wealth from the less affluent to the wealthy (Hicks, Peters, Corner & London, 2010). In other words, poverty can be traced back to structural factors inherent to either the economy and/or to several interrelated institutional environments that serve to favour certain groups over others, generally based on gender, class, or ethnicity (Hicks et al., 2010; Mullaly & West, 2018). Considering many researchers have removed or redefined these factors with success (Babitsch et al., 2012), this model proposes to only utilize eating disorder relevant factors to make the framework population specific. General research pertaining to these factors will be reported along with relevant eating disorder research.

**Predisposing factors.** Predisposing factors are predetermined characteristics that lead to more service use than others, even though these characteristics are not directly responsible for the use (Andersen & Newman, 2005). Gender, age, and ethnicity are the most relevant and frequently investigated predisposing factors in the eating disorders literature.

**Gender.** Research has demonstrated differences in health care utilization when examining gender. After pooling data from primary studies, Babitsch and colleagues (2012) found positive associations between being female and health service use. This was also confirmed by Ojeda & Bergstresser (2008), where men identified fear of stigmatization as barriers to mental health service utilization. In addition, women tend to more frequently perceive themselves as more distressed
than men (Mojtabai, 2008), with Han and colleagues (2011) finding a positive association between female gender and serious psychological stress. Despite these findings, it is important to explore the relationship between gender and service utilization within the population context.

Women generally have a ten-fold greater risk for eating disorders than men (Hudson et al., 2007; Smink, van Hoeken, Oldehinkel, & Hoek, 2014; Striegel-Moore, 1997). It is important to note that their much greater risk may not merely be due to being women, but to the interaction of larger social forces with gender, resulting in the experience of more appearance related stress among women through society setting unrealistic and unachievable weight standards. However, men with eating disorders and body dissatisfaction may have immense stigma to overcome due to the feminisation of eating disorders, leading to lower treatment utilization and later eating disorder detection (Ming, Shian, Cen, Lian, & Kim, 2014; Strother, Lemberg, Stanford, & Turberville, 2012).

However, when examining body dissatisfaction literature, women often show greater body dissatisfaction than men (Fallon, Harris, & Johnson, 2014). This dissatisfaction is often expressed differently and will need to be studied differently, as women typically seek a ‘thin ideal,’ whereas men typically seek a ‘muscular ideal’ (McCabe & Ricciardelli, 2003). This leads women to feel self-critical while men feel self-hopeful (Fanzoi, Vasquez, Sparapani, Frost, Martin, & Aebly, 2012).

Gender does not exist independently of other contextual elements. According to recent statistics in Canada, compared to men, women represent the majority of individuals living in poverty at 12% of the population (Statistics Canada, 2009). As
such, certain contextual factors may potentiate stress and resultant coping
behaviours. For example, additional stressors experienced by women living in low-
income environments, in concert with society’s pervasive unachievable thin
standards, could contribute to poor women engaging in unhealthy eating disorder-
related coping mechanisms at greater rates than higher income women.
Incorporating this with the consistent finding that relatively deprived or
impoverished women will often further compromise their own health to care for
their families (Graham & Der, 1999), low-income women with eating disorders may
be less likely to utilize health and mental health services.

Age. Because of the strong negative correlation between age and an
individual’s physical health (Andersen et al., 2002; Ani, Bazargan, Bazargan-Hejazi,
Andersen, Hindman, & Baker, 2008; Chen, Kazanjian, & Wong, 2008; Dhingra et al.,
2010; Hochhausen, Le, & Perry, 2011; Stockdale, Tang, Zhang, Belin, & Wells, 2007;
Surood & Lai, 2010), age is a predictor for general health service use. However,
there is conflicting evidence for age as a predictor for mental health service
utilization. Some research shows a curvilinear association, where middle aged
people use services more than those who are younger or older (Leaf et al., 1985),
while others show no relationship between age and utilization (Lefebvre, Lesage,
Cyr, Toupin, & Fournier, 1998; Rhodes, Goering, To, & Williams, 2002). Another
Canadian study found that being between 25 and 44 years of age, female, and
unmarried predicted higher mental health service use (Lin, Goering, Offord, &
Campbell, 1996). It is suspected that specific population characteristics, such as
mental health status, may inform how age influences service utilization, rather than
age as an independent construct. One study found that older adults were less likely to use alcohol, drug, and mental health treatment than younger adults (Stockdale et al., 2007) but were more likely to have a higher number of visits with a general practitioner (Blackwell, Martínez, Gentleman, Sanmartín, & Bethelot, 2009).

Age is particularly important when researching eating disorders, as a large body of research has focused on adolescent to young adults (Klump, Burt, McGue, & Iacono, 2007; Lewinsohn, Striegel-Moore, & Seeley, 2000). However, eating disorders clearly persist well into adulthood and their onset may, in fact, be placed later among the members of some ethnic minority groups as compared to Caucasians (Pike et al., 2001). Few studies have accounted for such probable chronicity and studied eating disorders over the life course (Conceicao, Gomes, Vaz, Pinto-Bastos, & Machado, 2017). As a result, we have little knowledge about eating disorders among middle aged or older adults. Unfortunately, such limited understanding could interfere with effective surveillance, diagnosis, and ultimately service utilization experienced by certain groups of people with eating disorders. In addition, due to the dearth of knowledge of eating disorders among older populations, fewer specialized eating disorder treatment services may be available to this group.

**Ethnicity.** A salient characteristic to examining eating disorder service utilization is ethnicity. Ethnicity appears to be aligned with differences in service utilization, systemic barriers, such as cost, availability of treatment, and biases in recommending certain treatment, and individual barriers, such as health beliefs and difference in symptom recognition (Sala, Reyes-Rodriguez, Bulik, & Bardone-Cone,
2013; Smedley et al., 2002). In fact, lower service utilization by ethnic minorities has been repeatedly noted (Andersen et al., 2002; Chen et al., 2008; Dhingra et al., 2010; Nabalamba & Millar, 2007; Stockdale et al., 2007) in the health care field in general.

In the eating disorder literature, ethnic minority populations are reported to receive less specialized eating disorder treatment than White women (Becker, Franko, Speck, & Herzog, 2003; Burke et al., 2017; Cachelin & Striegel-Moore, 2006; Cachelin et al., 2000; Franko, Becker, Thomas, & Herzog, 2007; Lee-Winn, Mendelson, & Mojtabai, 2014; Marques et al., 2011; Pike, Dohm, Striegel-Moore, Wilfley, & Fairburn, 2001; Tareen, Hodes, & Rangel, 2005; Waller et al., 2009). In fact, as little as five percent of eating disorders clinic patients are minority women, even in cities with large minority populations (Cachelin et al., 2000). Cachelin and colleagues’ (2000) community-based study of women with disordered eating identified that despite the presence of psychological stress and disordered behaviours, such as laxative misuse, those in the eating disorder group were less likely to receive treatment than matched, non-eating disorder controls. In addition, the eating disorder group, consisting of 93 visible minorities and 25 Caucasians, reported that they had been denied treatment compared to the controls, with less acculturated individuals receiving the least amount of treatment. According to studies using community-based samples, ethnic minority women were less likely to have sought treatment (Cachelin et al., 2006; Lee-Winn et al., 2014) and to have been referred for treatment or treated for eating difficulties (Cachelin et al., 2006; Cachelin et al., 2000; Pike et al., 2001). In addition, Cachelin and colleagues (2000)
conducted a community-based study of Hispanic, Asian, Black, and White women and found that only 19% of the women with disordered eating patterns had received any specialized eating disorder treatment in the past year. Pike and colleagues (2001) found similar findings when comparing Black binge eating women with White binge eating women. In this community-based study, both groups of Black and White binge eating women experienced significant impairment in clinical functioning, yet Pike and colleagues (2001) identified that "racial differences in clinical presentation underscore the importance of considering race in psychopathology research (p. 1455).” However, Cachelin and colleagues (2006) added that Mexican Americans were less likely to have sought help for eating problems, were less likely to be diagnosed, and were more likely to see general health practitioners for weight concerns, compared to European Americans, who were more likely to seek treatment and be diagnosed, and were more likely to use a psychotherapist, psychiatrist, and psychotropic medication.

Not only do these community-based studies identify inequitable eating disorder utilization, they also identify structural problems in clinical bias. Studies utilizing national databases also identified similar inequities (Becker et al., 2003; Marques et al., 2011). Using pooled American data from the National Psychiatric Epidemiological Study, Marques and colleagues (2011) identified that mental health service utilization was lowest amongst ethnic minorities with eating disorders, compared to non-Latino Whites with eating disorders. Similarly, Becker and colleagues (2003) identified treatment inequity for both Latinos and Native Americans, including clinical biases, such as lower eating disorder treatment
referrals and generally less inquiry into eating disorder symptoms compared to Whites. Both community-based and nationally based studies highlight that ethnic minorities are less likely to seek, be referred to, or receive specialized treatment. However, all of these studies were conducted in the United States.

It is impossible to examine the relationship between income and service utilization without looking at the intersection of ethnicity and income. According to Mikkonen and Raphael (2010), individuals who identify as visible minorities experience higher unemployment, lower incomes, higher incidence of mental health problems, as well as housing and food insecurity (Mikkonen & Raphael, 2010; Raphael, 2016). Similarly, individuals who identify as visible minorities and who have relatively lower socioeconomic status have higher rates of mental illness and other health problems (Mikkonen & Raphael, 2010). Gallo and Matthews (2003) argued that such socioeconomic status-related health disparities are likely mediated by a number of interacting psychosocial, biological, and behavioural pathways. In their comprehensive review, Smedley, Stith, and Nelson (2002) identified differences in availability, access, and utilization of a range of health services, and how patient level variables (e.g. health beliefs, differences in symptom recognition, system mistrust) contribute to differences in care, especially in ethnically diverse populations. They go on to identify how health care system variables (costs, availability of treatments, language barriers) and health care process level variables (e.g., biases in recommending certain treatment) contribute to these differences. Other mental health studies supported the finding that lower health care utilization is correlated with ethnic minorities (Andersen et al., 2002; Chen et al., 2008;
Dhingra et al., 2010). In fact, Dhingra and colleagues (2010) identified that health service utilization is socially patterned, with low income, ethnic minorities utilizing the fewest health services in the United States. This was consistent with the findings of Andersen and colleagues (2002), whose American-based national study highlighted that low-income populations were disproportionately represented by ethnic minorities. Another American study examining mental health service use in insured, non-poor communities found that Caucasian people were 1.7 times more likely to use services than African American and Hispanic individuals (Padgett & Brodsky, 1992). In a Canadian national health survey the findings were similar: visible minorities were found to be less likely to use specialist consultation compared to Caucasians (Nabalamba & Millar, 2007).

Considering the demonstrated intersection of income and ethnicity, and the impact of socioeconomic factors on service utilization, Canadian data are necessary to inform research, policy, and practice.

**Enabling factors.** In Canada, research shows persistent differences in health utilization between advantaged and disadvantaged populations (Wilkins, Berthelot, & Ng, 2002), including availability and use of essential health services (McGibbon et al., 2008). Although not an empirical study, McGibbon and colleagues (2008) provided a nursing report on how utilizing a social justice perspective informs the ways in which inequities are created and maintained. A social justice perspective highlights the value of collective responsibility for equitable distribution of services (Canadian Association of Social Workers, 2005). McGibbon and colleagues’ (2008) report found inequity between different Canadian subpopulations. Dennis Raphael
(2008; 2009; 2016), a leading Canadian social scientist in health policy and inequity who has over 250 scientific publications focusing on the health effects of income inequity, social determinants of health, and the impact of government decisions on Canadians’ health and wellbeing, has consistently identified that differences in health care utilization exist. Persons most vulnerable to experiencing material or social disadvantages and poorer health care utilization include low-income individuals and those with lower educational status, with these disadvantaged groups being disproportionately represented (Myers, 2009; Raphael et al., 1999; Raphael, 2009; 2010; 2016).

According to Andersen’s (1996) framework, enabling factors include features that support or restrict an individual’s decision to utilize services, such as the socioeconomic factors of income and education level and related influence of marital status and household size.

**Income.** Andersen’s behavioural model (1995) includes income as an enabling factor that either inhibits or promotes service utilization. Even if individuals want health care services, they must have the means to access services (Andersen & Newman, 1973). The empirical literature consistently supports the relationship between income and differential health outcomes (Chapman, 2010; Goldman, 2001; McIntosh, Finès, Wilkins, & Wolfson, 2009; World Health Organization, 2008). Even if individuals want health care services, they require a certain level of financial means to use these services (Andersen & Newman, 1973). Epidemiological studies in general mental health fields have long shown that demographic and socioeconomic factors influence equitable service utilization.
Mackenbach and colleagues (2008) compared inequalities in health in 22 European countries and found that inequalities in access to quality general health care impact mortality.

Despite access to national health care, Canadians from the lowest incomes are 50% less likely to see a specialist and are 40% more likely to wait at least five days for an appointment with a primary care physician (Mikkonen & Raphael, 2010). In addition, individuals may not be able to fill a prescription due to cost, pay for needed services that may not be covered by health care, or access transportation to appointments. This may result in health problems not being identified or treated, progressing to a complex stage of disease, and ineffective prevention initiatives. Andersen (1995) suggested that individuals with low income do not have the means to afford treatment. As such, living in poverty and having unmet basic economic and social needs may present significant challenges when utilizing health care.

Despite the general health and mental health literature suggesting that income is a significant predictor of service utilization, this relationship is not clear in the eating disorder literature. After reviewing 20 years of research on the relationship between socioeconomic status and eating disorders, Gard and Freeman (1996) found that lower socioeconomic status was associated with lower service utilization of specialized treatment for eating disorders. This meta-analysis utilized socioeconomic classifications to categorize the primary studies, so it is unclear how income alone influences service utilization. Although inequities in service utilization were identified, this review is over twenty years old. A potential reason for the scarcity of studies may lie in the fact that eating disorders have typically been
thought to be associated with higher social strata (Austin, 2011). This assumption has produced many critiques (Austin, 2011; Gard & Freeman, 1996).

In 2011, Austin wrote a commentary for the American Journal of Public Health in which she attempted to dismantle many eating disorder myths, including the idea that eating disorders are tied to a higher socioeconomic status. Austin (2011) reported that there is no evidence that eating disorders are connected to higher socioeconomic status and that there is a paucity of eating disorder literature exploring socioeconomic status in general. Gard and Freeman’s (1996) systematic review revealed that methodological flaws might have affected the validity of the relationship between socioeconomic status and eating disorders (Gard & Freeman, 1996). More specifically, sampling bias was a common problem, with one study basing this higher socioeconomic claim on eight patients (Kendell, Hall, Hailey, & Babigian, 1973) and another excluding numerous patients based on lower severity of illness, leaving an extremely small sampling size (Morgan & Russell, 1975). Moreover, despite their study being frequently referenced for this association, Morgan and Russell (1975) questioned the generalizability and validity of their own findings due to sampling error, as all participants came from higher social classes. As such, Gard and Freeman's (1996) review alludes to the fact that if researchers use homogeneous economic samples, they will continue to find limited support for differences in eating disorder presentation and service utilization due to socioeconomic status. Despite these critiques, studies have produced contradictory results on the socioeconomic status and eating disorder relationship.
For instance, one study, Ogden and Thomas (1999), supported the relationship between higher socioeconomic status and eating disorders. However, as Gard and Freeman’s (1996) review found, this study had a number of limitations that lead to questions of generalizability, including utilizing 13 to 16 year old females from one private school and one state-run school in the United Kingdom. Some studies have found no relationship at all (Rogers, Resnick, Mitchell, & Blum, 1997; Wildes, Emery, & Simons, 2001). For example, Rogers and colleagues (1997) used large community samples of adolescent females, whereas Wildes and colleagues’ (2001) results came from a meta-analysis of ethnically diverse adolescences and women. Both articles claimed that eating pathology exists equally along the socioeconomic continuum.

However, more studies have found inverse relationships, where lower socioeconomic status was associated with higher eating pathology (Freeman & Gard, 1994; Reagan & Hersch, 2005; Richardson, Elliott, Waller, & Bell, 2015; Story, French, Resnick, & Blum, 1995). A recent longitudinal study from the United Kingdom identified that greater financial difficulty predicted persistence of poor eating disorder symptoms over time (Richardson et al., 2015). Richardson and colleagues (2015) followed 444 undergraduate students in Britain for one year and identified that baseline financial difficulties significantly predicted higher eating disorder symptoms later in the year. Similarly, Story and colleagues (1995) utilized a comprehensive health survey for students in grades 7 through 12 in Minnesota and identified that higher socioeconomic status was associated with lower pathological weight control behaviours, such as purging. Freeman and Gard (1994)
conducted a prevalence study in a young homeless population in which they found that of the 83 homeless interviewed, 19.1% of them had eating disorders, surpassing the general population risk of 6% in females (Hudson et al., 2007). Although these studies have limited generalizability due to specialized samples, the findings were confirmed in a cross-sectional study of adults from Detroit, Michigan, where women from lower incomes were more likely to engage in binge eating (Reagan & Hersch, 2005).

Although some of these papers are dated, and others are commentaries or utilize non-generalizable samples, they do identify the need to examine the association of income on service utilization in eating disorders.

**Education.** Higher education has been found to be significantly associated with health care utilization (Andersen et al., 2002; Blackwell et al., 2009; Chen et al., 2008). In Canada, those most vulnerable to low health care utilization tend to be people with lower educational status (Raphael, 2009; 2016). In another study of Canadian and American adults, lower education and lower income were associated with fewer contacts with physicians (Chen et al., 2008). However, lower education has also been associated with more mental health service utilization (Dhingra et al., 2010). This contradictory correlation may be reflective of the disproportionate number of individuals with mental illness living in a lower socioeconomic environment (Hudson, 2005). Consistent with other factors, complex interactions exist. For example, ethnic minority and lower education status have been associated with lower service utilizations (Andersen et al., 2002; Chen et al., 2008; Hammond, Matthews, & Corbie-Smith, 2010). Again, eating disorder literature is limited, yet it
has highlighted that education is a factor that influences service utilization (Becker et al., 2003; Cachelin et al., 2001; Thompson-Brenner et al., 2013).

**Marital status.** Body dissatisfaction has been found to occur equally amongst single and married women (Friedman, Dixon, Brownell, Whisman, & Wilfley, 1999). While literature on the relationship between marital status and service utilization amongst eating disorder populations are limited, one study suggested that women who live with a partner present with greater eating disorder symptomology and an even higher motivation to change (Bussolotti, Fernandez-Aranda, Solano, Jimenez-Murcia, Turon, & Vallejo, 2002). It has been cited that the relationship between eating disorders and marital status is clearly under researched (Dimitropoulos, Lackstrom, & Woodside, 2007).

While the eating disorder literature is clearly limited, marital status has been repeatedly found to be associated with utilization of health care services (Ani et al., 2008; Chen et al., 2008; Dhingra et al., 2010; Hammond et al., 2010; Insaf, Jurkowski, & Alomar, 2010; Parslow, Jorm, Christensen, & Jacomb, 2002). For instance, one study that examined health care service utilization among Latino women in the United States indicated that unmarried women were more likely to postpone care, than women who were married (Insaf et al., 2010). Similar findings were identified in an Australian study (Parslow et al., 2002) and mental health service utilization studies (Dhingra et al., 2010). A Canadian study of Chinese immigrants identified that single women had the lowest rate of mental health care utilization compared to married women (Dhingra et al., 2010).
Household size. Household size is an important enabling factor for utilization of health care. While eating disorder literature tends to focus on family functioning (Holtom-Viesel & Allan, 2014) and family-based treatment (Downs & Blow, 2013), understanding the relationship of household size with eating disorder service utilization is extremely limited. While eating disorder literature has a different focus, the general health literature has identified that women from larger households underutilize various health care services (Kim & Lee, 2016; Wong, Popkin, Gullkey, & Akin, 1987). It has been suggested that this underutilization is likely due to the many demands on women’s time, as well as resource constraints (Kim & Lee, 2016).

Perceived need factors. Perceived need has been found to be the strongest predictor of service utilization (Andersen & Newman, 1973; Blackwell et al., 2009; Dhingra et al., 2010; Lefebvre et al., 1998). Perceived need includes how individuals view their own health and mental health, as well as how they perceive symptoms and their need for treatment (Andersen, 1995; Andersen & Newman, 1973). One study examining service utilization for individuals struggling with their mental health found that self-perceived mental health was a significant predictor in determining service use (Lefebvre et al., 1998). This finding was supported repeatedly in the literature (Blackwell et al., 2009; Dhingra et al., 2010; Kessler et al., 1999; Leaf et al., 1985; Lin et al., 1996). Similarly, symptom severity is associated with increased likelihood of seeking eating disorder treatment (Lewinsohn et al., 2000). Individuals who are dissatisfied with their body or eating behaviours would be more likely to seek out services. It is important to note that severity of illness
may influence individuals with eating disorders seeking treatment. For example, individuals with Anorexia Nervosa may in fact feel satisfied with their diminished size and not wish to seek treatment.

**Service Utilization and Outcomes**

Utilizing specialized treatment is essential in minimizing the significant effects of eating disorders (Klump et al., 2009; Simmons et al., 2008). Predisposing, enabling, and need factors are proposed to be in a synergistic relationship, where they influence and are influenced by service utilization and outcomes. This relationship is supported and included in Andersen's behavioural model (1995). This relationship was explored through building complex models.

**Service utilization.** Service utilization can be characterized by purpose (i.e., mental health care; Andersen & Newman, 2005). Service utilization has been operationalized in two ways in the eating disorder literature: (1) the use of health services, measured by whether or not an individual has visited a general practitioner in the past year and (2) mental health consultation measured by whether or not an individual has consulted with any health professional regarding mental health in the last year. Individuals with eating disorders have high service utilization, yet they often do not use specialized eating disorder services (Cachelin et al., 2000; Mond et al., 2009; Mond et al., 2007; Mond et al., 2010; Striegel-Moore et al., 2008). What most studies found is that individuals will seek out health and mental health services for weight loss and depression rather than for their eating disorders (Evans et al., 2011; Johnson et al., 2001; Klump et al., 2009; Mond et al., 2007; Simmons et al., 2008; Striegel-Moore et al., 2005).
Outcomes. Consistent with Andersen’s behavioural model (1995), outcomes are included in this framework to demonstrate their relationship with the various predisposing, enabling, and need factors and type of service utilization. There is one type of outcome included in this study: unmet needs. Unmet needs are self-reported. Unmet treatment needs are associated with reduced productivity from time lost from work and social activities, poor quality of life, medical complications, including death, long-term disability, and acute care service utilization (Franko et al., 2013; Kessler et al., 1999; Stuhldreher et al., 2012). Ojeda and Bergstresser (2008) identified that adults with mental illness were ten times more likely to report unmet needs when compared to adults without mental illness. In addition, these unmet needs have been attributed to psychosocial, financial, and utilization barriers (Karlin et al., 2008; Ojeda & Bergstresser, 2008). In fact, unmet needs for mental health services are disproportionally reported by disadvantaged populations, such as those living in poverty, with low educational attainment, and ethnic minority status (Jones, Lebrun-Harris, Sripipatana, & Ngo-Metzger, 2014). Considering that the literature suggests that only one in four individuals with an eating disorder seeks treatment (Hart et al., 2011), and up to 73% of them will drop out of treatment (Fassino et al., 2009; Swan-Kremeier et al., 2005), it is expected that many individuals at risk for developing eating disorders will have unmet needs. In fact, a recent systematic review highlighted that there are high unmet needs in this population due to the large number of individuals who do not receive specialized eating disorder treatment (Striegel Weissman & Rosselli, 2017).
Relevance for Social Work

Social workers have played a substantial role in the eating disorder field through direct eating disorder practice. Eating disorders are also prevalent in social work practice, as they are comorbid with other experiences (e.g., sexual abuse) and mental illnesses (e.g., major depression, posttraumatic stress disorders, and substance abuse) commonly seen in social work fields of practice (Barth, 2016; Harper et al., 2009; Richter et al., 1997; Shekter-Wolfson et al., 1997). Despite their participation, most of the knowledge in the field of eating disorders originates from allied social, behavioural, and biomedical research. Moreover, the potentially relevant social work research that has been conducted to date often reflects the behavioural and biomedical lens (Barrett & Schwartz, 1987; Benner, 2011; Hall, Tice, Beresford, Woodley, & Hall, 1989; Rice & Falkner, 1992; Safer & Joyce, 2011; Shekter-Wolfson & Woodside, 1991; Shekter-Wolfson, Woodside, & Lackstrom, 1997).

When planning future research, there are two main perspectives that social work can contribute to the eating disorder knowledge base. The first is the pursuit of social justice, and the second is contextualizing problems and solutions using an ecological and structural perspective. Social justice is about ensuring physical and psychological security among members of a society (Bell, 2010) through facilitating equitable access to opportunity and resources (Mullaly, 2010). Miller (2001) suggested that when “we attack some policy or some state of affairs as socially unjust, we are claiming that a person, or more usually a category of persons, enjoys fewer advantages than that person or groups of persons ought to enjoy . . . given how other members of the society in question are fairing” (p.1). Social justice at its core is about
removing barriers. Whether they are gender, ethnic or economic barriers, social justice has been a way to bring awareness, create advocacy, and plan for equity across many systems (Mullaly, 2010, 2018). In fact, the Canadian Association of Social Workers (2012) identified that the pursuit of social justice is the first strategic direction that guides their activities. According to the CASW’s (2005) Code of Ethics, “Social workers advocate for change in the best interest of clients and for the overall benefit of society, the environment and the global community” (p. 24). What this means is that social workers strive to identify and eliminate injustice, including inequitable health and mental health care utilization. By embodying this social justice value, social work research aims to investigate the evidence that highlights inequities and promotes opportunity.

The second perspective is the ecological and structural perspective, which contextualizes eating disorder service utilization in the various socioeconomic contexts in which Andersen’s (1995) model is based. This systemic model has the potential to understand and address systemic inequalities affecting service utilization beyond the existing biomedical and individual behavioural perspective on eating disorders and to add structural context to inform practice, research, and policy.

**Research Aims**

Based on the gaps in the eating disorder literature noted in the introductory section, body dissatisfaction will be used to differentiate women at risk for eating disorder development. Using an established conceptual framework designed to examine service utilization, this dissertation will examine the socioeconomic characteristics of the population on the following
criterion variables: use of health services, use of mental health services, and unmet needs. Specifically, this dissertation aims to:

A. Describe service utilization among Canadian women at risk for developing an eating disorder.

B. Identify socioeconomic factors that predict/inhibit service utilization among at risk eating disorder populations.

C. Examine unmet needs of women at risk of developing an eating disorder and who utilized services.

Research Questions & Hypotheses

This study will investigate the following research questions:

1. What are the main effects of body dissatisfaction on service utilization?

   **H₁.0**: Body dissatisfied women are more likely to consult a general practitioner.

   **H₁.1**: Body dissatisfied women are more likely to consult a professional about their mental health.

   **H₁.2**: Body dissatisfied women are more likely to identify unmet needs.

2. What are the interaction effects of body dissatisfaction and ethnicity on service utilization?

   **H₂.0**: The main effect of body dissatisfaction on general practitioner use is greater among White women (greater use).

   **H₂.1**: The main effect of body dissatisfaction on mental health care use is greater among White women (greater use).
3. What are the interaction effects of body dissatisfaction and income on service utilization?

**H3.0:** The main effect of body dissatisfaction on general practitioner use is greater among higher income women (greater use).

**H3.1:** The main effect of body dissatisfaction on mental health care use is greater among higher income women (greater use).

**H3.2:** The main effect of body dissatisfaction on unmet needs is greater among lower income women (greater unmet needs).

4. What are the interacting effects of body dissatisfaction, income and ethnicity on service utilization?

**H4.0:** Body dissatisfaction, income and ethnicity interact on general practitioner use to affect a multiplicative advantage among higher income, White women.

**H4.1:** Body dissatisfaction, income and ethnicity interact on mental health care use to affect a multiplicative advantage among higher income, White women.

**H4.2:** Body dissatisfaction, income and ethnicity interact on unmet needs to affect a multiplicative disadvantage among lower income, visible minority women.
This study will assess how well the predictor variable of body dissatisfaction predicts the criterion variables of service utilization (use of health services and use of mental health services) and outcomes (unmet needs) among women. The interaction effect of ethnicity on body satisfaction/dissatisfaction and income on body satisfaction/dissatisfaction will be tested. Other potentially important variables relating to Andersen’s behavioural model (age, educational attainment, marital status, household size, number of children under the age of 12 in the household, perceived health, and perceived mental health) will be tested for their potential predictive influence in each model. Findings will be practically translated and disseminated to diverse scholarly, practicing, and other knowledge-using audiences.
CHAPTER 3

METHODOLOGY

This dissertation investigated patterns and predictors of service utilization among women at risk for developing an eating disorder in a large nationally representative Canadian sample. The purpose of this cross-sectional study using secondary data analysis was to identify the socioeconomic variables that serve as barriers or facilitators toward service utilization of women at risk of developing eating disorders in Canada. Within Anderson’s model, I focused on ethnicity and income, and their influence on health and mental health utilization and unmet needs among women who are dissatisfied with the way their bodies look. Through investigating the relationships and predictability between these individual variables and their link to health and mental health service utilization, within an integrated behavioural health care model, one can determine the variables which may stand as a barrier towards service utilization (Elhai, Voorhees, Ford, Min, & Frueh, 2009).

This chapter discusses the rationale for my research design, the research methodology used to provide answers to the research questions of this study, and how data were examined and analysed.

Study Design and Sampling

In this study, a secondary data analysis was performed with retrieved data from the 2012 Canadian Community Health Survey (CCHS). Statistics Canada conducted the survey and used a multi-staged stratified probability sampling method. This study used cross-tab association and correlation to examine
socioeconomic variables and health and mental health utilization within an established behavioural health care model (Gravetter & Wallnae, 2009).

The selected analytical tools used for this secondary data analysis include descriptive statistics, chi-square tests of independence, and binary logistic regression analysis. These analytic tools allowed the researcher to provide information regarding the relationship between individual variables and their health and mental health service utilization and related unmet needs. It also allowed the researcher to provide information regarding which individual variables are predictive of health care utilization.

**Study Population and Sample Description**

The survey was designed to be representative of the population, exclusive of all First Nations living on reserves or Crown lands, individuals in institutions or who do not have a residence, individuals who reside in some remote Northern Canadian areas, and full-time members of the Canadian Armed Forces (Statistics Canada, 2015a). Statistics Canada (2015a) reported that these exclusions represent about 2% of the Canadian population. Combined response rate (household and person) for the 2012 cycle was 68.4% (Statistics Canada, 2015a), resulting in a sample size of 101,925.

The CCHS includes participants who are 12 years and older; however, this study included participants 18 years and older, as the intended sample population for this study is adult women. This was accomplished by selecting only women over the age of 18. This study was interested in the respondents who answered the question, *How satisfied are you with the way your body looks?* This question was only
asked to residents of Alberta and British Columbia. After selecting only adult women who answered the body satisfied/dissatisfied question the overall sample size resulted in 6,402.

**Power Analysis**

This study explored the differences in health care utilization amongst women at risk for developing an eating disorder based on a variety of demographic, socioeconomic, and clinical characteristics. This study used G*Power (Faul, Erdfelder, Buchner, & Lang, 2013) to estimate post hoc sample size needed for chi-square and logistic regression. Given the lack of previous research in this area, Cohen's (1992) guidelines were utilized, which suggest that a medium effect represent a \( d \) of 0.30. It is important to note that although medium effects were tested, many of the samples would have ample power to detect small effects.

**Chi-Square.** For all chi-square analysis, power was calculated with G*Power software for health service utilization (yes or no), mental health service utilization (yes or no), and unmet needs (yes or no) with women that are body satisfied or body dissatisfied. The test used a 0.05 probability of making a Type I error *a priori* and a total sample size of 5,692 women who reported health service utilization, 5,688 women who reported mental health utilization and 3,269 women who reported unmet needs. All models reached 100 % power. The results of the power calculations for the chi square analysis are included in Table 1.
Table 1.

Power (1-β err prob) Calculation for Chi-square Analysis of Study Variables: Body Satisfied Versus Body Dissatisfied Women

<table>
<thead>
<tr>
<th>Study Variables</th>
<th>Power (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Province&lt;sup&gt;a&lt;/sup&gt;</td>
<td>100</td>
</tr>
<tr>
<td>Age</td>
<td>100</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>100</td>
</tr>
<tr>
<td>Education</td>
<td>100</td>
</tr>
<tr>
<td>Income</td>
<td>100</td>
</tr>
<tr>
<td>Marital Status</td>
<td>100</td>
</tr>
<tr>
<td>Number of children under age 12</td>
<td>100</td>
</tr>
<tr>
<td>Family size</td>
<td>100</td>
</tr>
<tr>
<td>Self-perceived health</td>
<td>100</td>
</tr>
<tr>
<td>Self-perceived mental health</td>
<td>100</td>
</tr>
<tr>
<td>Consult with health professional</td>
<td>100</td>
</tr>
<tr>
<td>Consult regarding mental health</td>
<td>100</td>
</tr>
<tr>
<td>Unmet needs</td>
<td>100</td>
</tr>
</tbody>
</table>

<sup>Note.</sup> a= only women from British Columbia and Alberta were included in this study; Calculations from: Faul F., Erdfelder E., Lang A.G., Buchner A. (2007). G Power3: A flexible statistical power analysis program for the social, behavior, and biomedical sciences. Behavior Research Methods, 39: 175-191.

**Logistic Regression Models.** Power was calculated with G*Power software (Faul, Erdfelder, Buchner, & Lang, 2013). In order to assess power of logistic regression, “z tests,” “logistic regression,” and “post hoc power analysis,” one tailed, alpha (0.05) were chosen. The “X distribution” was set to binomial, as all independent variables in this study are categorized. Following this, effect size, under the expectation, was set based on Cohen’s (1992) guidelines that 30% of the variables may have null effect, (Pr(Y=1|X=1) H0 = 0.30), and further, set a hypothesized minimum deviation from the null as 0.10, (Pr(Y=1|X=1) H1 = 0.40). This was then calculated and the data were transferred to the G*Power main window. Each model had an unbalanced design (X parm π) with unequal sample
frequencies for X=0 and X=1. Health service utilization, mental health utilization, and unmet needs all had sufficient power of 96.7 % and above. The results of the power analysis for each logistic regression model are shown in Table 2.

Table 2.

<table>
<thead>
<tr>
<th>Study Outcome</th>
<th>Power (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care Utilization (n=5692)</td>
<td>100.0</td>
</tr>
<tr>
<td>Mental Health Care Utilization (n=5688)</td>
<td>100.0</td>
</tr>
<tr>
<td>Unmet Needs (n=3269)</td>
<td>96.7</td>
</tr>
</tbody>
</table>


Data Collection

The CCHS is conducted on an ongoing basis by Statistics Canada and provincial health ministries, as well as academic researchers in relevant fields (Statistics Canada, 2015a). The CCHS questionnaires collect information on participants’ health status, determinants of health, service utilization, and unmet needs (Statistics Canada, 2015a). Using computer-assisted interviews (in-person or telephone), the CCHS targets individuals over the age of twelve living in private dwellings across all provinces and territories. The participant in each household is chosen at the time of contact for data collection (Statistics Canada, 2015a). Participation is completely voluntary, and informed consent is obtained from all participants.
Measures

All of the predictor and criterion variables were selected from the 2012 CCHS. As stated previously, there are no national eating disorder data in Canada (Boisvert & Harrell, 2014; House of Commons, 2014). The 2012 CCHS was used, as it was the most recent version that included a question on body dissatisfaction. This section will identify the operationalization of variables under investigation. In addition to the variable body dissatisfaction, the predictor variables were organized based on Andersen’s model: age, education, and perceived health and perceived mental health. Body satisfaction/dissatisfaction, and the interaction variables (body satisfaction/dissatisfaction by ethnicity; body satisfaction/dissatisfaction by income; body satisfaction/dissatisfaction by income by ethnicity) are the focus of this study. Please see Table 3 for the predictor and criterion variables.
Table 3.
Predictor and Criterion Variables based on Andersen's Behavioural Model

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Criterion Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Andersen’s Model</strong></td>
<td><strong>Population</strong></td>
</tr>
<tr>
<td>Age</td>
<td>Body sat/disab</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Perceived health need</td>
<td></td>
</tr>
<tr>
<td>Perceived mental health need</td>
<td></td>
</tr>
</tbody>
</table>

Notes. a = body satisfaction & body dissatisfaction; b = focus of this study

**Predictor and Covariate Variables**

**Body dissatisfaction.** Body dissatisfaction is measured by the question, ‘How satisfied are you with the way your body looks?’ The question has five potential answers: very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, and very dissatisfied. This question holds face validity, as it subjectively appears to measure body dissatisfaction. Most studies use figure rating scales to detect discrepancy between one’s perceived body and one’s ideal body (Mutale, Dunn, Stiller, & Larkin, 2016) or a composite inventory such as the body dissatisfaction scale of the Eating Disorder Inventory (Garner, Olmstead, & Polivy, 1983) in measuring body dissatisfaction. However, single item measure has demonstrated reasonable reliability and validity (Austin, 2009; Gavin, Simon, & Ludman, 2010; Menzel, Schaefer, Burke, Mayhew, Brannick, & Thompson, 2010). Rossiter (2002) argued that a single-item measure is sufficient if the construct is such that in the minds of respondents: 1) it consists of one object that is easily and
uniformly imagined, and 2) the attribute of the construct is concrete. This study’s body satisfaction question is both easily and uniformly imagined, and concrete, thus meeting Rossiter’s criteria. Single-item body satisfaction scales have been found to have construct validity and convergent validity when compared to the body parts satisfaction scale (Mintz & Betz, 1988).

In order to capture a sufficiently powered body satisfied and body dissatisfied sample, the answers were recoded into the two categories: body dissatisfied (neither satisfied nor dissatisfied, dissatisfied and very dissatisfied) or body satisfied (very satisfied, satisfied). Neither satisfied nor dissatisfied was maintained in the body dissatisfaction scale to maintain the largest power. It was included in the body dissatisfaction category as it was the best empirical fit after running each category separately through each model.

**Predisposing factors.** Age and ethnicity are measures of the predisposing characteristics.

*Age.* Age is measured by the question, ‘What is your age?’ Statistics Canada has 16 categories, ranging from 12 to 14 years to 80 years or more. As explained previously, the first two categories, 12 to 14 years and 15 to 17 years, will be excluded as this study only targets adults. The categories were recoded into four categories: 0) 18 to 24; 1) 25 to 39; 2) 40 to 59; and 3) 60 years of age and over. The categories were coded to closely match previous studies to allow comparisons (Fallon et al., 2014; Frederick et al., 2006).
**Ethnicity.** Ethnicity was measured by the question, ‘What is your cultural or racial origin?’ The potential answers were grouped in the survey into the two options: 0) White, and 1) visible minority. No recoding was necessary.

**Enabling factors.** Income and education are all enabling determinants of health care usage.

**Income.** Income is measured by the following question, ‘What is the total household income from all sources?’ The potential answers were compiled into five categories by Statistics Canada: (1) no or <$20,000, (2) $20,000-$39,000, (3) $40,000-$59,000, (4) $60,000-$79,000, (5) $80,000 or more. Considering this study was interested in the effect of low income, income was recoded into two categories: (0) under $39,999 and (1) over $40,000. For this study, low income was determined by the low income cut-offs of 2011, determined by Statistics Canada (Statistics Canada, 2015b). Low income cut-offs are “income thresholds below which a family will likely devote a large share of its income on the necessities of food, shelter, and clothing than the average family” (Statistics Canada, 2015b). The 2011 low income threshold for a family of four was reported as $41,307 (Statistics Canada, 2015b). Both Alberta and British Columbia followed the national low-income cut-off (Statistics Canada, 2015c). In addition, the lower income categories of <$20,000 and $20,000-$39,999 were empirically similar.

**Education.** Education is measured by the question on the highest level of education received. There are four response categories: (1) less than secondary school graduate, (2) secondary school graduate, (3) some post-secondary education, and (4) post-secondary certificate. Considering this study was interested in the
effect of low educational achievement, education was recoded into two categories: (1) less than secondary education and (0) secondary education and over.

**Marital Status.** Marital status is measured by the question on current marital status. There are four response categories: (1) married, (2) common-law, (3) widow/separated/divorced, and (4) single/never married. Marital status was recoded into dichotomous variables: single/widow/separated/divorced (0) or ‘married/common-law’ (1).

**Household Size.** Household size is measured by the question on the number of people living in the current house. There are five response categories: (1) 1 person, (2) 2 persons, (3) 3 persons, (4) 4 persons, and (5) 5 or more persons. Household size was recoded into two categories: 2 and under people (0), and 2 or more people (1), based on best empirical fit.

**Children under the age of 12.** Children under the age of 12 is measured by the question on the number of children under the age of 12 living in the current household. There are two response categories: (0) none and (1) 1 or more. These categories were maintained.

**Need factors.** The two subjective determinants of need assessed were perceived health and mental health.

**Perceived health and mental health.** Perceived health is measured by the question, 'In general, how would you say your health is now? Is it...?' Perceived mental health is measured by the question, ‘In general would you say your mental health is...?’ Both questions have the five categorical options: (0) excellent, (1) very good, (2) (3) good, (4) fair, and (5) poor. According to Shields and Shooshtari
(2001), these global evaluations of self-perceived health on a four or five point scale have been found to have good reliability and have been predictive of chronic disease and the use of medical services. Similarly, Ahmad, Jhajj, Stewart, Burghardt, and Bierman (2014) reported in their scoping review that this single-item measure of self-rated mental health was associated with health service utilization. Further, Ahmad and colleagues (2014) found that this single item measure is associated with multi-item measures of mental health, self-rated health, health problems, service utilization, and service satisfaction. In addition, it has been validated in adults as a useful indicator for monitoring general mental health (Mawani & Gilmour, 2010). Other studies identified that the reliability of self-perceived health measures were found to be as good as or better than measures such as functional ability, chronic diseases, and psychological wellbeing (Lundberg & Manderbacka, 1996) and were shown to be more stable than physician ratings (Maddox & Douglass, 1973). In addition, self-perceived health is strongly correlated with a number of extensive health scales, sickness impact profile (Bergner, Bobbitt, & Pollard, 1976), and perceived wellbeing scale (Cousins, 1997), signifying a high degree of construct validity. Both measures were recoded into two categories: (0) optimal (excellent, very good, good) and (1) sub-optimal (fair and poor) based on empirical testing.

**Criterion Variables**

Based on Andersen’s theoretical framework which posits that predisposing, enabling, and need factors help predict health care utilization and unmet health care needs (Andersen & Newman, 1973), the following criterion variables were obtained
from the 2012 CCHS: (1) contact with a health professional, (2) consultation about mental health, and (3) self-perceived unmet health care needs.

**Service utilization.** Service utilization was assessed by two variables: (1) contact with health professionals and (2) consultation about mental health. Contact with health professionals is measured by the single question, ‘In the past 12 months, have you seen or talked to any of the following health professionals about your physical, emotional or mental health: a family doctor, pediatrician, or general practitioner?’ with two potential answers: (0) yes and (1) no. Similarly, consultation about mental health is measured by the question, ‘In the past 12 months, that is, from DATE ONE YEAR AGO to yesterday, have you seen or talked to a health professional about your emotional or mental health?’ with two potential answers: (1) yes and (0) no. Large national studies routinely collect self-reported data (Bhandari & Wagner, 2006; Daniels, van Rossum, Beurskens, van den Heuvel, & de Witte, 2012; van Dalen, Suijker, MacNeil-Vroomen, van Rijn, van Charante, de Rooij, & Buurman, 2014), as they are an efficient mode of collecting large sample data at a relatively low cost for some populations where there may be no other sources of data available. Self-report measures of service utilization can influence the respondent’s ability to recall events accurately, time since the event, importance of the event, frequency of events, and some population-specific characteristics, such as educational level and age (Bhandari & Wagner, 2006; Glass & Buchoz, 2011). For instance, some studies have found that age, health status, gender, education, and ethnicity affect self-reports on health status (Bhandari & Wagner, 2006), whereas others have found no consistent relationship between these demographic factors.
and self-report accuracy (Marshall et al., 2003; Reijneveld, 2000; Reijneveld & Stonks, 2001; Ritter, Stewart, Kaymaz, Sobel, Block, & Lorig, 2001). Older age was the only factor that has been found to be significantly associated with inaccuracy and underreporting of health care utilization (Cleary & Jette, 1984; Raina, Wong, & Woodward, 2002; Roberts, Bergstralh, Schmidt, & Jacobsen, 1996; Willihan, Stump, & Callahan, 1999). Overall, the literature identified that self-reported measures offer a reasonably valid estimate of differences in service utilization between socioeconomic groups in the general population (Bhandari & Wagner, 2006; Reijneveld & Stronks, 2001).

**Unmet needs.** The outcome variable of unmet health care needs is measured by the question, ‘During the past 12 months, was there ever a time when you felt that you needed health care, but you didn’t receive it?’ The potential answers are (1) yes or (0) no.

**DATA ANALYSIS**

This study adapted Andersen’s behavioural model to examine associations between body satisfaction/dissatisfaction, ethnicity and income with health and mental health service utilization. In addition to service utilization, the variable of unmet need was examined. All analyses were performed by using SPSS, Version 24.0 (IBM Corp, 2016). Descriptive statistics were used to describe the sample characteristics and levels of service utilization and unmet needs for both body satisfied and body dissatisfied women. Gravette and Wallnau (2009) identified that descriptive statistics allow for analyzing relationships among variables. Based on Andersen’s behavioural model (1995), a hierarchical logistic regression model made
up of five model blocks were developed and analysed separately for the criterion variables of health service utilization, mental health service utilization, and unmet needs. According to Menard (2000), logistic regression allows for measuring the strength and weakness of variables as they relate to the criterion variables. Please see Table 4 for the outline of the models. Based on previous research using Andersen’s model, model one included the predisposing, enabling, and need factors, model two included the variables of predisposing, enabling, and need factors and body satisfaction/dissatisfaction, model three included the variables of predisposing, enabling, and need factors, body satisfaction/dissatisfaction and the interaction term of body satisfaction/dissatisfaction by ethnicity, model four included the variables of predisposing, enabling, and need factors, body satisfaction/dissatisfaction, and the interaction term of body satisfaction/dissatisfaction by ethnicity. Model five included the variables of predisposing, enabling, and need factors, body satisfaction/dissatisfaction, and the interactions of body satisfaction/dissatisfaction by ethnicity, body satisfaction/dissatisfaction by income, and body satisfaction/dissatisfaction by ethnicity and income (Shafer, 2016; Varkis, 2016).

Important to note, all variables that were not statistically and practically significant were removed from the model.
Binary logistic regression analyses were used to examine the impact of 1) body satisfaction/dissatisfaction, and the interaction factors of body satisfaction/dissatisfaction by 2) ethnicity 3) income and 4) ethnicity by income on the dichotomous criterion variables 1) health care utilization, 2) mental health care utilization, and 3) unmet needs. Only statistically and practically significant variables will remain in the models. Please see Table 5 for the study hypothesis embedded in the analytic plan.

**Data Cleaning**

Categorical demographic and predictor variables were categorized so they could be used in logistic regression analysis: (a) age was categorized into (0) 18 to 24,
(1) 25 to 39, (2) 40 to 59, (3) 60 and over; (b) ethnicity was categorized into (0) white and (1) visible minority; (c) income was categorized into (0) over $40,000, (1) under $40,000; (d) education level was categorized into (0) secondary and above, (1) below secondary; (e) self-perceived health was categorized into (0) optimal, (1) sub-optimal; and (f) self-perceived mental health was categorized into (0) optimal and (2) sub-optimal.

Prior to conducting the main analyses, descriptive statistics were generated and frequency distributions of the study variables, including missing variables, were examined. All assumptions for logistic regression using categorical data were met (Hosmer & Lemeshow, 2000). These include: 1) the dependent variable is ordinal, 2) factor level 1 of the dependent variable represents the desired outcome $P(Y=1)$, 3) only meaningful variables were included, 4) each observation is independent, 5) the independent variables are linearly related to the log odds, and 6) there is a large sample size (Lani, 2010). Considering there were less than 2% missing data in all the variables, with the majority of variables having no missing data, the data were not adjusted. The critical variable of this study is body dissatisfaction. The body dissatisfaction variable was recoded to include respondents who answered dissatisfied and very dissatisfied. The predictive power of being body dissatisfied and very dissatisfied was insufficient to separately test any of the logistic regression models.
<table>
<thead>
<tr>
<th>Research Question</th>
<th>Hypothesis</th>
<th>Analytical Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. What are the main effects of body dissatisfaction on service utilization?</strong></td>
<td><strong>H1.0</strong>: Body dissatisfied women are more likely to consult a general practitioner.</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td></td>
<td><strong>H1.1</strong>: Body dissatisfied women are more likely to consult a professional about their mental health.</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td></td>
<td><strong>H1.2</strong>: Body dissatisfied women are more likely to identify unmet needs.</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td><strong>2. What are the interacting effects of body dissatisfaction and ethnicity on service utilization?</strong></td>
<td><strong>H2.0</strong>: The main effect of body dissatisfaction on general practitioner use is greater among white women (greater use).</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td></td>
<td><strong>H2.1</strong>: The main effect of body dissatisfaction on mental health care use is greater among white women (greater use).</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td></td>
<td><strong>H2.2</strong>: The main effect of body dissatisfaction on unmet needs is greater among visible minority women (greater unmet needs).</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td><strong>3. What are the interaction effects of body dissatisfaction and income on service utilization?</strong></td>
<td><strong>H3.0</strong>: The main effect of body dissatisfaction on general practitioner use is greater among higher income women (greater use).</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td></td>
<td><strong>H3.1</strong>: The main effect of body dissatisfaction on mental health care use is greater among higher income women (greater use).</td>
<td>Logistic Regression</td>
</tr>
<tr>
<td></td>
<td><strong>H3.2</strong>: The main effect of body dissatisfaction on unmet needs is greater among lower income women (greater unmet needs).</td>
<td>Logistic Regression</td>
</tr>
</tbody>
</table>
4. What are the interacting effects of body dissatisfaction, income and ethnicity on service utilization?

| H4.0: Body dissatisfaction, income and ethnicity interact on general practitioner use to affect a multiplicative advantage among higher income, white women. |
| H4.1: Body dissatisfaction, income and ethnicity interact on mental health care use to affect a multiplicative advantage among higher income, white women. |
| H4.2: Body dissatisfaction, income and ethnicity interact on unmet needs to affect a multiplicative disadvantage among lower income, visible minority women. |
| Logistic Regression |
| Logistic Regression |
| Logistic Regression |
Descriptive Statistics

Descriptive statistics were calculated for all discrete variables (frequency distributions). The predisposing variables (age, ethnicity), enabling variables (income, education, marital status, household size, and number of children under the age of 12), and need variables (perceived health, perceived mental health) will be described.

Bivariate Analyses

Unadjusted bivariate analyses (chi-square tests) with statistical criterion of p<0.05 were conducted to assess between group differences on all predictor variables and hypothesized criterion variables: visit to health professional, consulted with mental health professional, and unmet needs.

Multivariate Analyses

In order to describe the relationship between predictor variables and health utilization among body dissatisfied, regression models were employed. Five logistic regression models were used to test hypotheses with the dichotomous criterion variables (consult with a health professional, consult with mental health professional, and unmet needs). The models identified the relationship of body satisfaction/dissatisfaction, ethnicity and income and the various predisposing, enabling, and need factors that influence health services utilization, mental health services utilization and unmet needs. To obtain the crude odds ratio and 95% confidence interval, binary logistic regression was performed on each independent variable separately with the outcome. This process was repeated for adjusted odds ratios using the Andersen model of predisposing, enabling, and need variables, Andersen’s model plus body satisfaction/dissatisfaction, Andersen’s model, body
satisfaction/dissatisfaction plus the interaction of body satisfaction/dissatisfaction by ethnicity, Andersen's model, body satisfaction/dissatisfaction, and the interaction effect of body satisfaction/dissatisfaction by ethnicity, and body satisfaction/dissatisfaction by income. Finally, in order to test the multiplicative interaction effects of body satisfaction/dissatisfaction by ethnicity and by income, a fifth model was included. Adjusted ORs were examined for all significant interaction effects. Only statistically and practically significant variables were maintained in the model. Underlying assumptions pertaining to categorization of variables and existence of mutually exhaustive categories were maintained. Odds ratios (ORs) and 95 % confidence intervals (CI) will be estimated from regression statistics.

**Hypothesis Testing**

**Hypothesis 1.0: Body dissatisfied women are more likely to consult a general practitioner.** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of body dis/satisfaction in predicting the discrete criterion variable of health service use (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied women are more likely to use health services than body satisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95 % confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen's model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).
**Hypothesis 1.1: Body dissatisfied women are more likely to consult a professional about their mental health.** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of body dis/satisfaction in predicting the discrete criterion variable of mental health service use (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied women are more likely to use mental health services than body satisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 1.2: Body dissatisfied women are more likely to identify unmet needs.** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of body dis/satisfaction in predicting the discrete criterion variable of unmet needs (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied women are more likely to report unmet needs than body satisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).
Hypothesis 2.0: The main effect of body dissatisfaction on general practitioner use is greater among white women (greater use). A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of ethnicity in predicting the discrete criterion variable of health care utilization (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied, white women are more likely to utilize health service utilization than visible minority, body dissatisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

Hypothesis 2.1: The main effect of body dissatisfaction on mental health care use is greater among white women (greater use). A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of ethnicity in predicting the discrete criterion variable of mental health care utilization (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied, white women are more likely to utilize mental health service utilization than visible minority, body dissatisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on
Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 2.2: The main effect of body dissatisfaction on unmet needs is greater among visible minority women (greater use).** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of ethnicity in predicting the discrete criterion variable of unmet needs (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied, white women are more likely to report unmet needs than visible minority, body dissatisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 3.0: The main effect of body dissatisfaction on general practitioner use is greater among higher income women (greater use).** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of income in predicting the discrete criterion variable of health care utilization (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied women from higher incomes are more likely to utilize health service utilization than lower income body dissatisfied women. In order to assess clinical significance, odds
ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 3.1: The main effect of body dissatisfaction on mental health care use is greater among higher income women (greater use).** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of income in predicting the discrete criterion variable of mental health care utilization (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied women from higher incomes are more likely to utilize mental health service utilization than lower income body dissatisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 3.2: The main effect of body dissatisfaction on unmet needs is greater among lower income women (greater use).** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variable of income in predicting the discrete criterion variable of unmet needs (Yes, No) among Canadian women. A statistically significant
finding would be assumed to mean that body dissatisfied women from lower incomes are more likely to report unmet needs than lower income body dissatisfied women. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 4.0: Body dissatisfied, income and ethnicity interact on general practitioner use to affect a multiplicative advantage among higher income, White women.** A logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variables of body dissatisfaction, income and ethnicity in predicting the discrete criterion variable of health service use (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied Caucasian women with higher incomes are more likely to use health services than body dissatisfied visible minority women with lower incomes. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for potential covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).

**Hypothesis 4.1: Body dissatisfied, income and ethnicity interact on mental health care use to affect a multiplicative advantage among higher**
**Hypothesis 4.2: Body dissatisfaction, income and ethnicity interact on unmet needs to affect a multiplicative disadvantage among lower income, visible minority women.** For women who utilized services, a logistic regression model (Hosmer & Lemeshow, 2000) was used to test the hypothesis about the effect of the key dichotomous predictor variables of body dissatisfaction, income and ethnicity in predicting the discrete criterion variable of unmet needs (Yes, No) among Canadian women. A statistically significant finding would be assumed to mean that body dissatisfied visible minority women with lower incomes are more likely to have unmet needs than body dissatisfied Caucasian women with higher incomes. In order to assess clinical significance, odds ratios (ORs) were calculated using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for potential covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).
using a 95% confidence interval (CI). ORs estimate the predictive weights of the effects. All effects were adjusted for potential covariates based on Andersen’s model (age, educational achievement, marital status, household size, number of children under the age of 12 in the household, perceived physical health and perceived mental health).
CHAPTER 4

RESULTS

This research on the socioeconomic patterns of service utilization among Canadian women at risk for developing eating disorders intended to 1) describe service utilization among Canadian women at risk for developing an eating disorder, and 2) examine the impact of ethnicity and income on service utilization and reported unmet needs among at risk eating disorder populations. The research is based on Andersen’s behavioural model of health care use (Andersen, 1995). This chapter presents the results of the data analyses, beginning with the following descriptive statistics: body satisfaction or body dissatisfaction; environmental, predisposing, enabling, need, health care utilization, and unmet need variables. The multivariate analyses of the hypotheses are presented.

Descriptive Statistics

The descriptive statistics are presented for the body satisfied, as well as the body dissatisfied group. First, body satisfaction and body dissatisfaction are described, followed by the demographic characteristics of the sample. Finally, health service utilization, mental health service utilization, and unmet need descriptions are presented.

Body Satisfaction and Dissatisfaction

Figure 3 presents the categories of body satisfaction and dissatisfaction for the total sample (n=6402) of adult women. The five independent categories of body satisfaction include: very dissatisfied, dissatisfied, neither dissatisfied nor satisfied, satisfied, and very satisfied. There were 191 women (3%) who identified that they
were very dissatisfied with the way their bodies looked, and 1313 women (20.5%) were dissatisfied. There were 881 women (13.8%) who identified that they were neither dissatisfied, nor satisfied with the way that their bodies looked. Finally, 3321 women (51.9%) identified that they were satisfied, and 688 women (10.7%) were very satisfied with the way they looked. As identified previously, data were combined into two categories: body satisfied women (very satisfied and satisfied) and body dissatisfied women (dissatisfied, very dissatisfied and neither dissatisfied nor satisfied). Over 62% of women were categorized as body satisfied.

**Figure 3.**
Body Satisfaction: Women 18 Years of Age and Older (n=6402)

<table>
<thead>
<tr>
<th>Continuum of Body Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Satisfied</td>
</tr>
<tr>
<td>Satisfied</td>
</tr>
<tr>
<td>Neither (Dis)satisfied</td>
</tr>
<tr>
<td>Dissatisfied</td>
</tr>
<tr>
<td>Very dissatisfied</td>
</tr>
</tbody>
</table>

**Demographic Characteristics**

Please see Table 6 for an outline of the demographic characteristics of the body satisfied and body dissatisfied samples. The demographic characteristics are organized by environmental, predisposing, enabling, and need factors.
Environmental factors refer to the sample’s province of residence. The current study sample is from the Canadian provinces of Alberta and British Columbia. Approximately 58% of the body satisfied sample came from British Columbia. Similarly when just looking at the body dissatisfied group, over 56% of the women came from British Columbia. There is no significant between group difference, $\chi^2(1)=3.60, p=.06$.

The predisposing factors described in this study are: age and ethnicity. There are four age categories represented in this study: 18 to 24 years, 25-39 years, 40-59 years, and 60 years and over. Over 75% of the body satisfied sample are 40 years of age or older. Similarly, 80% of the body dissatisfied group are 40 years of age or older. There is a significant between group difference, $\chi^2(3)=79.16, p<.05$. In other words, there is a relationship between body satisfaction/dissatisfaction and age categories. Ethnicity has two categories; Caucasian and visible minority. Just over 81% of the body satisfied sample is Caucasian. Similarly, just over 83 percent of the body dissatisfied sample is Caucasian. There is no significant between group difference, $\chi^2(1)=3.58, p=.06$.

The enabling factors described in this study are: education level, income level, marital status, household size, and number of children under the age of 12. There are two categories of educational level in this study: below secondary and secondary and above. Both the body satisfied, and body dissatisfied sample are well educated, with over 65% of the women having at least a secondary level education. There is no significant between group difference, $\chi^2(1)=0.57, p=.45$. Similarly, over 65% of the body satisfied and body dissatisfied sample have a household income of
over 40,000 dollars. There is no significant between group difference, $\chi^2(1)=0.61$, $p=.44$. Approximately 55% of the body satisfied and the body dissatisfied sample are married. There is a significant between group difference, $\chi^2(1)=4.61$, $p<.05$. In other words, there is a relationship between body satisfaction/dissatisfaction and marital status. Over 70% of both the body satisfied sample and the body dissatisfied sample have 2 or fewer people living in the household. There is no significant between group difference, $\chi^2(1)=1.47$, $p=.23$. Finally, over eighty percent of both the body satisfied and the body dissatisfied sample do not have any children under the age of 12 living in the household. There is no significant between group difference, $\chi^2(1)=0.76$, $p=.38$.

The need factors described in this study are: self-perceived health, and self-perceived mental health. Nine out of ten women in the body satisfied sample perceived their health as optimal. Similarly, just over 80% of body dissatisfied women identified that their health was optimal. There is a significant between group difference, $\chi^2(1)=127.39$, $p<.05$. In other words, body satisfied women are more likely to rate their health as optimal. Finally, more women in the body satisfied sample perceived their mental health as optimal rather than suboptimal. Slightly less (89.3%) of body dissatisfied women identified their mental health as optimal compared to 95.6% of the body satisfied sample. There is a significant between group difference, $\chi^2(1)=93.28$, $p<.05$. In other words, body satisfied women are more likely to rate their mental health as optimal.
Table 6.
Demographic Characteristics of the Body Satisfied and Body Dissatisfied Sample

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Body Satisfied Sample</th>
<th>Body Dissatisfied Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n</strong></td>
<td><strong>%</strong></td>
<td><strong>n</strong></td>
</tr>
<tr>
<td><strong>Environmental Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROVINCE OF RESIDENCE</strong></td>
<td>4009</td>
<td>2393</td>
</tr>
<tr>
<td>Alberta</td>
<td>1652</td>
<td>1044</td>
</tr>
<tr>
<td>British Columbia</td>
<td>2357</td>
<td>1349</td>
</tr>
<tr>
<td><strong>Predisposing Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE*</td>
<td>3731</td>
<td>2233</td>
</tr>
<tr>
<td>18-24 years</td>
<td>377</td>
<td>143</td>
</tr>
<tr>
<td>25-39 years</td>
<td>525</td>
<td>333</td>
</tr>
<tr>
<td>40-59 years</td>
<td>1183</td>
<td>871</td>
</tr>
<tr>
<td>60 + years</td>
<td>1646</td>
<td>886</td>
</tr>
<tr>
<td><strong>ETHNICITY</strong></td>
<td>3882</td>
<td>2344</td>
</tr>
<tr>
<td>Caucasian</td>
<td>3154</td>
<td>1949</td>
</tr>
<tr>
<td>Visible Minority</td>
<td>728</td>
<td>395</td>
</tr>
<tr>
<td><strong>Enabling Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUCATION LEVEL</td>
<td>3878</td>
<td>2335</td>
</tr>
<tr>
<td>Below secondary</td>
<td>1350</td>
<td>791</td>
</tr>
<tr>
<td>Secondary and above</td>
<td>2528</td>
<td>1544</td>
</tr>
<tr>
<td><strong>INCOME</strong></td>
<td>4006</td>
<td>2392</td>
</tr>
<tr>
<td>&lt; $20,000-$39,999</td>
<td>1373</td>
<td>797</td>
</tr>
<tr>
<td>$40,000 or more</td>
<td>2633</td>
<td>1595</td>
</tr>
<tr>
<td><strong>MARITAL STATUS</strong></td>
<td>3990</td>
<td>2375</td>
</tr>
<tr>
<td>Married/common law</td>
<td>2161</td>
<td>1352</td>
</tr>
<tr>
<td>Single /widow/separated/divorced</td>
<td>1829</td>
<td>1023</td>
</tr>
<tr>
<td><strong>HOUSEHOLD SIZE</strong></td>
<td>4005</td>
<td>2393</td>
</tr>
<tr>
<td>Two or less</td>
<td>2837</td>
<td>1729</td>
</tr>
<tr>
<td>Three or more</td>
<td>1168</td>
<td>664</td>
</tr>
<tr>
<td><strong>NUMBER OF KIDS UNDER 12</strong></td>
<td>4009</td>
<td>2393</td>
</tr>
<tr>
<td>None</td>
<td>3285</td>
<td>1940</td>
</tr>
<tr>
<td>1 or more</td>
<td>724</td>
<td>453</td>
</tr>
<tr>
<td><strong>Need Factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELF-PERCEIVED HEALTH*</td>
<td>4004</td>
<td>2391</td>
</tr>
<tr>
<td>Sub-optimal</td>
<td>395</td>
<td>475</td>
</tr>
<tr>
<td>Optimal</td>
<td>3609</td>
<td>1916</td>
</tr>
<tr>
<td><strong>SELF-PERCEIVED MENTAL HEALTH</strong></td>
<td>4001</td>
<td>2384</td>
</tr>
<tr>
<td>Sub-optimal</td>
<td>178</td>
<td>256</td>
</tr>
<tr>
<td>Optimal</td>
<td>3823</td>
<td>2128</td>
</tr>
</tbody>
</table>

Note: * Chi-square tested p<.05
Health and Mental Health Service Utilization

The areas of health service utilization described in this study are:
consultation with a general practitioner about physical, emotional, or mental health;
consultation with a professional in regard to mental health; and the type of
professional seen regarding mental health. Table 7 provides detailed descriptive
statistics of service utilization.

Approximately 83% of the body satisfied sample of women reported that
they had seen a general practitioner about their physical, emotional, or mental
health in the past year. By contrast, almost 9 out of 10 body dissatisfied women had
consulted with a general practitioner regarding their physical, emotional, or mental
health. There is a significant between group difference, $\chi^2(1) = 27.19$, $p < .05$. In
other words, body dissatisfied women are more likely to consult with a health
professional.

Approximately 14% of the body satisfied sample consulted a professional
about mental health concerns. On the other hand, 24% of body dissatisfied women
consulted a professional about their mental health concerns over the last 12 months.
There is a significant between group difference, $\chi^2(1) = 93.07$, $p < .05$. In other
words, body dissatisfied women are more likely to consult a professional regarding
their mental health. Of the women who consulted a professional about mental health
concerns, over 58% of body satisfied women and 67% of body dissatisfied women
talked to a family doctor. There is a significant between group difference, $\chi^2(1) = 9.70$, $p < .05$. In other words, body dissatisfied women are more likely to consult
a family doctor regarding their mental health. Of the women who consulted a
professional about mental health concerns, over 15% of body satisfied women and almost 20% of body dissatisfied women talked to a psychiatrist. There is a significant between group difference, \( \chi^2(1) = 4.33, p < .05 \). In other words, body dissatisfied women are more likely to consult a psychiatrist regarding their mental health. Of the women who consulted a professional about mental health concerns, over 16% of body satisfied women and 13% of body dissatisfied women talked to a psychologist. There was no significant between group difference, \( \chi^2(1) = 2.08, p = .15 \). Of the women who consulted a professional about mental health concerns, 7% of body satisfied women and 6% of body dissatisfied women talked to a nurse. There was no significant between group difference, \( \chi^2(1) = 0.19, p = .66 \). Of the women who consulted a professional about mental health concerns, over 22% of body satisfied women and 21% of body dissatisfied women talked to a social worker. There was no significant between group difference, \( \chi^2(1) = 0.21, p = .64 \). Finally, of the women who consulted a professional about mental health concerns, over 7% of body satisfied women and almost 6% of body dissatisfied women talked to another professional. There was no significant between group difference, \( \chi^2(1) = 0.96, p = .33 \).
Table 7.
Health and Mental Health Service Utilization of the Body satisfied and Body Dissatisfied Samples

<table>
<thead>
<tr>
<th>Service Utilization</th>
<th>Body Satisfied</th>
<th>Body Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Consult regarding health*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4003</td>
<td>82.8</td>
</tr>
<tr>
<td>No</td>
<td>688</td>
<td>17.2</td>
</tr>
<tr>
<td>Consult regarding mental health*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3924</td>
<td>14.5</td>
</tr>
<tr>
<td>No</td>
<td>3356</td>
<td>85.5</td>
</tr>
<tr>
<td>PROFESSIONAL CONSULTED RE: MENTAL HEALTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family doctor*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>568</td>
<td>58.5</td>
</tr>
<tr>
<td>No</td>
<td>332</td>
<td>41.5</td>
</tr>
<tr>
<td>Psychiatrist*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>568</td>
<td>15.1</td>
</tr>
<tr>
<td>No</td>
<td>482</td>
<td>84.9</td>
</tr>
<tr>
<td>Psychologist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>568</td>
<td>16.4</td>
</tr>
<tr>
<td>No</td>
<td>475</td>
<td>83.6</td>
</tr>
<tr>
<td>Nurse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>568</td>
<td>7.0</td>
</tr>
<tr>
<td>No</td>
<td>568</td>
<td>93.0</td>
</tr>
<tr>
<td>Social Worker</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>568</td>
<td>22.5</td>
</tr>
<tr>
<td>No</td>
<td>440</td>
<td>77.5</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>568</td>
<td>7.2</td>
</tr>
<tr>
<td>No</td>
<td>527</td>
<td>92.8</td>
</tr>
</tbody>
</table>

*p<.05
Unmet Needs

Unmet needs were analysed as a subsample, due to data only being available from British Columbia. The three areas of health care unmet needs described in this study are: unmet needs, unmet physical needs, and unmet emotional needs. Table 8 provides a detailed description of unmet needs.

Only 10% of the body satisfied sample reported unmet needs, where as 16.5% of the body dissatisfied group reported unmet needs. There is a significant between group difference, $\chi^2(1) = 29.31, p < .05$. In other words, body dissatisfied women are more likely to report they have unmet health care needs. Of the women who identified that they had unmet needs around 7 out of 10 women in both groups reported that their physical needs were unmet. There was no significant between group difference, $\chi^2(1) = 0.57, p = .45$. Only 9% of the body satisfied sample and 14% of the body dissatisfied identified their emotional needs were unmet. There was no significant between group difference, $\chi^2(1) = 2.77, p = .10$. 
Reason for Unmet Needs

When exploring the perceived reason that care was not received, the sample could check all or any of the following reasons: care was not available in area, care was not available in the time required, wait was too long, felt that the care was inadequate, cost was a barrier, was too busy to seek care, chose not to seek care, the doctor did not think that the care was necessary, and other reasons not specified. Approximately 9 % of body dissatisfied women and 10 % of body satisfied women reported that care was not available in their area. Slightly more women reported that care was not available in the time required. This was identified by 11 % of body dissatisfied and 16 % body satisfied women. The most prevalent reason given from both groups of women was that the wait was too long. This reason was reported by
36 %, and approximately 35 % of body dissatisfied and body satisfied women respectively. Well under 7 % of body dissatisfied and body satisfied women reported the following perceived reasons that care was not received: felt care was inadequate, was too busy to seek care, and did not get around to seeking care. Cost was identified by 8.7 % of body dissatisfied women, and 18 % of body-satisfied women as a reason that care was not received. Approximately 11 % of body dissatisfied women, and 5 % of body satisfied women did not seek care. Finally, unknown ‘other’ reasons were identified by approximately 33 % of body dissatisfied women and 24 % of body satisfied women. Please see Table 9 for a detailed description of perceived reason that care was not received. These perceived needs were separated into two categories, structural (not available in area, not available in the time required, wait was too long, felt the care was inadequate, cost was a barrier, doctor did not think the care was necessary) and individual reasons (was too busy to seek care, did not get around to receive care, did not seek care), based on structural social work theory (Hicks et al., 2010; Mullaly, 2007, 2018). Considering the unknown nature of the category ‘other,’ this reported reason was not included. Eighty-three percent of the total sample of women reported structural reasons for not receiving care, compared to 17 % reporting individual reasons. Similar percentages were found for both body satisfied and body dissatisfied groups. Please see Figure 4 for the structural and individual barriers to utilized treatment.
Table 9.
Reported Unmet Need: Perceived Reason Care Was Not Received

<table>
<thead>
<tr>
<th>Perceived Reason Care not Received</th>
<th>Body Satisfied N=244</th>
<th>Body Dissatisfied N=150</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Not available in area</td>
<td>24</td>
<td>9.8</td>
</tr>
<tr>
<td>Not available in the time required</td>
<td>39</td>
<td>16.0</td>
</tr>
<tr>
<td>Wait was too long</td>
<td>85</td>
<td>34.8</td>
</tr>
<tr>
<td>Felt the care was inadequate</td>
<td>11</td>
<td>4.5</td>
</tr>
<tr>
<td>Cost was a barrier</td>
<td>44</td>
<td>18.0</td>
</tr>
<tr>
<td>Was too busy to seek care</td>
<td>16</td>
<td>6.6</td>
</tr>
<tr>
<td>Did not get around to receive care</td>
<td>8</td>
<td>3.3</td>
</tr>
<tr>
<td>Did not seek care</td>
<td>13</td>
<td>5.3</td>
</tr>
<tr>
<td>Doctor did not think the care was necessary</td>
<td>15</td>
<td>6.1</td>
</tr>
<tr>
<td>Other</td>
<td>58</td>
<td>23.8</td>
</tr>
</tbody>
</table>

Figure 4.
Reported Unmet Needs: Structural and Individual Barriers to Utilized Treatment
Multivariate Hypotheses Testing: Health and Mental Health Service Utilization and Reported Unmet Needs

All study hypotheses were tested with a series of three hierarchical multiple regressions for the following criterion variables: health care utilization, mental health care utilization, and unmet needs. Within each hierarchical multiple regression were five models, each focusing on this study's key predictor variables. Model one utilized Andersen’s predisposing, enabling, and need factors to identify the significant covariates correlated with each criterion variable. Each covariate was entered in the respective regression analysis. Covariates that did not contribute significantly to the model were removed, and each regression was conducted again with only the significant covariates included (Field, 2005). Age, education level, self-perceived health, and self-perceived mental health remained in each analysis. Marital status, number of children under the age of 12 in the household, and household size were removed from the model, as they were not statistically or practically significant. In addition to these remaining covariates from Andersen’s model, body satisfaction/dissatisfaction (body satisfaction coded 0 and body dissatisfaction coded 1) was entered as a main effect in model two. In step three the interaction effect of body satisfaction/dissatisfaction by ethnicity was also added, in addition to the significant covariates, and the main effects found in step 2. In addition to the significant findings in model 3, the interaction effect of body satisfaction/dissatisfaction by income was entered into model 4. Finally, in addition to the significant findings in model 4, the multiplicative interaction effect of body
satisfaction/dissatisfaction by ethnicity by income was entered into model 5.

**Health Care Utilization**

**Model 1.** The first model of the health care regression examined Andersen’s predisposing, enabling, and needs factors as a predictor of health care utilization. Marital status, number of children under the age of 12 in the household, and household size were not significant covariates and were removed from the model. Model 1 included four covariates: age, education, self-perceived health and self-perceived mental health. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(7)=1.65$, $p=0.98$. The sensitivity of the model predicted 84.7% of health service utilization. The Andersen model was a strong model, $\chi^2(7)=149.48$, $p<.0001$. When looking at the practical significance, age, level of education, self-perceived health, and self-perceived mental health influenced health service utilization. Table 10 provides a summary of the final regression model.

When controlling for educational level, self-perceived health and self-perceived mental health, women between the ages of 24 and 39 (OR=1.49, CI=1.13-1.96), 40 and 59 (OR=1.48, CI=1.17-1.88), and women over the age of 60 (OR=2.34, CI=1.85-2.97) were highly more likely to consult a general practitioner about their physical, emotional, or mental health compared to women who are 18 to 24 years of age.

On the other hand, when controlling for age, self-perceived health, and self-perceived mental health, women with below a secondary education were much less likely to consult a general practitioner about their physical, emotional, or mental
When controlling for age, education, and self-perceived mental health, women who perceived their health as sub-optimal were much more likely to consult a general practitioner about their physical, emotional, or mental health compared to women who perceived their health as optimal, (OR=2.23, CI= 1.67-2.97).

Finally, when controlling for age, education, and self-perceived health, women who perceived their mental health as sub-optimal were much more likely to consult a general practitioner about their physical, emotional, or mental health compared to women who perceived their mental health as optimal, (OR=1.59, CI= 1.09-2.32).

**Model 2.** The second model of the health care regression examined body dissatisfaction as a predictor of health care utilization, and pertains to hypothesis 1.0. Specifically, compared to body satisfied women, body dissatisfied women were predicted to report more consultations with a general practitioner over their physical, emotional, and mental health. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, model two included four covariates: age, education, self-perceived health, and self-perceived mental health. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 1.65, p=0.85$. The sensitivity of the model predicted 84.6 % of health service utilization. The body dissatisfaction model was a stronger model than Andersen’s model, $\chi^2(7)= 161.35, p<.0001$. In addition to the previously explored significance of age, level of education, self-perceived health, and self-perceived
mental health, body dissatisfaction influenced health service utilization. Table 10 provides a summary of the final regression model.

More specifically, when controlling for age, educational level, self-perceived health, and self-perceived mental health, women who identified that they are body dissatisfied were highly more likely to consult a general practitioner about their physical, emotional, or mental health compared to women who identified as body satisfied, OR=1.35, CI=1.15-1.58.

Further, when only selecting body dissatisfied women, age, education level, and self-perceived health maintained their significance. Body dissatisfied women 60 years of age and over were highly more likely to utilize health care services compared to 18 to 24 year old body dissatisfied women, OR=2.27, CI=1.40-3.68. On the other hand, body dissatisfied women with a lower education were less likely to utilize health care services, compared to body dissatisfied women from higher incomes, OR=0.53, CI=0.40-0.69. Finally, body dissatisfied women who perceived their health as sub-optimal were much more likely to consult a general practitioner about their physical, emotional, or mental health compared to body dissatisfied women who perceived their health as optimal, OR=1.59, CI=1.09-2.32.

**Model 3.** The third model of the health care regression examined ethnicity as a predictor of health care utilization and pertains to hypothesis 2.0. Specifically, the main effect of body dissatisfaction on general practitioner use is greater among White women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the
following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity was entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 1.51$, $p=0.99$. The sensitivity of the model predicted 84.7% of health service utilization. The ethnicity model was a stronger model than the body dissatisfaction model, $\chi^2(9)= 173.92$, $p<.0001$. In addition to the previously explored significance of body dissatisfaction, age, level of education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity was not significant. Table 10 provides a summary of the final regression model.

**Model 4.** The fourth model of the health care regression examined income as a predictor of health care utilization and pertains to hypothesis 3.0. Specifically, the main effect of body dissatisfaction on general practitioner use is greater among higher income women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by income were entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 4.66$, $p=0.79$. The sensitivity of the model predicted 84.6% of health service utilization. The income model was a stronger model than the ethnicity model, $\chi^2(9)= 168.03$, $p<.0001$. In addition to the previously explored significance of body dissatisfaction, age, level of education, self-
perceived health, and self-perceived mental health, the interaction effect of body
satisfaction/dissatisfaction by income was not significant. Table 10 provides a
summary of the final regression model.

**Model 5.** The fifth model of the health care regression examined the
multiplicative interaction of body satisfaction/dissatisfaction by ethnicity by income
as a predictor of health care utilization and pertains to hypothesis 4.0. Specifically, it
was hypothesized that body dissatisfaction, income, and ethnicity interact on
general practitioner use to affect a multiplicative advantage among higher income,
White women. Significant odds ratios were interpreted according to the reference
category.

In addition to the main effect of body satisfaction/dissatisfaction, and the
following covariates: age, education, self-perceived health, and self-perceived mental
health, the interaction effect of body satisfaction/dissatisfaction by ethnicity by
income were entered into the model. This model was a good fit to the data according
to the Hosmer and Lemeshow test, $\chi^2(8)= 3.37$, $p=0.91$. The sensitivity of the model
predicted 84.6% of health service utilization. The multiplicative interaction model
was not as strong a model as the income model, $\chi^2(9)= 174.43$, $p<.0001$. The
interaction effect of body satisfaction/dissatisfaction by ethnicity by income was not
significant. Table 10 provides a summary of the final regression model.
Table 10.
Binary Logistic Regression Analysis of Body Dissatisfaction, Ethnicity, and Income on Health Care Service Utilization (n=5692)

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
<th>Model 5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>95 % CI</td>
<td>OR</td>
<td>95 % CI</td>
<td>OR</td>
<td>95 % CI</td>
<td>OR</td>
<td>95 % CI</td>
<td>OR</td>
<td>95 % CI</td>
</tr>
<tr>
<td><strong>AGE:</strong></td>
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Notes. REF= Reference category; Marital status, number of children under the age of 12 in the household, and household size were removed from the model as they were not statistically or practically significant; *p<.05.
Mental Health Care Utilization

Model 1. The first model of the mental health care regression examined Andersen’s predisposing, enabling, and needs factors as a predictor of mental health care utilization. Marital status, number of children under the age of 12 in the household, and household size were not significant covariates and were removed from the model. Model 1 included four covariates: age, education, self-perceived health, and self-perceived mental health. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(7)=5.77$, $p=0.45$. The sensitivity of the model predicted 83.5% of mental health service utilization. The Andersen model was a strong model, $\chi^2(7)=438.99$, $p<.0001$. When looking at the practical significance, age, level of education, self-perceived health, and self-perceived mental health influenced health service utilization. Table 11 provides a summary of the final regression model.

When controlling for educational level, self-perceived health, and self-perceived mental health, women between the ages of 24 and 39 were more likely to consult a health care professional about their mental health compared to women between the ages of 18 and 24, OR=1.37, CI=1.03-1.83. By contrast, women over the age of 60 were much less likely to consult a health professional about their mental health compared to women who are 18 to 24 years of age, OR=0.55, CI=0.42-0.72. All other age categories were not significant.

When controlling for age, self-perceived health, and self-perceived mental health, women with below a secondary education were much less likely to consult a health professional about their mental health compared to higher educated women,
When controlling for age, education and self-perceived mental health, women who perceived their health as sub-optimal were much more likely to consult a health professional about their mental health compared to women who perceived their health as optimal, \( \text{OR}=1.52, \text{CI}= 1.24-1.87 \).

Finally, when controlling for age, education, and self-perceived health, women who perceived their mental health as sub-optimal were significantly more likely to consult a health professional about their mental health compared to women who perceived their mental health as optimal, \( \text{OR}=6.01, \text{CI}= 4.76-7.61 \).

**Model 2.** The second model of the mental health care regression examined body dissatisfaction as a predictor of mental health care utilization and pertains to hypothesis 1.1. Specifically, compared to body satisfied women, body dissatisfied women were predicted to report more consultations with health professional about their mental health. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, model two included four covariates: age, education, self-perceived health, and self-perceived mental health. This model was a good fit to the data according to the Hosmer and Lemeshow test, \( \chi^2(7)= 8.75, p=0.27 \). The sensitivity of the model predicted 83.5\% of mental health service utilization. The body dissatisfaction model was a stronger model than Andersen's model, \( \chi^2(7)= 476.37, p<.0001 \). In addition to the previously explored significance of age, level of education, self-perceived health, and self-perceived mental health, body dissatisfaction influenced mental health service
utilization. Table 1 provides a summary of the final regression model.

More specifically, when controlling for age, educational level, self-perceived health, and self-perceived mental health, women who identified that they are body dissatisfied were highly more likely to consult a health professional about their mental health compared to women who identified as body satisfied, OR=1.58, CI=1.37-1.83.

Further, when only selecting body dissatisfied women, age, education level, self-perceived health, and self-perceived mental health maintained their significance. Body dissatisfied women between the ages of 40 and 59 and 60 years of age and over were much less likely to utilize mental health care services, compared to 18 to 24 year old body dissatisfied women, OR=0.56, CI=0.37-0.84 and OR=0.31, CI=0.20-0.47 respectfully. Similarly, body dissatisfied women with a lower education were less likely to utilize mental health care services, compared to body dissatisfied women from higher incomes, OR=0.54, CI=0.42-0.68. On the other hand, body dissatisfied women who perceived their health as sub-optimal were much more likely to consult a health professional about their mental health compared to body dissatisfied women who perceived their health as optimal, OR=1.34, CI=1.01-1.77. Finally, body dissatisfied women who perceived their mental health as sub-optimal were much more likely to consult a health professional about their mental health compared to body dissatisfied women who perceived their mental health as optimal, OR=4.89, CI=3.54-6.74.

**Model 3.** The third model of the mental health care regression examined ethnicity as a predictor of mental health care utilization, and pertains to hypothesis
2.1. Specifically, the main effect of body dissatisfaction on mental health care use is greater among White women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity were entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 6.53$, $p=0.59$. The sensitivity of the model predicted 83.6% of mental health service utilization. The ethnicity model was a stronger model than the body dissatisfaction model, $\chi^2(9)= 511.57$, $p<.0001$. In addition to the previously explored significance of body dissatisfaction, age, level of education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity was not significant. Table 11 provides a summary of the final regression model.

**Model 4.** The fourth model of the mental health care regression examined income as a predictor of mental health care utilization and pertains to hypothesis 3.1. Specifically, the main effect of body dissatisfaction on mental health care use is greater among higher income women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by income were entered into the model. This model was a good fit to the data according to the
Hosmer and Lemeshow test, $\chi^2(7)= 6.27$, $p=0.51$. The sensitivity of the model predicted 83.5% of mental health service utilization. The income model was a stronger model than the ethnicity model, $\chi^2(9)= 518.09$, $p<.0001$. In addition to the previously explored significance of body dissatisfaction, age, level of education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by income was not significant. Table 11 provides a summary of the final regression model.

**Model 5.** The fifth model of the mental health care regression examined the multiplicative interaction of body satisfaction/dissatisfaction by ethnicity by income as a predictor of mental health care utilization and pertains to hypothesis 4.1. Specifically, it was hypothesized that body dissatisfaction, income, and ethnicity interact on mental health care use to result in a multiplicative advantage among higher income, White women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity by income were entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(7)= 7.08$, $p=0.42$. The sensitivity of the model predicted 83.5% of mental health service utilization. The multiplicative interaction model was a not strong a model as the income model, $\chi^2(10)= 518.45$, $p<.0001$. The interaction effect of body satisfaction/dissatisfaction by ethnicity by income was not significant. Table 11 provides a summary of the final regression model.
Table 1.
Binary Logistic Regression Analysis of Body Dissatisfaction, Ethnicity, and Income on Mental Health Service Utilization (n=5688)

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<tr>
<th></th>
<th>Model 1</th>
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<th>Model 2</th>
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<th>Model 3</th>
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Notes. REF= Reference category; Marital status, number of children under the age of 12 in the household, and household size were removed from the model as they were not statistically or practically significant; *p<.05.
Unmet Needs

**Model 1.** The first model of the unmet need regression examined Andersen’s predisposing, enabling, and needs factors as a predictor of reported unmet needs. Marital status, number of children under the age of 12 in the household, and household size were not significant covariates and were removed from the model. Model 1 included four covariates: age, education, self-perceived health, and self-perceived mental health. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(5)= 3.95, p=0.56$. The sensitivity of the model predicted 87.3% of unmet needs. The Andersen model was a strong model, $\chi^2(6)= 145.80, p<.0001$. When looking at the practical significance, age, level of education, self-perceived health and self-perceived mental health influenced health service utilization. Table 12 provides a summary of the final regression model.

When controlling for educational level, self-perceived health, and self-perceived mental health, women over the age of 60 were much less likely to report unmet health care needs compared to women who are 18 to 25 years of age, OR=0.63, CI= 0.42-0.95. All other age categories were not significant.

When controlling for age, self-perceived health, and self-perceived mental health, women with below a secondary education were much less likely to report unmet health care needs compared to higher educated women, OR=0.70, CI= 0.55-0.88.

When controlling for age, education, and self-perceived mental health, women who perceived their health as sub-optimal were much more likely to report
unmet health care needs compared to women who perceived their health as optimal, OR=2.82, CI= 2.15-3.68.

Finally, when controlling for age, education, and self-perceived health, women who perceived their mental health as sub-optimal were significantly more likely to report unmet health care needs compared to women who perceived their mental health as optimal, OR=2.36, CI= 1.70-3.28.

**Model 2.** The second model of the unmet need regression examined body dissatisfaction as a predictor of reported unmet health care needs and pertains to hypothesis 1.2. Specifically, compared to body satisfied women, body dissatisfied women were predicted to report more unmet needs. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, model two included four covariates: age, education, self-perceived health and self-perceived mental health. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 6.12$, p=0.63. The sensitivity of the model predicted 87.2% of reported unmet needs. The body dissatisfaction model was a stronger model than Andersen’s model, $\chi^2(7)= 157.07$, p<.0001. In addition to the previously explored significance of age, level of education, self-perceived health, and self-perceived mental health, body dissatisfaction influenced reported unmet needs. Table 12 provides a summary of the final regression model.

More specifically, when controlling for age, educational level, self-perceived health, and self-perceived mental health, women who identified that they are body dissatisfied were highly more likely to report unmet needs compared to women who
identified as body satisfied, OR=1.45, CI= 1.17-1.79.

Further, when only selecting body dissatisfied women, age, self-perceived health, and self-perceived mental health maintained their significance. Body dissatisfied women over the age of 60 were much less likely to report unmet needs compared to 18 to 24 year old body dissatisfied women, OR=0.42, CI=0.22-0.79. On the other hand, body dissatisfied women who perceived their health as sub-optimal were much more likely to report unmet needs compared to body dissatisfied women who perceived their health as optimal, OR=2.12, CI=1.46-3.09. Finally, body dissatisfied women who perceived their mental health as sub-optimal were much more likely to report unmet needs compared to body dissatisfied women who perceived their mental health as optimal, OR=2.48, CI=1.62-3.82.

**Model 3.** The third model of the unmet need regression examined ethnicity as a predictor of unmet needs and pertains to hypothesis 2.2. Specifically, the main effect of body dissatisfaction on reported unmet needs is greater among White women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, and the interaction effect of body satisfaction/dissatisfaction by ethnicity were entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(7)= 7.23$, $p=0.41$. The sensitivity of the model predicted 87.2% of reported unmet needs. The ethnicity model was a stronger model than the body dissatisfaction model, $\chi^2(9)= 160.73$, $p<.0001$. In addition to
the previously explored significance of body dissatisfaction, age, level of education, self-perceived health and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity was not significant. Table 12 provides a summary of the final regression model.

**Model 4.** The fourth model of the unmet need regression examined income as a predictor of unmet needs and pertains to hypothesis 3.2. Specifically, the main effect of body dissatisfaction on reported unmet needs is greater among higher income women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by income was entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 5.60$, $p=0.69$. The sensitivity of the model predicted 87.2% of reported unmet needs. The ethnicity model was a stronger model than the body dissatisfaction model, $\chi^2(8)= 170.49$, $p<.0001$. In addition to the previously explored significance of body dissatisfaction, age, level of education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by income was not significant. Table 12 provides a summary of the final regression model.

**Model 5.** The fifth model of the unmet need regression examined the multiplicative interaction of body satisfaction/dissatisfaction by ethnicity by income as a predictor of unmet needs and pertains to hypothesis 4.2. Specifically it was
hypothesized that body dissatisfaction, income and ethnicity interact on unmet needs to result in a multiplicative disadvantage among lower income, visible minority women. Significant odds ratios were interpreted according to the reference category.

In addition to the main effect of body satisfaction/dissatisfaction, and the following covariates: age, education, self-perceived health, and self-perceived mental health, the interaction effect of body satisfaction/dissatisfaction by ethnicity by income were entered into the model. This model was a good fit to the data according to the Hosmer and Lemeshow test, $\chi^2(8)= 5.60, p=0.69$. The sensitivity of the model predicted 87.2% of reported unmet needs. The multiplicative interaction model was not as strong a model as the income model, $\chi^2(9)= 171.08, p<.0001$. The interaction effect of body satisfaction/dissatisfaction by ethnicity by income was not significant. Table 12 provides a summary of the unmet need regression model.
Table 12.
Binary Logistic Regression Analysis of Body Dissatisfaction, Ethnicity, and Income on Unmet Needs (n=3269)

<table>
<thead>
<tr>
<th></th>
<th>Model 1 OR 95 % CI</th>
<th>Model 2 OR 95 % CI</th>
<th>Model 3 OR 95 % CI</th>
<th>Model 4 OR 95 % CI</th>
<th>Model 5 OR 95 % CI</th>
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<tr>
<td><strong>AGE:</strong></td>
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<td>18-24 years (REF)</td>
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<tr>
<td>25-39 years</td>
<td>1.45 (0.93-2.27)</td>
<td>1.41 (0.90-2.20)</td>
<td>1.42 (0.91-2.22)</td>
<td>1.42 (0.91-2.22)</td>
<td>1.43 (0.91-2.24)</td>
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<tr>
<td>40-59 years</td>
<td>0.92 (0.61-1.38)</td>
<td>0.88 (0.59-1.33)</td>
<td>0.89 (0.59-1.34)</td>
<td>0.89 (0.59-1.35)</td>
<td>0.88 (0.59-1.33)</td>
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<tr>
<td>60+ years</td>
<td><strong>0.63</strong> (0.42-0.95)</td>
<td><strong>0.62</strong> (0.41-0.93)</td>
<td><strong>0.64</strong> (0.42-0.96)</td>
<td><strong>0.57</strong> (0.52-0.84)</td>
<td><strong>0.56</strong> (0.37-0.85)</td>
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<td><strong>EDUCATION LEVEL:</strong></td>
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<tr>
<td>Secondary and above</td>
<td>0.70 (0.55-0.88)</td>
<td>0.70 (0.55-0.89)</td>
<td>0.70 (0.55-0.89)</td>
<td>0.66 (0.52-0.84)</td>
<td>0.66 (0.52-0.84)</td>
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<td>Below Secondary</td>
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<td><strong>SELF-PERCEIVED HEALTH:</strong></td>
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<tr>
<td>Optimal (REF)</td>
<td>2.82 (2.15-3.68)</td>
<td>2.66 (2.03-3.48)</td>
<td>2.62 (2.00-3.44)</td>
<td>2.43 (1.85-3.21)</td>
<td>2.46 (1.87-3.23)</td>
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<td>Sub-optimal</td>
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<tr>
<td><strong>SELF-PERCEIVED MENTAL HEALTH:</strong></td>
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<tr>
<td>Optimal (REF)</td>
<td>2.36 (1.70-3.28)</td>
<td>2.26 (1.63-3.15)</td>
<td>2.25 (1.62-3.14)</td>
<td>2.21 (1.59-3.08)</td>
<td>2.22 (1.59-3.09)</td>
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<td>Sub-optimal</td>
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<td><strong>BODY SAT/DISSATISFACTION:</strong></td>
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<tr>
<td>Body Satisfaction (REF)</td>
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<tr>
<td>Body Dissatisfaction</td>
<td>1.45 (1.17-1.79)</td>
<td>1.58 (1.23-2.02)</td>
<td>1.43 (1.12-1.82)</td>
<td>1.49 (1.20-1.86)</td>
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<tr>
<td><strong>INTERACTION: Ethnicity</strong></td>
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<tr>
<td>Body SAT/DIS * Ethnicity</td>
<td>0.74 (0.45-1.22)</td>
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<tr>
<td><strong>INTERACTION: Income</strong></td>
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<tr>
<td>Body Sat/Dis * Income</td>
<td>1.06 (0.72-1.57)</td>
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<tr>
<td><strong>INTERACTION: Ethnicity &amp; Income</strong></td>
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<td></td>
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<tr>
<td>Body Sat/Dis * Income * Ethnicity</td>
<td>0.80 (0.44-1.44)</td>
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Notes. REF= Reference category; Marital status, number of children under the age of 12 in the household, and household size were removed from the model as they were not statistically or practically significant; *p<.05.
CHAPTER 5
DISCUSSION

This section includes a description of body dissatisfaction in Canada, as well as summaries and interpretations of the major findings in this study with regard to socioeconomic barriers to service utilization for women at risk for developing an eating disorder. Strengths and limitations of the current study are presented and are followed by implications and recommendations for practice and future research.

Review of the Rationale for the Current Study

Individuals with eating disorders are associated with high utilization of health services, yet they often do not receive the necessary specialized treatment (Cachelin et al., 2000; Kazdin, Fitzsimmons-Craft, & Wilfley, 2017; Mond et al., 2007; Mond et al., 2009; Mond et al., 2010; Striegel-Moore et al., 2008). Inadequate treatment increases the disease burden of eating disorders due to the associated health morbidities (Rome & Ammerman, 2003), poor quality of life (Mond et al., 2012; Wagner et al., 2016), high mortality rate (Fitcher & Quadflieg, 2016), and significant psychological impairment (Klump et al., 2009). The social costs associated with inadequate treatment utilization are also significant, as there are high direct costs of health and mental health services, as well as increased indirect costs related to time lost from work, childcare expenses, and travel costs (Kessler et al., 1999; Stuhldreher et al., 2012). Eating disorder literature has continued to focus on the various individual behavioural reasons for not seeking treatment, such as motivation (Striegel-Moore et al., 2007; Thompson et al., 2004). However, extensive
research in other health and mental health fields has established that the most important factors that contribute to service utilization and the health of a population are the social, cultural, and economic conditions in which people live (Mikkonen & Raphael, 2010; Myers, 2009; Raphael, 2009; 2010; Raphael et al., 1999). Due to the gaps in the current state of knowledge, little is known about the socioeconomic barriers to service utilization in eating disorder literature.

The purpose of this study was to use Andersen’s behavioural model of health service use (Andersen, 1995) to examine the socioeconomic barriers to health service use and mental health service use, and reported unmet needs of women at risk for developing an eating disorder. Andersen’s (1995) behavioural model of health service use is one of the most frequently used frameworks for exploring health care services (Babitsch et al., 2012; Erickson et al., 2002; Gilbert et al., 1993; Lemming & Calsyn, 2006; Pandiani, 2005; True et al., 1997; Wu et al., 2001). This model is based on systems perspective, one of the primary social work perspectives, to integrate various predisposing variables (i.e., age and ethnicity), enabling variables (i.e., income and educational attainment), and need variables (i.e., perception of health and mental health) associated with utilization of health care services (Andersen, 1995). Unmet health care needs are also explored, as they provide feedback on health and mental health services.

**Study Description of Body Dissatisfaction in Canada**

Existing literature from the United States identified that the prevalence rate of body dissatisfaction is between 13.4% and 31.8% among women (Fallon et al., 2014). However, the sample with an overrepresentation of White, middle aged
adults calls for an investigation on the rates of body dissatisfaction amongst diverse subgroups (Grogan, 2011). In fact, one study suggested that individuals with Hispanic or Black ethnic backgrounds had less body dissatisfaction compared to individuals with a White ethnic background (Frederick et al., 2006). In addition, Frederick and colleagues (2006) highlighted that women between the ages of 18 and 34 had 5% to 9% lower body dissatisfaction than middle aged and older women up to 69 years of age. Fallon et al. (2014) also confirmed that younger participants between the ages of 18 and 24 had greater body satisfaction than middle aged individuals; however, they found that older adults over the age of 65 also had higher body satisfaction than the middle aged group.

Similar to those U.S.-based research results, the present study identified that 23.5% of the Canadian sample reported some level of body dissatisfaction. This is substantial, as it means that approximately 1 in 4 Canadian women is experiencing some degree of body dissatisfaction, which is associated with up to a four-fold increase in eating disorder onset (Marti & Durant, 2011; Stice, 2002; Stice et al., 2011). Not only is there an increased risk, but body dissatisfaction also maintains eating disorders by promoting dieting and negative affect (Johnson & Wardle, 2005; Marti & Durant, 2011; Neumark-Sztainer et al., 2006; Stice, 2001; 2002; Stice & Shaw, 2002). While not all of the women who identified as body dissatisfied will develop an eating disorder, all women diagnosed with an eating disorder will experience body dissatisfaction. Body dissatisfaction is also associated with depression (Stice et al., 2000), social anxiety (Cash & Labarge, 1996), sexual dysfunction (Wiederman, 2012), suicidality (Rodriguez-Cano et al., 2006), and

Considering the health risks associated with being body dissatisfied, it is important to understand how these women navigate the health care system.

In terms of the diversity in the sample characteristics, this study had similar sample characteristics, being overrepresented by middle aged and economically advantaged women. For instance, over half of this study’s entire sample had a family income of over $60,000, with 34% making over $80,000. In comparison, reported average income among Canadian women of any age was $30,100 (Statistics Canada, 2015d), suggesting that this study’s population has more economic resources than the average Canadian woman. While this study did include individuals in the lower income bracket (12%), which is comparable to the number of women of any age with lower incomes in Canada (Statistics Canada, 2015d), the most destitute individuals, those being homeless, were not captured in this dataset. This is important to note, as Gard’s (1994) study found that over 19% of the homeless population interviewed had an eating disorder, which is much higher than the general population’s eating disorder prevalence (Hudson et al., 2007). Considering eating disorder symptoms are used as a way to cope with stressful life events, it makes sense that women experiencing extreme financial stress may feel more body dissatisfied, leading to poor affect and eating disorder behaviours. Due to the abundance of well off women in this dataset, further studies need to include samples along the income continuum.

In regard to ethnicity, 82% of the women in this study were White. This comparable to the Canadian general population, where approximately 19 % of
individuals in Canada identify as a visible minority (Statistics Canada, 2011). Consistent with previous research (Frederick et al., 2006), this study identified that women who identified as visible minorities reported slightly lower (16.9%) rates of body dissatisfaction compared to body satisfaction (18.8%). While being a visible minority may have some degree of protective value against body dissatisfaction, this should be cautiously interpreted, as this study does not distinguish the unique diversity that is captured under the term ‘visible minority.’ For instance, all non-White ethnic groups are lumped into one category and there is no way of knowing within-group differences to represent specific sub-groups of ethnic minorities. This is important to mention, as body dissatisfaction would likely vary among different ethnic groups. In other words, while some women from different ethnic backgrounds other than the Caucasian group may experience lower levels of body dissatisfaction, others may experience higher levels. In addition, it is important to note that women from First Nations are not included in the sample of the Canadian Community Health Survey. Considering the current and historical context of the Indigenous population in Canada (Truth and Reconciliation Commission in Canada, 2015), and the health disparity in this population, it would be important to understand how First Nations women experience body dissatisfaction and the risk for eating disorders for future research. This means that considerable caution should be taken in interpreting the results for ethnically diverse groups of individuals.

The current study is also overrepresented by middle aged or older women. According to Statistics Canada, women over 40 represent 45% of the population.
(Statistics Canada, 2015e), whereas over 70% of women are over 40 in the current study. Further, over 35% of the women in this study are over 65, more than double the national average of 15.6% (Statistics Canada, 2015e). A reasonable explanation for the fact that this dataset is overrepresented by older women has to do with their availability and willingness to answer the CCHS. Even though over 70% of the sample was over 40 years of age, there was diversity in ages. More specifically, this study identified that the highest percentage of body dissatisfied women were over the age of 60, closely followed by 40 and 59 year old women, 25 and 39 year olds, and women between the ages of 18 and 24. The difference in rates of body dissatisfaction between ages is slightly inconsistent with existing literature (Fallon, 2014; Frederick et al., 2006), as middle aged women are report to have higher rates of body dissatisfaction compared to their younger and older cohorts. This is an important finding, as negative evaluation of one’s body compromises wellbeing throughout the life span (Robert-McComb & Massey-Stokes, 2014). While there is significant clinical and research focus on eating disorders during adolescence (Klump et al., 2007; Lewinsohn et al., 2000), few studies have examined eating disorders among middle aged or older adults. Considering the higher rate of body dissatisfaction found in middle aged and older women, this study points to the need for further attention to the surveillance, diagnosis, and ultimate service utilization experienced across the lifespan.

Despite demographic limitations mentioned above, this study has its significance in analyzing Canadian data on the occurrence of body dissatisfaction, and gives insight into the rate of body dissatisfaction across the adult lifespan.
Discussion of the Regression Models

This section will discuss the results of the regression analyses. Beginning with Andersen’s predisposing, enabling, and need factors on service utilization, followed by body dissatisfaction, ethnicity, and income, this section will move through each model highlighting the findings for health service utilization, mental health utilization, and unmet needs.

Andersen’s Predisposing, Enabling, and Need Factors on Service Utilization

Health care utilization. Age, educational attainment, perceived health, and perceived mental health remained in the model as covariates and will be further discussed.

It was not surprising that women over the age of 60 consulted a general practitioner more than women between the ages of 18 and 24, as increased age has previously predicted service use (Andersen et al., 2002; Ani et al., 2008; Blackwell et al., 2009; Chen et al., 2008; Dhingra et al., 2010; Hochhausen et al., 2011; Stockdale et al., 2007; Surood & Lai, 2010). A reasonable explanation for higher service use is related to the increased number of ailments that individuals acquire as they age. While not the focus of this study, it is important to consider how this may apply to an eating disorder sample. Considering body dissatisfaction is a key diagnostic feature of eating disorders (Delinsky, 2011; Rhonde et al., 2015) and often leads to the development and maintenance of eating disorders by promoting dieting and negative affect (Johnson & Wardle, 2005; Neumark-Sztainer et al., 2006; Rhonde et al., 2015; Stice, 2001; 2002; Stice et al., 2017; Stice, Marti, & Durant, 2011; Stice &
Shaw, 2002), there are a number of additional health complications that can arise leading to increased service utilization. Body dissatisfied women may have been engaging in restrictive dieting, binging, or purging behaviours over a longer period of time, which increases the risk for endocrine, skeletal, and cardiovascular impairment (Academy for Eating Disorders, 2012; Ágh et al., 2015; Fairburn & Harrison, 2003; Fischer & LeGrange, 2007; Hay & Mond, 2005; Stice et al., 2000). While it is likely that age alone may influence the results, being mindful of the complexities associated with eating disorder behaviours can help contextualize health service use in this population.

Interestingly, when controlling for age, perceived health, and perceived mental health, educational attainment was associated with health service use. More specifically, women with lower educational attainment were much less likely to consult a general practitioner about their physical, emotional, or mental health compared to women with higher educational attainment. While not surprising considering the overwhelming agreement in the general health literature (Andersen et al., 2002; Blackwell et al., 2009; Chen et al., 2008; Hammond et al., 2010; Raphael, 2009), this finding contributes to the limited discussion in the eating disorder literature. This finding has highlighted that the body dissatisfied women who are most vulnerable to low health care utilization may be those with lower educational attainment.

In addition, the first model found that women who perceived their health or mental health as sub-optimal were highly more likely to utilize health and mental health services compared to women who perceived their health as optimal, when
controlling for age and education level. It is not surprising that women who perceived their health as poor are more apt to seek health services. In fact, the general health literature reiterates that perceived need has been found to be the strongest predictor of service utilization (Andersen & Newman, 1973; Blackwell et al., 2009; Dhingra et al., 2010; Lefebvre et al., 1998). This was similarly found in the eating disorder literature (Lewinsohn et al., 2000). Perceived need means that these women have recognized that they are experiencing a health problem. This requires a level of awareness and understanding about their health and a willingness to seek treatment.

**Mental health care utilization.** Age, educational attainment, perceived health, and perceived mental health remained in the model as covariates and will be further discussed.

When controlling for educational attainment, perceived health, and perceived mental health, women 60 years of age and older were much less likely to consult a professional about their mental health, compared to women who are between the ages of 18 and 24. On the other hand women between the age of 25 and 39 were more likely to utilize mental health services compared to 18 to 24 year old women. Contrary to health service utilization, which indicates that utilization increases with age, mental health service utilization literature has reported conflicting results. For instance, some studies show a curvilinear association, where middle aged people use services more than those who are younger and older (Leaf et al., 1995; Lin et al., 1996), while others show no relationship between age and utilization (Lefebvre et al., 1998; Rhodes et al., 2002). Still other studies indicate that mental health services
decrease with age (Stockdale et al., 2007). It is likely that various population-specific characteristics may inform how age influences mental health utilization. However, as indicated earlier, there are limited studies examining older adults, and this study’s results likely reflect the population-specific characteristics, such as eating disorder risk. Eating disorder literature tends to be focussed on adolescence to young adulthood (Klump et al., 2007; Lewinsohn et al., 2000), despite its persistence into adulthood. In fact, onset of an eating disorder may occur later among the members of some ethnic minority groups (Pike et al., 2001). This means there is limited understanding of eating disorder service utilization across the lifespan. This study contributes to the knowledge of service utilization amongst older adults in Canada. This knowledge can be used to improve understanding and practice of effective surveillance, diagnosis, and service utilization amongst older populations.

When controlling for age, perceived health, and perceived mental health, educational attainment was associated with mental health service utilization. More specifically, women with lower educational attainment were much less likely to consult a professional about their mental health concerns compared to women who have a higher educational attainment. While not surprising considering the overwhelming agreement in the general literature (Andersen et al., 2002; Blackwell et al., 2009; Chen et al., 2008; Hammond et al., 2010; Raphael, 2009), this finding contributes to the limited discussion in the eating disorder literature.

In addition, this step in the analysis found that women who perceived their health or mental health as sub-optimal were highly more likely to consult
professional about their mental health compared to women who perceived their health as optimal, when controlling for predisposing, enabling, and need factors. It is not surprising that women who perceived their health as poor were more apt to seek mental health services. As stated previously, perceived need has been found to be the strongest predictor of service utilization (Andersen & Newman, 1973; Blackwell et al., 2009; Dhingra et al., 2010; Lefebvre et al., 1998; Lewinsohn et al., 2000). Perceived need means that these women have recognized they are experiencing a mental health problem. This requires a level of awareness and understanding about their health and a willingness to seek treatment.

**Unmet needs.** Age, educational attainment, perceived health, and perceived mental health remained in the model as covariates and will be further discussed.

When controlling for educational attainment, perceived health, and perceived mental health, women 60 years of age and older were much less likely to report unmet needs, compared to women who are between the ages of 18 and 24. These results are surprising considering decades of community-based research that has shown extensive unmet needs in older age groups (Brown, Boot, Groom, & Williams, 1997; Hoogendijk et al., 2014; Palinkas et al., 2007; Williamson et al., 1964). Previous research has suggested that older adults may not report unmet needs for the following reasons: a natural reluctance for older people to describe themselves as ill, and the minimization of health problems in order to avoid being labelled according to the negative stereotype of old age (Siddell, 1995). Other reasons related to the current research may include that these adults are having their needs met or, due to the higher than average household income, these particular adults
have access to more resources and may have their health care needs satisfied. Further investigation into those particular needs (mental health or physical health) are necessary to clarify these results.

Despite the current research findings that suggest lower educational attainment is a barrier to health and mental health service, women in this category also reported fewer unmet needs compared to women with higher educational attainment. Considering educational attainment tends to be integrated under the term socioeconomic status, these findings are surprising. Previous research indicated that reported unmet needs tend to be worse among those with lower socioeconomic status (Allin & Masseria, 2009; Lindstrom, Rosvall & Lindstrom, 2017). While people with higher socioeconomic statuses have a wide range of resources, including money, prestige, power, and social connections to use to maintain their health, women with lower educational attainment may not have the knowledge of health resources (Lindstrom et al., 2017) or may report their needs being met because health services may not be in the area (Lindstrom et al., 2017).

Finally, women who perceived their health or mental health as sub-optimal were more likely to report unmet needs compared to women who reported their perceived health or mental health as optimal. It is not surprising that women who perceived their health or mental health as sub-optimal are more likely to report unmet needs, as higher levels of distress, independent of a mental health diagnosis, have been related to unmet needs (Holmes, Nelson, & Park, 2006; Sareen, Cox, Afifi et al., 2005; Sareen, Stein, Campbell et al., 2005; Sunderland & Findlay, 2013; Urbanoski, Rush, Wild et al., 2007). Perceived need means that these women have
recognized they are experiencing a health or mental health problem, while unmet need means these individuals recognize that they are not receiving the care they need. This requires a level of awareness and understanding about their health and a willingness to seek treatment. Further exploration of predisposing, enabling, and unmet needs amongst body dissatisfied women in Canada is necessary.

**Body Dissatisfaction and Service Utilization**

*Health care utilization.* When controlling for age, educational attainment, perceived health and mental health this study found that women who were dissatisfied with the way their bodies looked were more likely to consult a general practitioner about their physical, emotional, or mental health than women who were satisfied with the way their bodies looked. Almost 88% of body dissatisfied women consulted a general practitioner, compared to 83% of body satisfied women. While not an eating disorder population specifically, this finding is not surprising due to the research that indicated that individuals with eating disorders have high service utilization (Cachelin et al., 2000; Mond et al., 2007; Mond et al., 2009; Mond et al., 2010; Striegel-Moore et al., 2008). These findings indicated that women at risk for developing an eating disorder have been in contact with a general practitioner in the past year and have had the opportunity to consult about their current physical, emotional, or mental health state. Therefore, a general practitioner is the point of contact for women seeking help related to their health issues beyond physical health, which has a significant practice implication in early detection and prevention or eating disorders.
This high percentage of service utilization among body dissatisfied women creates opportunities to reduce body dissatisfaction, identify eating disorders, and refer women to appropriate treatments. In addition, protocols for early intervention can be administered through this first point of contact into the health care system. Specific protocols are necessary, as up to 50% of eating disorder cases can go undetected in the primary care setting (Sim, McAlpine, Grothe, Himes, Cockerill, & Clark, 2010) due to lack of training and atypical diagnostic presentations (Dooley-Hash, Lipson, Walton, & Cunningham, 2013). In addition to early detection, general practitioner offices can be targeted to implement prevention strategies which may reduce body dissatisfaction and the progression into full-blown eating disorders. For instance, as part of preventative medicine, general/family practitioners need to include a question on body satisfaction during the initial contact with the patient instead of solely focusing on the immediate or surface symptoms that patients report at the moment. A comprehensive meta-analysis reported that most eating disorder prevention programs led to reduction in at least one eating disorder risk factor, including body dissatisfaction (Stice, Shaw, & Marti, 2007). If women who are body dissatisfied are regularly accessing health services, then general practitioner offices are appropriate venues to implement strategies to improve the wellbeing of this population.

**Mental health care utilization.** When controlling for age, educational attainment, and perceived health and mental health, this study found that women who were dissatisfied with the way their bodies looked consulted a professional about their mental health more than women who were satisfied with the way their
bodies looked. While most women (85%) who were body satisfied did not consult a professional about their mental health, one quarter of women who were body dissatisfied did consult a professional. Although existing literature suggests that most individuals with eating disorders do not receive the necessary specialized treatment (Cachelin et al., 2000; Mond et al., 2007; Mond et al., 2009; Mond et al., 2010; Striegel-Moore et al., 2008), this study found that body dissatisfied women contact professionals more often about their mental health than body satisfied women. While more body dissatisfied women than body satisfied women consult professionals about their mental health, the majority of body dissatisfied women (75%) do not. Due to the limitations of the dataset, this study was not able to determine which mental health concerns were discussed, including whether or not the consultations related to body dissatisfaction and/or eating disorder symptomology, nor if referrals or treatment was provided.

When asked which mental health professional these women spoke, body dissatisfied women were significantly more apt to report that they had spoken to a family doctor or a psychiatrist than body satisfied women. Further, there was no difference between groups on consulting a psychologist, nurse, or a social worker. While psychiatrists and family doctors tend to address the medical aspect of mental health, psychologists and social workers are often the front line workers who provide psychological interventions. A mental health professional is more apt to provide appropriate supportive services for feelings of body dissatisfaction and eating disorders, as the issue involves perception on one’s body, not solely a physical health problem. Providing appropriate treatment will reduce the associated
individual health costs, such as eating disorder behaviours (Johnson & Wardle, 2005; Marti & Durant, 2011; Neumark-Sztainer et al., 2006; Stice 2001; 2002; Stice & Shaw, 2002), depression (Stice et al., 2000), social anxiety (Cash & Labarge, 1996), sexual dysfunction (Wiederman, 2012), and suicidality (Rodriguez-Cano et al., 2006). While the incidence of seeking mental health services by frontline workers appears low, this group of women may represent the individuals who are experiencing the most distress due to their perceptions of their own body image, including those most at risk for developing an eating disorder. This study does not identify the types of mental health concerns addressed during the mental health consultation, which necessitates future research.

**Unmet need.** When controlling for age, educational attainment, perceived health, and mental health, this study found that body dissatisfied women were much more likely to identify unmet needs compared to body satisfied women. Unmet need has been referred to as a measure of “the differences, if any, between those services judged necessary to deal appropriately with defined health problems and those services actually being received. An unmet need is the absence of any, or of sufficient, or of appropriate care and services” (Carr & Wolfe, 1976, p. 418). Therefore, body dissatisfied women are more likely to perceive that they have not received an effective treatment that could have improved their health or mental health. It is not possible to know from the data what physical, emotional, or mental health needs these women felt were unmet, only that body dissatisfied women reported more unmet needs than body satisfied women. To this author’s knowledge, this is the first study that has examined body dissatisfaction and unmet health care
needs. In the literature, the connection between body dissatisfaction and unmet needs are typically examined through various other illnesses, such as cancer (Mohamed, 2014) and lupus (Jolly et al., 2012). Considering the connection between body dissatisfaction and eating disorders, it is not surprising that women who are dissatisfied with the way their bodies looked report unmet needs. Mental health literature report that adults with mental illness were ten times more likely to report unmet needs when compared to adults without mental illness (Ojeda & Bergstresser, 2008). The eating disorder literature is limited however, Hart and colleagues (2011) estimated that up to 83% of individuals with eating disorders will have unmet treatment needs. This is important, as unmet eating disorder treatment needs are associated with substantial individual and social costs, including equitable service utilization. At the individual level, unmet treatment needs are associated with reduced productivity from time lost from work and social activities, poor quality of life, medical complications, including death, long-term disability, and acute care service utilization (Franko et al., 2013; Kessler et al., 1999; Stuhldreher et al., 2012). The social costs of unmet needs include indirect costs incurred through reduced labour supply, income support payments, reduced educational attainment, and high financial costs for healthcare and mental health care use (Bailey et al., 2014; Insel, 2008; Krauth et al., 2002; Su & Birmingham, 2003). With the significance of the chronic disease risks, suffering and social costs related to the continuum of eating disorders, including body dissatisfaction, researchers need to advance the understanding of barriers to more effective service utilization.
Interaction of Body Satisfaction/Dissatisfaction by Ethnicity

Contrary to expectations, the effect of body dissatisfaction on women’s use of health and mental health services did not differ based on ethnicity. These null findings are surprising considering that previous research indicates that ethnicity is aligned with differences in service utilization (Andersen et al., 2002; Chen et al., 2008; Malhotra, Shim, Baltrus, Heiman, Adekeye, & Rust, 2015; Nabalamba & Millar, 2007; Smedley et al., 2002; Stockdale et al., 2007). It is also well known that visible minority women are less likely to use mental health services due to cultural difference and associated stigma (Chaze, Thomson, George, & Guruge, 2015).

Similarly, the eating disorder literature found ethnic minority populations report receiving less specialized eating disorder treatment than White women (Becker et al., 2003; Cachelin & Striegel-Moore, 2006; Cachelin et al., 2000; Franko et al., 2007; Lee-Winn et al., 2014; Marques et al., 2011; Pike et al., 2001; Tareen et al., 2005; Waller et al., 2009). However, there are a number of reasonable explanations for these findings. First, it is possible that women who are unhappy with their bodies seek services in a similar fashion regardless of their ethnic background. Second, it is possible that collapsing multiple groups into a single category of ethnic minorities influenced the results. Although, typically, amalgamating categories into one group increases the likelihood of difference, different ethnic minority groups may be vastly different. For instance, immigration status, including number of years in Canada, level of acculturation, language, and religion add to the complexity of ethnic minority women. In fact, a recent scoping review reported that visible minorities are invisible in Canadian health data and research (Khan, Kobayashi, Vang, & Lee, 2017).
Further, they assert that distinction amongst groups of ethnic minority individuals, including differences between Canadian born individuals and immigrants, are largely missing. It is likely that body dissatisfaction differs amongst different groups of individuals; therefore, researchers should consider these differences when sampling.

Similarly, the effect on reported unmet needs also did not differ based on ethnicity. This is surprising considering the literature that indicates individuals who identify as visible minorities are less likely to report unmet needs (Asanin & Wilson, 2008; Oxman-Martinez, Hanley, Lach, Khanlou, Weerasinghe, & Agnew, 2005). As stated previously, a reasonable explanation of this finding is the amalgamation of women from different minority groups into one category. A recent scoping review reported that visible minorities are invisible in Canadian health data and research (Khan et al., 2017). It is likely that unmet needs differs amongst different groups of individuals, thus, researchers should consider these differences when collecting their samples.

**Interaction of Body Satisfaction/Dissatisfaction by Income**

Service utilization is a multidimensional process that begins with an ability to identify a health or mental health care need, continues by possibly seeking and reaching health services, and ends with the actual obtainment of appropriate care based on need (Andersen, 1995; Levesque et al., 2013). Contrary to expectations, the effect of body dissatisfaction on women’s use of health and mental health services did not differ based on income. These null findings are surprising considering income has clearly been found in previous health and mental health research to be
associated with diminished service utilization (Andersen & Newman, 1973; Chipman, 2010; Corrigan, Druss, & Perlick, 2014; Goldman, 2001; Mackenback et al., 2008; McGibbon et al., 2008; McIntosh et al., 2009; Raphael, 2009; 2010; Schofield, Forchuk, Montgomery, Rudnick, Edwards, Meier, & Speechley, 2016; Wilkins et al., 2002). Although it was given minimal attention, a similar finding was found in eating disorder literature (Gard & Freeman, 1996). A reasonable explanation for this finding is that this sample is overrepresented by higher income individuals, and it does not include individuals who may be most vulnerable from the effects of income disparity: people who are homeless. Future studies should consider these complexities and the indirect costs associated with service utilization established in the literature (Kessler et al, 1999; Stuhldreher et al, 2012), as the Public Health Agency of Canada (2015) and the Mental Health Commission of Canada (2012) have reported that poor social, cultural, and economic conditions heighten individuals’ risks of developing comorbidities, shortens life spans, and increases their reliance on a range of services. Addressing the burden of the intersecting factors that increase body dissatisfied women’s risk for experiencing unmet needs (Bryant et al., 2009) requires policies and programs that take into account the differential health needs, as well as ensuring appropriate and equitable delivery of care. Strategies that improve appropriate service utilization need to further examine the complexity of social, cultural, and economic contexts.

**Implications for Practice and Policy**

**High Health and Mental Health Service Use amongst Body Dissatisfied Women**
The study identified significant differences in service utilization between the body dissatisfied and body satisfied groups of women. These results highlight the need for appropriate detection, assessment, and supportive navigation throughout the health and mental health care systems. In addition, these results highlight the need for increased funding to support the treatment needs. To date, eating disorder research has paradoxically highlighted that individuals with eating disorders have high utilization of health services, yet they do not receive the necessary specialized treatment (Cachelin et al., 2000; Kazdin et al., 2017; Mond et al., 2007; Mond et al., 2009; Mond et al., 2010). This utilization often relates to comorbid mental health illness (Evans et al., 2011; Johnson et al., 2001; Mond et al., 2007), or seeking out weight loss advice (Evans et al., 2011; Mond et al., 2007; Striegel-Moore et al., 2007), rather than specialized eating disorder treatment (Klump et al., 2009; Simmons et al., 2008). This is important, as utilizing specialized treatment is essential in minimizing the significant individual and systemic effects of eating disorders (Klump et al., 2009; Simmons et al., 2008).

Similarly, this study also found that women who are body dissatisfied utilize health and mental health services more than body satisfied women. In addition to the high healthcare costs due to the increased service utilization, it is likely that these women are not receiving specialized care. This is likely because of the types of professionals these women consult. Body dissatisfied women were more likely to consult a family doctor and a psychiatrist than body satisfied women, and just as likely to consult a social worker or a psychologist as body satisfied women. Consulting a family doctor and a psychiatrist aligns with previous research that
suggests high utilization is related to comorbid mental health issues and to seeking weight loss advice. On the other hand, social workers and psychologists typically provide eating disorder treatment. Considering that body dissatisfied women have high service utilization, and likely do not receive adequate care, the findings inform the need to ensure appropriate detection of eating disorders in the primary care setting. Appropriate detection includes training healthcare professionals to appropriately assess for the presence of eating disorders and developing strategies to streamline service pathways. Prevention strategies that target primary care settings may be effective due to the high utilization of services amongst body dissatisfied population. It important to note that appropriate funding is necessary to develop these strategies.

**Disparities in Mental Health Service Utilization**

The current study identified disparities based on age and educational attainment. These findings are important for understanding the role of socioeconomic factors in mental health service utilization amongst body dissatisfied women and in formulating treatment pathways for service providers. In addition, this study’s findings are important to address eating disorder treatment policy and advocacy for structural changes to service utilization. To date, research in the field of eating disorders has predominately focused on individual reasons for service utilization. For example, individual factors, such as readiness to change, have been studied (Striegel-Moore et al., 2007; Thompson et al., 2004). While understanding the individual reasons are useful to address motivation for change, they do not provide any information regarding the structural factors that lead to treatment
barriers. In fact, omitting or dismissing structural claims systematically blames the individual for not seeking treatment, ignores the systemic responsibility for inadequate service utilization, and further marginalizes groups of individuals creating heightened risk for poorer mental health outcomes.

In contrast, the findings of this study support the recognition that there are far more structural reasons for inadequate service utilization among women at risk for developing an eating disorder. It shifts the focus from the personal to the health care system. Due to inequitable service utilization, women over the age of forty and body dissatisfied women with lower educational attainment are at risk for not receiving essential specialized treatment, and they are likely at a heightened risk for higher mortality (Chesney et al., 2014; Huas et al., 2013; Suokas et al., 2014), poorer morbidity (AED, 2012; Fischer & LeGrange, 2007), decreased quality of life (Jenkins et al., 2011; Winkler et al., 2014) and lower recovery rates (Franko et al., 2013). In addition, these marginalized groups may have higher direct and indirect costs over the lifespan (Kessler et al., 1999; Stuhldreher et al., 2012). The findings inform the need to create accessible treatment pathways that attend to social, cultural, and economic barriers. In addition, this study informs organizational policy in that all efforts need to be made to reduce barriers to accessing care, including extending office hours beyond the typical 9 to 5 weekday, creating mobile treatment units that offer services in more marginalized areas, having translation services available, and creating programming that attends to the needs of all. Finally, increased funding is necessary to provide the above recommendations and to develop eating disorder prevention strategies targeted at disadvantaged populations. Considering body
dissatisfaction increases the risk of eating disorder development, and early intervention decreases the risk of poorer health outcomes, this study's findings highlight the need for targeted prevention strategies. It is likely that effective prevention strategies, which cater to the needs of marginalized populations, can reduce eating disorders from developing and increase the likelihood of seeking services when needed.

**Structural Reasons for Reported Unmet Needs**

Reasons for unmet needs were also described in this study and were separated into personal and structural categories. Personal reasons for unmet needs included options such as: chose not to seek care and felt that the care was inadequate. Structural reasons for unmet needs included options such as: care was not available in the area, wait was too long, and cost was a barrier. Alarmingly, 83% of the reasons reported for unmet needs were structural. This study highlighted that there are significant barriers to service utilization in Canada. From a social work perspective, addressing unmet needs is essential in order to reduce inequity and increase accessibility to essential health and mental health services. While the social work literature has long reported the persistent inequity in health and mental health care (Hicks et al., 2010; Mullaly, 2007), the eating disorder literature has had conflicting results. Some studies have reported the persistence of structural barriers to eating disorder treatment (Evans et al., 2011; Klump et al., 2009), while others have actively dismissed the structural claims (Cachelin et al., 2001; Mond et al., 2009) and focussed solely on personal reasons, such as motivation, denial, and limited insight (Becker et al., 2009; Geller et al., 2004; Striegel-Moore et al., 2007;
Thompson et al., 2004; Vandereycken & Hummeeck, 2008; Vitousek et al., 1991).

Still other studies have highlighted the paucity of data on the impact of these structural reasons (Boisvert & Harrell, 2014; Miller & Pumariega, 2001). In addition to the literature, the governmental report of the Standing Committee (2014) on eating disorders among girls and women in Canada has been criticised for not adequately addressing the fundamental structural barriers to service utilization in this population (Duncan, 2014). Another professional organization, the Academy for Eating Disorders (2012) also expressed concern for the critical state in availability of eating disorder treatment in the United States. This study revealed that despite Canada’s universal healthcare, structural barriers to service utilization continue to create inequity amongst the body dissatisfied population. While detailed exploration into these reasons are beyond its scope, this study points to the need to advocate for funding allocation, recreate policies that attend to the needs of the population, and create clear treatment pathways. At the micro level, clinicians need to continually evaluate the needs of their service users. Utilizing satisfaction surveys, self-evaluation tools, and interviews targeting service users’ experiences can help assess individuals’ health and mental health needs and help inform treatment and referrals.

**Limited Canadian Data on Eating Disorders**

There are no current national eating disorder databases in Canada. The absence of these databases negatively impacts research, policy, and practice. Studies such as the current one have to rely on at-risk populations, making it impossible to make population specific recommendations or implications. Due to this limitation on the availability of sub-population specific data in Canada, other options for
researchers include using international databases. However, the differences in health care systems, and in demographics make the use of international data irrelevant in improved understanding of the scope of eating disorders at national, provincial, and community levels. This lack of clear understanding caused by the paucity of Canadian data leads to inequitable treatment, as funding decisions are being made without adequate information, and there are few ways to know who is and is not accessing treatment. It has been suggested that inequalities in health have become a central concern of health policy in Canada (Browne et al., 2012). With a lack of data, there are no national standards of care, wait times cannot be tracked, outcomes, such as dropout, relapse, quality of life, and premature death cannot be tracked, and Canadian-based evidence-based treatment cannot be developed. This means that there is not a clear understanding of whether eating disorder treatment is comprehensive, universal, portable, or accessible, which is contradictory to the founding principles of the Canadian Health Act. This study's findings suggest that treatment may not be accessible and universal. As such, eating disorders are a public health issue. This study's results support the recommendations for a pan-Canadian national registry made by key Canadian stakeholders to the Standing Committee on the Status of Women (House of Commons, 2014). The recommendations suggest that a pan-Canadian registry would provide insight into the scope of eating disorders in Canada, track incidences and prevalence, use wait times, dropout, and outcomes to inform treatment practices, increase understanding barriers to accessing treatment, develop standards of care, provide adequate training, develop a research database, and provide knowledge translation to all stakeholders (House of
Considering the personal and social costs associated with eating disorders, developing a pan-Canadian registry will help inform policy makers and funding providers to improve accessibility and service utilization in Canada.

**Implications for Social Work Education**

Research provides opportunities to inform social work education and training. The current research findings illustrate the need to equip social work students with current knowledge regarding the structural barriers to quality health and mental health services. Understanding these barriers will lead to an awareness of how various disadvantages impact on health and mental health service utilization, individual wellbeing and quality of life, and differential health outcomes. Similar information about the intersectionality of social, cultural, and economic factors should also be included in ongoing professional development for practitioners (Rossiter & Morrow, 2011). Mullaly (2007) highlighted that an intersectionality informed approach is indistinguishably linked with distributive issues of injustice. As such, social work students and professionals should be provided with knowledge and skills needed for a critical social work and context informed practice. This can be achieved by raising awareness of power differentials and structural injustice in order to fully understand the disparities in life experiences by individuals based on age, ethnicity, income, and educational attainment (Mikkonen & Raphael, 2010; Mullaly, 2007; Raphael, 2009; 2010). Eating disorders and body dissatisfaction provide opportunities to discuss gendered issues during any individual, policy, and community courses. According to the Canadian Association for Social Work Education’s (CASWE, 2014) standards on diversity education, one of the core
learning objectives is to “support and enhance diversity by addressing structural sources of inequity (p. 3).” This means that students must be able to explore the ways in which discrimination, oppression, poverty, and marginalization have a negative impact on individuals and groups. In addition, opportunities to develop strategies to end these forms of social injustice must be provided (CASWE, 2014).

The current research on body dissatisfaction as a risk factor for eating disorders aligns with the CASWE diversity standard, as there are opportunities to discuss how factors such as age, ethnicity, gender, health status, and socioeconomic status impact service utilization and unmet needs. Further, students have an opportunity to investigate how this is experienced at the individual level and how community-based interventions and policy can be adapted to address this significant health issue.

**Limitations of the Present Study**

While this research is based on sound theoretical framework and analysis, there are several limitations to the present research. First, the use of cross-sectional data pose limitations, as it only allows the researcher to make inferences and does not allow the researcher to determine causality among study variables (Singleton & Straits, 2010). Data collected through cross-sectional study designs are collected at one point in time, which does not allow for comparison or changes over time. The findings of this study should be used to develop primary research that investigates service utilization over time and exploration on the various social, cultural, and economic conditions. Like most health behaviour research, biases are always a risk when using self-reported measures of health. For each of the criterion variables in
this research (health service utilization, mental health utilization, and unmet needs), individuals were asked to recall if they had utilized services in the past twelve months. There is conflicting research on the effects and direction of this recall bias, with studies indicating that there is not a clear pattern between number of health care visits remembered and the number of visits in their medical records (Short et al., 2009). However, the research questions used to measure health and mental health care utilization are consistent with measures in previous health research.

This study is limited by the use of secondary data analysis, as it is restricted by the existing data. For instance, this study had to use an at risk eating disorder population instead of an eating disorder population. The use of an at risk eating disorder population was chosen due to the lack of Canadian databases. Past studies (Boisvert & Harrell, 2014) and government documents (House of Commons, 2014) have reported that lack of current Canadian data on eating disorder service utilization.

This study had to rely on those at risk of developing an eating disorder, because body dissatisfaction is a key diagnostic feature of eating disorders (Delinsky, 2011; Johnson & Wardle, 2005; Neumark-Sztainer et al., 2006; Stice, 2001; 2002; Stice et al., 2011; Stice & Shaw, 2002). While not everyone with body dissatisfaction will have an eating disorder, everyone with an eating disorder will be body dissatisfied. Thus, it is likely that this study does provide insight into eating disorder service utilization in Canada.

Another limitation of the study based on the available data is the representation of the province of residence. While Canadian Community Health
Survey is expected to represent comprehensive Canadian sample, the only two provinces (Alberta and British Columbia) included questions on both health service utilization and body satisfaction in the same survey questionnaire. Further, unmet need was only captured in British Columbia. While this study did provide Canadian data, results would not be generalizable to other provinces. It is likely that access to healthcare and mental health care differs based both on province and location within the province.

In addition, the public data available only allows ethnicity to be defined as visible minority or Caucasian. As stated previously, research has reported the invisibility of visual minorities in Canadian health data and research (Khan et al., 2017). However, cultural difference, acculturation experience, and immigration status likely influence their service utilization. Thus understanding ethnicity requires taking into consideration the context of the diversity categories.

Lastly, although the Canadian Community Health Survey is designed to be representative of the Canadian population, it does not include institutional residents, First Nation individuals, people living in remote areas, or people living in unstable housing situations, all of whom are likely at a heightened risk for inequitable service utilization and increased number of unmet needs. Thus, the exclusion of these individuals might have resulted in an underestimation of the socioeconomic disparities associated with health and mental health service utilization.
Implications for Further Research

Considering the fact that an at-risk population was used in the current study, further research would be required to identify the relationship between the study variables in a sample that assesses for eating disorders. While utilizing an eating disorder sample would gather much detail about their current service utilization, it would not capture those who have not accessed services. Previous research has indicated that inequitable service utilization exists based on various social, cultural, and economic variables (Mikkonen & Raphael, 2010; Mullaly, 2007; Raphael, 2009; 2010). As such, further exploration of the relationship between these socio-cultural and economic variables and service utilization requires special attention to vulnerable populations affected by eating disorders.

An additional direction for future research should also address the geographic limitations of the study. The current findings only come from British Columbia and Alberta. As noted above, health and mental health service utilization likely differs across provinces. Understanding health and mental health service utilization must take into account all Canadian provinces and territories. In addition, within province difference should be taken into account, as previous research has indicated differential health service use based on rural or urban place of residence (Fox et al., 2001; Regan & Wong, 2010).

Considering the paucity of data on the implications of socioeconomic variables in the eating disorder literature (Boisvert & Harrell, 2014; House of Commons, 2014), and the overrepresentation of economically advantaged White females in the study sample (Miller & Pumariega, 2001), much of the extant
knowledge is most generalizable only to these homogeneous populations. This study has highlighted the association between poor mental health service utilization amongst body dissatisfied women with increased age, visible minority status, income, and lower education. However, due to the limitation highlighted above on the dichotomist categories of ethnicity, further exploration of ethnically diverse populations on service utilization should be examined. In addition, while this study examined whether or not someone accessed health or mental health services, it was beyond its scope to explore how these women navigated treatment. Thus, a meta-analytic review of the implications of these predisposing and enabling factors on eating disorder treatments is warranted.

Lastly, health and mental health service utilization is complex and requires an understanding of the individual experience. In addition, qualitative studies can complement current quantitative studies by providing deep exploration of how to improve service utilization and reduce unmet needs amongst socially, culturally, and economically diverse eating disorder populations. Qualitative studies provide naturalistic detail and context to the phenomenon studied (Padgett, 2016). While considering the holistic person, narrative can create opportunities to explore the essence of the personal experience and gain insight into the various service pathways. For instance, a detailed exploration of the experience of accessing eating disorder services is necessary. This can include interviews with various stakeholders (i.e. service users, family members, service providers, medical professionals) on the current eating disorder service pathways and the various
personal and structural barriers that exist. Special attention to populations that have historically had inequitable access is essential in order to capture a realistic picture.

**Conclusions**

Based on Andersen’s behavioural model of service utilization (1995), the current study employed a secondary data analysis to explore the relationship between predisposing, enabling, and need factors on health service utilization, mental health service utilization, and unmet needs. More specifically, this study explored the relationship of body dissatisfaction and the various socioeconomic variables on service utilization and unmet need. Findings showed that body dissatisfied women have increased health and mental health service utilization. However, body dissatisfied women also report more unmet needs than body satisfied women, leading to questions of effective and cost efficient treatment pathways. Further, increased age and lower educational attainment significantly and negatively impacted mental health service utilization in Canada. While eating disorder literature on this topic is limited, this study’s findings tend to align with existing literature on disparities of health and mental health. Similarly, the current study identified that there are persistent structural reasons to women with eating disorders reporting unmet needs. Specifically, high costs, long wait times, and lack of treatment availability were the majority of reasons reported for unmet needs. This study highlighted that there are significant social, cultural, and economic barriers to service utilization for women at risk of eating disorders in Canada. Due to the high individual and social costs to eating disorders, barriers creating inequitable health and mental health services need to be addressed in clinical practice, organizational
structures, policy, and in research. In addition, continued education and training on
the implications of the social, cultural, and economic contexts to social work
students and social workers in the field are essential to improve treatment
pathways.
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