

BODY IMAGE

BODY IMAGE: A CONSIDERATION OF IMMIGRANT STATUS, ETHNIC
MINORITY STATUS AND IMMIGRANT CONCENTRATION

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LAY ABSTRACT

Body image dissatisfaction and body image distortion have been linked to serious psychological outcomes, including depression and eating disorders. Yet, we know very little about the nature of these experiences among immigrant and ethnic minority children and adolescents. This thesis uses qualitative and quantitative methods, as well as general population and clinical samples to investigate body image dissatisfaction and body image distortion among immigrant and ethnic minority children and adolescents in Canada and the United States. Results provide important information that can inform the development of preventative interventions targeting body image dissatisfaction and body image distortion among immigrant and non-immigrant children and adolescents.

ABSTRACT

Despite the developmental and clinical importance of body image during the pre-adolescent and adolescent years, there remains a dearth of information on the body image experiences of immigrant children and adolescents. This thesis represents a purposeful attempt to examine body image experiences among immigrant and ethnic minority children and adolescents in Canada and the United States (US). Specifically, the thesis integrates multiple methods (scoping reviews, qualitative interpretive description, quantitative multi-level modeling) and samples (clinical and population-based samples) to systematically contribute to the academic literature focusing on body image experiences among immigrant and ethnic minority children and adolescents in Canada and the US. Consisting of four conceptually related studies, this thesis makes the following methodological and conceptual contributions to epidemiological and clinical research and practice. First, the results from all four studies point to the need to develop standardized approaches for identifying and classifying immigrant and ethnic-minority children and adolescents. This will substantially increase the field's ability to systematically characterize the nature and magnitude of body image dissatisfaction, body image distortion, and their associated outcomes among immigrant and ethnic minority children and adolescents. In addition, this systematic classification has the potential to inform the development or adaptation of universal and targeted preventative intervention strategies. Second, Study's 1 and 2 demonstrate a clear need to further examine the constructs and experiences

of acculturation and acculturative stress in relation to the body image experiences of immigrant and ethnic minority children and adolescents. The literature is unclear with respect to whether or not immigrant adolescents' adoption of the values, behaviours and ideals of the Canadian or US culture increases their risk for body image concerns. On the other hand, we are also unclear as to whether or not immigrant adolescents' retaining of the values, behaviours and ideals of their culture of origin may offer protection from poor body image experiences. Similarly, we are unclear about whether—and to what extent—stress as a result of adolescents' acculturative experiences (i.e. acculturative stress) influence the onset or pervasiveness of body image concerns. Greater understanding about these constructs and processes and the extent to which they are implicated in the body image experiences among immigrant children and adolescents has the potential to inform culturally competent and targeted intervention approaches. Results from Study 3 indicate that immigrant adolescents have body image and appearance-related concerns that extend beyond what has typically been found among non-immigrant adolescents. More specifically, immigrant adolescents are concerned about the appearance of their skin (texture, complexion), their hair, their teeth, as well as other bodily features. It would be prudent for future researchers and clinicians to consider this information in relation to measuring, classifying and addressing body image dissatisfaction among immigrant adolescents. Finally, Study 4 demonstrates that females and first generation immigrants with body image dissatisfaction are at significantly elevated risk for body image distortion.

This suggests that the assessment and intervention for body image dissatisfaction—particularly among females—soon after the migratory experience may play an important role in reducing body image distortion experiences. Taken together, the findings of this thesis strengthen the body image field by demonstrating that there are several unique aspects about being an immigrant that can influence adolescents' body image experiences; and therefore, should be considered from a conceptual and methodological standpoint in future research and implementation of body image interventions.

KEYWORDS: body image dissatisfaction; body image distortion; scoping review; immigrant generational status; ethnic minority; adolescents; interpretive description; immigrant concentration; multi-level modeling; sex

DEDICATION

I dedicate this thesis to Lawson Edward, Quinn Melody, Hayden Lee, Colton Andrew, Liam Tyler, Baby Moffatt and Baby Augustine. Each of you and your well-being are my inspiration to learn, understand and be, better.

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LIST OF ABBREVIATIONS

Add Health: National Longitudinal Study of Adolescent Health

ANOVA: Analysis of Variance

BID: Body image dissatisfaction (Chapter 2, Chapter 3)

BID: Body image distortion (Chapter 5)

BMI: Body Mass Index

CES-D: Centre for Epidemiologic Studies Depression Scale

CDC: Centre for Disease Control

DSM: Diagnostic and Statistical Manual of Mental Disorders

EDs: Eating Disorders

EDI: Eating Disorder Inventory

EDI-BD: Eating Disorder Inventory-Body Dissatisfaction Subscale

GSBA: Gender and sex-based analysis

ICC: Intra-class correlation coefficient

KG: Kilograms

KR-20: Kuder-Richardson Formula

M²: Meters squared

OECD: Organization for Economic and Co-operation and Development

OR: Odds ratio

CI: Confidence interval

PMK: Person Most Knowledgeable

SPPC: Self-Perception Profile for Children

US: United States

WHO: World Health Organization

z-BMI: Body Mass Index z-Score

DECLARATION OF ACADEMIC ACHIEVEMENT

This ‘sandwich’ thesis consists of four studies. All four of the studies have been accepted for publication in peer-reviewed journals and are either currently published or in-press. The student (Melissa S. Kimber) is the primary author on all of these studies. In addition, the student had the primary responsibility for the following: generation of research questions, development of protocols and study designs, data collection and analysis, interpretation of results, writing of manuscripts, and the incorporation of thesis committee, co-author and journal reviewer feedback into the manuscript revisions. All of the work presented in the current thesis represents the culmination of products approved by the student’s thesis committee members during formal thesis committee supervision meetings and was completed between October 2012 and May 2015. It is important to note that the studies and the results presented here were achieved through collaboration between the student and her thesis committee members. For this reason, the listing and acknowledging of thesis committee members on each of the individual studies, is warranted.

CHAPTER ONE

INTRODUCTION

General Introduction

A significant and longstanding body of literature implicates poor body image in the risk for negative physical and psychological health among children and adolescents; including obesity (Neumark-Sztainer et al. 2006; Sonnevile et al. 2012), depression (Stice et al. 2000; Paxton et al. 2006; Hamlat et al. 2014), and most notably, eating disorders (Rohde et al. 2014). First defined by Dr. Paul Schindler in 1935, body image is described as an individual's perception of their body weight and shape; with body image dissatisfaction considered the discrepancy between this perception and an individual's ideal appearance (Schidler 1935; Smolak and Thompson 2009). Relatedly, body image distortion (a.k.a body image misperception) refers to the discrepancy between an individual's perception of their body weight and shape and their *actual* weight status (Smolak and Thompson 2009). Both body image dissatisfaction and body image distortion have been implicated in the aforementioned health outcomes and are considered related, but distinct domains of the child and adolescent body image construct (Smolak and Thompson 2009; Stice and Shaw 2002).

Cross-national population-based surveys suggest that body image dissatisfaction and body image distortion are global and prevalent experiences among children and adolescents. Specifically, a 24-country, cross-sectional survey of 11, 13 and 15 year olds indicated that 50% of the respondents across

each age group experienced body image dissatisfaction (Al Sabbah et al. 2009). Similarly, cross-sectional surveys from the United States (US), Pakistan, Korea, China, Eastern Europe, Western Europe and Canada indicate that upwards of 45% of children and adolescents experience body image distortion (Saleem et al. 2013; Chung et al. 2013; Sarafrazi et al. 2014; Lim and Wang 2013; Quick et al. 2014). However, despite the prevalence of these experiences and their independent association with a range of morbidities, few studies have examined body image dissatisfaction among immigrant children and adolescents in Canada and the US. In addition, to our knowledge, no study has investigated body image distortion among these children and adolescents. This is particularly troubling given that both Canada and the US are two of the world's leading immigrant receiving nations (Organization for Economic Co-operation and Development (OECD) 2014) and children and adolescents living in immigrant families comprise a significant proportion of each nation's population (Statistics Canada 2013; Zong and Batalova 2015). Similarly, compared to children and adolescents living in non-immigrant families, immigrants have been shown to be disproportionately exposed to socio-economic disadvantage (Georgiades et al. 2007; Leventhal and Shuey 2014). Given that greater exposure to socio-economic disadvantage has been independently linked to poor health outcomes associated with body image dissatisfaction and body image distortion, it is plausible to hypothesize that immigrant children and adolescents may experience higher levels of these poor body image experiences compared to their non-immigrant peers.

The overall objective of this thesis was to examine body image dissatisfaction and body image distortion among immigrant children and adolescents in Canada and the US; and the extent to which these experiences differ from non-immigrant children and adolescents in these contexts. The remainder of the present chapter will provide an overview of the child and adolescent immigrant population in Canada and the US and provide a rationale for the investigation of body image dissatisfaction and body image distortion among this population. In addition, this chapter will provide an overview of important factors implicated in the risk for body image dissatisfaction and body image distortion among children and adolescents and the limitations of this existing evidence base. The chapter will end with the specific objectives of the thesis, the research designs and methods implemented and the potential impact of this work on the field of body image.

Immigrant Children and Adolescents in Canada and the US

Canada's foreign-born population is nearing 7 million, representing 20.6% of the Canadian population and the highest proportion of foreign-born residents among the G8 nations (OECD 2014; Statistics Canada 2013). Close to 30% of children and adolescents under the age of 18 years live in an immigrant family—that is, they or at least one of their parents were born outside of Canada. Equally compelling is that close to 60% of these children and adolescents also belong to a non-White or ethnic minority group. Similarly high proportions of immigrants have been reported in the US. The US immigrant population has now exceeded 41

million, representing 13% of the total US population. In addition, 22% of all US children and adolescents under the age of 18 years live in an immigrant family (Zong and Batalova 2015), with approximately 50% belonging to a non-White or ethnic-minority group. Compared to non-immigrants, immigrant children and adolescents in both countries are significantly more likely to live in impoverished families (Grieco et al. 2012; Beiser et al. 2002), live in neighborhoods characterized by high levels of poverty (Georgiades et al. 2007; Leventhal et al. 2006; Leventhal and Shuey 2014), live in neighborhoods with a higher proportion of immigrants (Lara-Cinisomo et al. 2013; Georgiades et al. 2007) and speak a language other than English inside their home (Grieco et al. 2012; Statistics Canada 2006). Similarly, compared to non-immigrant children and adolescents, immigrants report higher levels of racial or ethnic discrimination—an experience that has been linked to greater psychological distress and low self-esteem (Garcia-Coll and Magnuson 2001). These individual and neighborhood-level factors suggest that immigrant children and adolescents tend to be reared in contexts that are markedly more stressful than their multi-generation American or Canadian peers. If one considers this information in combination with the formidable biological and physiological changes from childhood through adolescence (Casey et al. 2010), this may mean that immigrant children and adolescents might be more susceptible to body image dissatisfaction, body image distortion and their related psychological sequelae.

Why Investigate Body Image Dissatisfaction and Body Image Distortion among Immigrant Children and Adolescents?

Association with Eating Disorders and Eating Disordered Behaviour

The empirical literature investigating body image dissatisfaction and body image distortion among children and adolescents has largely focused on their influence in the onset and duration of eating disorders and eating disordered behaviour (Stice and Shaw 2002; Smolak and Thompson 2009; Rohde et al. 2014). Eating disorders can be diagnosed as young as seven years of age and are serious, chronic psychological conditions that are associated with substantial morbidity, mortality and economic burden (Smink et al. 2012; Atkins and Silber 1993; American Psychiatric Association 2013). While no national estimates are available for Canada, a recent population-based study of adolescents (13-18 years old) in the US found that the lifetime prevalence of clinically-diagnosed eating disorders were 0.3% (anorexia), 0.9% (bulimia), 1.6% (binge-eating disorder) and 4.8% (eating disorder not-otherwise-specified), respectively (Swanson et al. 2011; le Grange et al. 2012). A recent paper by Rohde, Stice and Marti (2014) explored the salience of eating disorder risk factors among female adolescents, including perceived pressure to be thin, thin-ideal internalization and body image dissatisfaction. Contrary to previous literature which has suggested the putative influence of each of these factors in the onset of eating disorders, body image dissatisfaction was the only risk factor to predict the onset of a clinical eating disorder in the 4-year study period; providing clear evidence that body image

dissatisfaction is an important modifiable risk factor that can be a target for preventative intervention programs.

Body image distortion is also recognized as a significant risk factor for eating disorders (Conley and Boardman 2007; American Psychiatric Association 2013). However, research has primarily focused on the association of these experiences with specific eating disordered behaviours, including: intentional vomiting after meals, caloric restriction, diet pill use, laxative abuse, extreme exercise and ‘out of control’ eating (Jones et al. 2001; Neumark-Sztainer et al. 2011; Magtoto et al. 2013). Representative population-based surveys suggest that 14-27% of children and adolescents engage in these problematic behaviours, and those experiencing body image distortion are nearly three times more likely to engage in eating disordered behaviour compared to those with no body image distortion (Magtoto et al. 2013 ; Chung et al. 2013). What is concerning however, is that despite the clear and compelling association between body image dissatisfaction, body image distortion, eating disorders and eating disordered behaviour, there is only one representative population-based study that has investigated the link between body image dissatisfaction and eating disordered behaviour among immigrant children and adolescents. Using data from the British Columbia Adolescent Health Survey, a representative sample of adolescents in British Columbia, Canada, Magtoto and colleagues (2013) found that foreign-born adolescents demonstrated significantly greater body image dissatisfaction and eating disordered behaviour compared to their non-immigrant peers. In

addition, adolescents who had most recently relocated to Canada demonstrated the highest degree of body image dissatisfaction and eating disordered behaviour. Given that this is the first study to examine these experiences among immigrant children and adolescents, confirmation of these findings are needed. In addition, the authors did not assess adolescents' body image distortion and its effect on these outcomes, nor did they consider the experiences of Canadian-born adolescents being raised in immigrant families (i.e., 2nd generation immigrants).

Association with Depression

Child and adolescent depression is a significant public health concern. From a developmental perspective, onset-rates of depression double during the adolescent time period (Cowen et al. 2013). In addition, depression is significantly associated with poorer quality of life, greater frequency of suicidal ideation and greater frequency of suicide attempts; with depressive symptoms in adolescence also significantly associated with adult psychopathology (Cowen et al. 2013). Perhaps most compelling, is that country-level estimates regarding the cost for intervening for depression has been estimated to exceed billions of dollars on an annual basis (Smith and Smith 2010; Lim et al. 2008). This information suggests that identifying and mitigating risk factors for depression and depressive symptoms is of public health importance.

Both body image dissatisfaction and body image distortion have been implicated in the risk for depression and depressive symptoms. Specifically, longitudinal studies (Paxton et al., 2006; Stice et al, 2000; 2001) indicate that

even after controlling for baseline depressive symptoms, adolescent body image dissatisfaction prospectively predicted increases in depressive symptoms over the following two-to-five years. Similarly, recent work in the US demonstrates a magnified risk for depressive symptoms among males and females with body image distortion. Specifically, in a cross-sectional survey among school-aged males and females, 8th grade healthy weight females who perceived themselves to be overweight were 2.5 times more likely to experience depressed mood compared to females who accurately perceived their weight status (Schiefelbein et al., 2012). In addition, 8th grade healthy weight boys who perceived themselves to be underweight, had two- times greater odds of being depressed (Schiefelbein et al., 2012). In a slightly older adolescent sample, a 13-year longitudinal study by Blashill and colleagues (2014) reported that average weight males who perceived themselves to be significantly underweight or overweight were at elevated risk for depressive symptoms. This evidence points to the critical role of body image dissatisfaction and body image distortion on risk for depression and depressive symptoms among children and adolescents under the age of 18 years. However, there has yet to be a study which considers the association between body image dissatisfaction, body image distortion and depressive symptoms among immigrant children and adolescents in Canada or the US.

Risk Factors for Body Image Dissatisfaction and Body Image Distortion

Body Mass Index

Perhaps the most commonly investigated risk factor for body image dissatisfaction and body image distortion relate to child and adolescent Body Mass Index (BMI). BMI is a measure of relative body weight given the actual height and weight of an individual. Computed by dividing a respondent's weight (kg) by their squared height (m^2), greater BMI is typically indicative of a greater weight-by-height ratio. Both cross-sectional and longitudinal research has empirically demonstrated a positive association between elevated BMI, body image dissatisfaction and body image distortion among male and female children and adolescents (Calzo et al. 2012; Ricciardelli et al. 2009; Lawler and Nixon 2011; Maximova et al. 2008; Liechty and Lee 2015). However, low BMI among males has also shown to be related to body image dissatisfaction and body image distortion; suggesting a 'U-shaped' association between BMI status, body image dissatisfaction and body image distortion among the adolescent male population. Some have argued that differential experiences among males are largely due to sociocultural messaging that males should be lean and muscular, as opposed to overly slim or overly fat (Smolak and Thompson 2009). Thus, in the case of the former (i.e., low BMI and high body image dissatisfaction/distortion), males have likely internalized sociocultural messaging that suggests to them that they need to gain weight to meet the lean/muscular body image ideal for their age. On the contrary, males with a high BMI and high body image dissatisfaction/distortion have likely internalized sociocultural messaging that suggests they need to lose

fatty weight in order to meet the lean and muscular body image ideal (Ricciardelli et al. 2009; Presnell et al. 2004; Lawler and Nixon 2011).

Following a comprehensive search of the literature, no studies were identified in Canada or the US which have considered the association between BMI, body image dissatisfaction and body image distortion among a representative sample of immigrant and non-immigrant children and adolescents. This is despite the fact that population-based data from the US suggests that children and adolescents who live in an immigrant family are significantly more likely to have a higher BMI compared to their 3rd generation-or-later peers (Buttenheim et al. 2013; Van Hook et al. 2012; Singh et al. 2009). In addition, for immigrant youth in Canada, length of time in the host country has been shown to be significantly and positively associated with BMI status. Cross-sectional secondary data analysis of the Canadian Community Health Survey indicated that immigrant youth generally had a lower BMI status than their Canadian-born peers. However, differences between these two groups tended to converge the longer that immigrant youth resided in Canada (Wahi et al. 2014). Based on this emerging evidence from the US and Canada, it is reasonable to hypothesize that 1st and 2nd generation immigrant children and adolescents may be at equal or even greater risk for body image dissatisfaction and body image distortion compared to their non-immigrant counterparts.

Despite the literature demonstrating relationships between neighbourhood-level characteristics and child and adolescent BMI, no epidemiological study has

investigated these influences on the body image dissatisfaction and body image distortion experiences of immigrant and non-immigrant children and adolescents. This is particularly concerning given that representative, population-based surveys have found that neighborhood concentration of poverty (Singh et al. 2010) and neighbourhood concentration of immigrants (Sastry and Pebley 2003) are positively associated with BMI status among immigrant and non-immigrant children and adolescents. Similarly, neighbourhood concentration of immigrants has been shown to be negatively associated with physical activity levels among immigrant and non-immigrant children and adolescents—a construct which is significantly correlated with child and adolescent BMI status (Brewer and Kimbro 2014). If one considers that compared to their non-immigrant peers, immigrant children and adolescents are more likely to live in neighbourhoods with a high concentration of poverty and a high concentration of immigrants, and that these neighbourhood characteristics are associated with a higher risk for a poor BMI status, then one could argue that immigrant children and adolescents may be at significantly greater risk for body image dissatisfaction and body image distortion compared to their non-immigrant peers. However, to delineate the influence of these neighbourhood characteristics on immigrant and non-immigrant children and adolescents experiences of poor body image, a large scale epidemiological survey with adequate power to model these contextual effects across groups, is needed.

Family and Peer Messaging

Pressure to lose or gain weight from parents and peers has been implicated in the experience of body image dissatisfaction among children and adolescents. A recent review of the literature found clear associations between parental recommendations for weight management, parental weight criticism and body image dissatisfaction among children and adolescents (Rodgers and Charbol 2009). In addition, a significant and long-standing body of literature implicates peer-to-peer body image messaging, weight and appearance-based teasing in the experience of body image dissatisfaction among children and adolescents. Specifically, a meta-analysis by Menzel et al (2010) found a moderate effect size for the influence of appearance-based ($d = .32$) and weight-based teasing ($d = .39$) on body image dissatisfaction; with the association between these experiences and body image dissatisfaction being stronger amongst children and adolescents compared to adults. Unfortunately, we have yet to see any representative studies investigating the influence of these experiences on child and adolescent body image distortion.

Similarly, a recent prospective study by Helfert and Warschburger (2011) in Germany implicates messaging from parents and peers in the body image dissatisfaction of adolescent girls and boys. Specifically, the authors examined several dimensions of parental and peer messaging about weight and shape and its influence on body image dissatisfaction among adolescents ($n = 429$). These dimensions included: parental weight-based teasing, parental encouragement to

control weight and shape, parental injustice/ignorance about weight and shape, parental norms and modeling of weight and shape, weight-based peer teasing, weight-based peer exclusion, school and class norms about body weight and weight/shape-based modeling by friends. Results revealed that parental encouragement to control body weight and shape was the most salient predictor of body image dissatisfaction among males and females. Among females, peer-based body image modeling was also significantly associated with body image dissatisfaction. Among males, perceived appearance-based exclusion was also significantly and positively associated with body image dissatisfaction. These findings support other work in the US which has suggested that the internalization of appearance messages from peers and parents significantly influences levels of body image dissatisfaction among children and adolescents (Lawler and Nixon 2011; Thompson and Stice 2001). However, we have yet to learn about these processes and influences on the body image dissatisfaction and body image distortion experiences of immigrant children and adolescents.

Social and Popular Media

A compelling systematic review and meta-analysis by Holmstrom (2004) reports no significant effect of media exposure on body image dissatisfaction. However, more recent literature has indicated that the internalization of media messaging about body weight and shape, in addition to greater media exposure among children and adolescents is associated with elevated levels of body image dissatisfaction (Bell et al. 2007). Recent literature has also suggested that the

influence of the media on body image is specific to the type of media investigated. For example, a cross-sectional study of adolescents in the US found that boys who read men's fashion, health or fitness magazines experienced greater body image dissatisfaction and engaged in a greater number of body change strategies (Field et al. 2005). However, for females in the same study, those who reported that they were trying to look like the women on TV shows and movies were significantly more likely than their peers to report body image dissatisfaction and weight changing behaviours. Relatedly, exposure to messages about 'ideal' bodies through TV and social media has been found to have a differential effect on body image dissatisfaction on male and female adolescents. Specifically, post-commercial body dissatisfaction scores were significantly greater than those at baseline for females, but not for males (Hargreaves and Tiggemann 2004). Results thus far suggest that the influence of the media on body image dissatisfaction levels among children and adolescents may differ by gender and the type of media investigated. However, the influence of social and popular media on child and adolescent experiences of body image distortion are unclear. In addition, there are no cross-sectional or longitudinal studies that consider these media influences on the body image dissatisfaction and body image distortion experiences of immigrant children and adolescents.

Ethnic Identity

A compelling paper by Smolak and colleagues (2004) suggests that the body image literature has disproportionately focused on the dissatisfaction and

distortion experiences of American, Australian and British populations, with the child and adolescent samples included in these studies being “overwhelming White” (pp. 19). This work provided the impetus for more recent epidemiological studies focusing on body image dissatisfaction and body image distortion among ethnic minority children and adolescents; with results suggesting that these children and adolescents—like their Caucasian counterparts—can be at elevated risk for these body image experiences during this developmental time-period. Unfortunately, a review of this more recent literature suggests that these results are equivocal and limited to the US. Specifically, Black/African American, Asian American and Latino American children and adolescents have been found to experience less (Neumark-Sztainer et al. 2002), equal (e.g. Perry et al. 2004; Nishina et al. 2006) and greater (George and Franko 2010; Xanthopoulos et al. 2011) risk for body image dissatisfaction compared to their Caucasian peers. Similarly equivocal findings have been found in relation to the body image distortion. That is, epidemiological studies have found that these children and adolescents are at equal (Yan et al. 2009) and greater risk for body image distortion (Martin et al. 2009) compared to Caucasian Americans. These findings have important implications for immigrant children and adolescents in Canada and the US. Specifically, over 50 % of immigrant children and adolescents under the age of 18 in both nations belong to an ethnic minority group (Statistics Canada 2013; Zong and Batalova 2015). Thus, one could argue that immigrant children and adolescents’ belonging to an ethnic minority group may be at equal—or even

elevated risk—for body image dissatisfaction and body image distortion compared to their non-immigrant peers. However, representative population based studies with comprehensive measurement of children and adolescents ethnic, racial and immigrant identity are still needed in order to empirically and robustly examine these relationships.

The Current Thesis

Rationale

Taken together, the above-mentioned literature provides the impetus for an in-depth examination of the experiences of body image dissatisfaction and body image distortion among immigrant children and adolescents in Canada and the US. First, a review of the literature reveals a dearth of information about these experiences among immigrant children and adolescents and extent to which they differ from non-immigrants in the North American context. Second, there is a strong body of evidence linking body image dissatisfaction and body image distortion with severe psychological sequelae—namely, eating disorders, eating disordered behaviour and depression. This suggests that furthering our understanding about the experiences of body image dissatisfaction and body image distortion among immigrant children and adolescents has the potential to inform the development of targeted interventions to reduce these problematic experiences, more generally. Third, we are unclear about the extent to which ethnic minority status and modifiable risk factors for body image dissatisfaction and body image distortion—including BMI, communication with peers and

parents and interactions with social and popular media—are influential in the body image experiences of immigrant children and adolescents. Thus, given this information and that immigrant populations will continue to grow, research concerning the experience of body image dissatisfaction and body image distortion among this population, as well as preventing these negative experiences, is central to ensuring the broader and long-term health of the Canadian and US population.

Objectives

The primary objective of this thesis was to develop and publish a comprehensive body of evidence that: (1) contributes to our understanding of body image dissatisfaction and body image distortion experiences among immigrant children and adolescents within Canada and the US; (2) provides evidence-based recommendations for advancing the field of body image with respect to methodology and measurement; and (3) informs prevention and intervention approaches for body image dissatisfaction and body image distortion among the child and adolescent population, more generally. The thesis consists of four studies that are conceptually linked through their focus on body image dissatisfaction and body image distortion among immigrant children and adolescents in Canada and the US. In this regard, the body of the thesis demonstrates the application of three methodological techniques—literature synthesis (Studies 1 & 2, presented in Chapters 2 and 3), qualitative inquiry (Study 3, presented in Chapter 4) and quantitative inquiry (Study 4, presented in

Chapter 5). The discussion (Chapter 6) of the thesis combines the results from each of the included studies and situates the context of the findings in relation to advancing the field of body image with respect to researching and addressing these concerns among the immigrant and non-immigrant child and adolescent population. With the explicit goal to investigate the construct and experience of poor body image among immigrant children and adolescents, the current thesis is the first ever attempt to integrate multiple *methods* (synthesis, qualitative interviews, quantitative multi-level modeling), *populations* (population-based and clinical samples) and *contexts* (Canada and the United States). The strength of this multi-method approach is in its ability to capitalize on the strengths of both qualitative and quantitative inquiry. Specifically, one can minimize the limitations of each methodological approach and simultaneously provide a more comprehensive understanding of a research problem than what would have been provided from either form of inquiry, alone (Creswell and Plano-Clark 2007). Similarly, the inclusion of multiple sample types (clinical and population) as well as multiple contexts (US and Canada) strengthens the relevance, applicability, and external validity of the research findings (Rothman et al. 2008).

Summary of the Thesis Chapters

Study 1 in Chapter 2 uses the scoping review methods detailed by Arksey and O'Malley (2005) as well as thematic and content analysis (Vaismoradi et al. 2013) to systematically identify and synthesize the literature focusing on body image dissatisfaction among *immigrant children and adolescents* in Canada and

the US (Kimber et al. 2014a). The strength of scoping review methods is in its ability to include peer-reviewed qualitative and quantitative publications, as well as findings from graduate-level theses and grey research reports. This limits the extent of influence that publication biases may have in the synthesis of review findings and the generation of epidemiological and clinical research recommendations. This study has been published in the *International Journal of Eating Disorders*. The full citation for this study, is: Kimber M, Couturier J, Georgiades K, Wahoush O, Jack SM. Body image dissatisfaction among immigrant children and adolescents in Canada and the United States: A scoping review. *International Journal of Eating Disorders* 2014; 47:892-897. DOI: 10.1002/eat.22295. (© 2014 Wiley Periodicals, Inc.).

Study 2 in Chapter 3 uses the same methodological and analytical approaches detailed in **Study 1** to systematically identify and synthesize the literature focusing on body image dissatisfaction among *ethnic-minority children and adolescents* in Canada and the US. Based on the methodological and measurement limitations of the literature identified within **Study 1** (Chapter 2), **Study 2** (Chapter 3) was necessary to gain a comprehensive understanding of the state of the evidence on body image dissatisfaction among immigrant children and adolescents—who we learned—tend to have their immigrant generational status conflated with their ethnic identity (Kimber et al. 2014b). Study 1 and Study 2 present the opportunity to comprehensively understand the evidence-base in relation to the body image dissatisfaction experiences of immigrant children and

adolescents and make meaningful contributions to move the field forward. Study 2 has been published in the *Journal of Immigrant and Minority Health*. The full citation for Study 2, is: Kimber M, Couturier J, Georgiades K, Wahoush O, Jack SM. Ethnic minority status and body image dissatisfaction: A scoping review of the child and adolescent literature. *Journal of Immigrant and Minority Health* 2014; August. DOI: 10.1007/s10903-014-0082-z. (© Springer Science+Business Media New York).

Study 3 in Chapter 4 uses the principles of interpretive description to guide all sampling, data collection and analytic decisions in this qualitative study. Specifically, a purposeful sample of eighteen adolescents (16-19 years of age) living in an immigrant family were interviewed about their perceptions of body image and body image dissatisfaction. Eight of the study participants were undergoing treatment for an eating disorder at the time of their qualitative interview. The remainder of the study's participants ($n = 10$) were recruited from the general population. In instances where there is little information about a population or phenomenon of interest, qualitative research is an excellent tool to generate research questions and programs of research with high clinical, research and policy salience (Denzin and Lincoln 2011; Thorne 2008). Thus, one explicit objective of Study 3 was to generate practical suggestions for future inquiry in the body image field. Study 3 has been accepted for publication and is currently in-press for the journal of *Body Image*. The full citation for Study 3, is: Kimber M, Georgiades K, Jack SM, Couturier J, Wahoush O. Body image and appearance

perceptions from immigrant adolescents in Canada: An interpretive description. *Body Image* 2015; September. DOI: 10.1016/j.bodyim.2015.08.002. (© Elsevier Ltd.).

Study 4 in Chapter 5 uses data from the National Longitudinal Study of Adolescent Health (Harris 2013), a representative population-based survey of adolescents in the US, to examine the associations between immigrant generational status, body image dissatisfaction, sex, neighbourhood concentration of immigrants and body image distortion. This is the first study of its kind and provides compelling evidence that immigrant generational status is an important consideration for adolescent body image dissatisfaction and body image distortion experiences. Study 4 has been published in the *Journal of Youth and Adolescence*. The full citation for Study 4, is: Kimber M, Georgiades K, Couturier J, Jack SM, Wahoush O. Adolescent body image distortion: A consideration of immigrant generational status, immigrant concentration, sex and body dissatisfaction. *Journal of Youth and Adolescence* 2015; July. DOI: 10.1007/s10964-015-0329-6. (© Springer Science+Business Media New York).

Importance

This thesis represents a comprehensive body of evidence relating to the body image dissatisfaction and body image distortion experiences among immigrant children and adolescents in Canada and the US. The overarching objective of this body of work is to inform evidence-based recommendations regarding the measurement of these constructs among immigrant children and

adolescents and provide sound recommendations for approaches to prevention, and intervention for body image dissatisfaction and body image distortion among children and adolescents from diverse backgrounds. Having used multiple methods, contexts and populations, this thesis can inform clinical and population-based health approaches having the explicit objective to reduce the risk for body image dissatisfaction and body image distortion among children and adolescents.

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CHAPTER TWO

STUDY 1

TITLE: Body image dissatisfaction among immigrant children and adolescents in Canada and the United States: A scoping review.

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CONTEXT AND IMPLICATIONS OF THIS STUDY: A significant body of evidence has examined the prevalence, predictors and correlates of body image dissatisfaction (BID) among the adolescent population. However, the extent to which this evidence includes investigations of marginalized youth—especially immigrants, is unknown. The primary objective of this study is to systematically identify and summarize the qualitative and quantitative literature investigating BID among immigrant children and adolescents living in Canada and the US; two of the world's leading immigrant-receiving nations. Findings reveal a paucity of information related to BID among immigrant children and adolescents in these contexts. In addition, available studies reveal a concerning level of inconsistency with respect to the measurement and classification of BID and a disproportionate focus on females and immigrants of Latino and/or Hispanic origins.

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CONFLICTS OF INTEREST: None

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Abstract

Objective: To systematically summarize the literature examining body image dissatisfaction (BID) among immigrant children and adolescents living in Canada and the United States (US). **Methods:** Sources were identified by entering search terms into six electronic databases and by completing an electronic hand search of research journals focusing on body image. Eligible sources were those published between 1946 and November 2012, conducted within Canada or the US, included immigrant children or adolescents (<18 years), and measured BID through self-report. Synthesis followed the principles of thematic and content analysis².

Results: A total of 12 sources were included in our synthesis, spanning years 1991 to 2010. These studies indicate that immigrant children and adolescents experience BID. However, the literature is plagued by a disproportionate focus on females, Latino/Hispanic immigrants and inadequate attention to issues of measurement. **Conclusion:** There is no evidence about the BID experiences of immigrant children and adolescents in Canada and limited information has stemmed from the US. A more robust evidence-base should include the use of advanced methods to examine the influence of acculturation and acculturative stress on BID among immigrant male and female children and adolescents.

KEYWORDS: scoping review; immigrant; children; adolescents; Canada; United States; body image dissatisfaction

Body image dissatisfaction among immigrant children and adolescents in Canada and the United States: A scoping review

Body image dissatisfaction (BID) can be defined as the extent to which individuals experience a discrepancy between their perceived and their ideal body weight and shape ³. Despite being experienced by individuals of varying cultural and ethnic origins ⁴, few studies have examined BID among immigrant children and adolescents. This is an important research gap. In both Canada and the United States (US), immigrants are the fastest growing segment of the population and immigration levels are at an all-time high in both countries ^{5,6}.

Emerging evidence suggests that there are unique aspects to the ‘immigrant experience’ which may place these children and adolescents at greater risk for experiencing BID. For example, acculturation—or the extent to which an individual adopts the values, beliefs and norms of another cultural group ⁷—has been shown to be associated with a greater likelihood of experiencing eating disorder symptoms among immigrant women ⁸. In addition, recent work has suggested that the stress associated with acculturation (*acculturative stress*) ^{9,10} can place immigrants at greater risk for BID and eating disorder concerns. Specifically, the perception that one needs to conform to the body expectations of a particular culture in order to ‘fit-in’ may create a heightened vulnerability for the internalization of sociocultural pressures for weight and shape, which may increase the risk for BID ^{11,12}. However, the extent to which acculturation and acculturative stress have been examined in relation to BID among immigrant children and adolescents is unclear.

The objectives of this scoping review are to: (1) summarize the literature investigating BID among immigrant children and adolescents living in Canada and the US, (2) identify the most commonly used measures of BID within these studies, (3) identify the extent to which acculturation and acculturative stress have been investigated in these reports, and (4) characterize the existing knowledge-gaps within this area of research.

METHODS

Design

This review was informed by the methods detailed by Arksey and O'Malley¹. Specifically, it is grounded in a broad research question, contains broad inclusion and exclusion criteria and places greater emphasis on the relevance, credibility and the contribution of evidence as opposed to methodological rigor. The utility of the scoping review is in its incorporation of findings from qualitative and quantitative literature, as well as empirical and 'grey' research reports¹³⁻¹⁵.

Thematic and content analysis were used to summarize and synthesize our review data². Thematic analysis allowed for the ability to identify "common threads" across the included sources. Content analysis allowed for the systematic categorizing of textual information and its frequency².

Identification of the Literature:

We used the following approaches to compile our search and selection criteria: (1) consulting formal reports from Statistics Canada and the US Census

Bureau for standard language to identify immigrant children and adolescents; (2) consultation with Information Scientists to identify appropriate search terms and operators for the electronic databases, and (3) consultation with experts in the field of body image (JC) as well as immigrant child health (KG, OW).

Search terms and their combinations were entered into six computerized databases, including: Ovid *Medline*, *PsycINFO*, *EMBASE*, *Cochrane Database of Systematic Reviews*, ProQuest-*Applied Social Sciences Index and Abstracts* and ProQuest-*Dissertation and Theses*. Eligible sources were those published between 1946 and November 2012. *Example search terms include body image, (dis)satisfaction, (e)migrant*, immigrant*, Central, South, Latin*¹, Argentin*, Mexic*, Canad*, Americ*, United States, Carrib*, Carrib* Island*, Bermud*, Europe*, Northern Europe*, Western Europe*, North Africa*, South Africa*, West Africa*, East Africa*, Central Africa*, South*East*Asia*, South*West*Asia*, Middle East*, Oceani*, child*, adoles*, teen*, preteen*.*

Additional papers were obtained from the reference lists of review articles and book chapters, as well as through an electronic title and abstract search of key electronic journals focusing on BID. These journals included: (1) *The International Journal of Eating Disorders*, (2) *Body Image*, (3) *Eating Disorders: The Journal of Treatment and Prevention*, (4) *Eating Disorders Review*, and (5) *European Eating Disorders Review*.

¹ For the search criteria, an asterisk (*) denotes that the term was used as a *stem word* so that any English-language words containing that *stem* would be identified by the search engine. For example, Latin* = Latin, Latina, and Latino.

Selection Criteria

Figure 1 shows a flow diagram of the search and selection process for this review. Sources were included if: (1) the source focused on immigrant children and/or adolescents (<18 years) residing in Canada or the US, (2) included body image dis/satisfaction as a construct of interest, (3) the experience of BID was self-reported, and (4) was published prior to November 12, 2012. For the purposes of this review, ‘immigrant’ refers to children and adolescents who are foreign-born (e.g. were born outside of the US) or who live with foreign-born parents.

Papers focusing exclusively on the prevalence or correlates of eating disorders were excluded. Also omitted, were papers that exclusively focused on respondents’ perception of their body image or their use of weight changing strategies and which did not generate an estimate of dissatisfaction. Finally, papers using exclusively college or university-based samples were excluded.

A total of 435 distinct sources were identified using our search strategy. Application of our inclusion and exclusion criteria resulted in 91 sources for full review. Thematic analysis was used to identify common patterns in results, methodological and measurement approaches, considerations of acculturation and acculturative stress and knowledge-gaps. Content analysis was used to quantify the extent to which certain measures of BID and measures of acculturation were used within and across the included sources. Two independent reviewers were responsible for reviewing the sources (MK & JC). A third reviewer (KG) was

invited to make the inclusion decision if the two primary reviewers could not agree. There were no instances where the third reviewer was required.

RESULTS

Characteristics of Included Sources

A total of 12 sources (Table 1) were included in our final synthesis, spanning the publication years 1991 to 2010 and having an age range of 7-19 years. All of the sources originated from the US. One of these sources used qualitative methods, one used mixed methods and the remaining ten sources used quantitative research approaches. Three of the 12 sources explicitly sampled immigrant children and/or adolescents to meet their study objectives. For the remaining nine sources, clarity with respect to immigrant participation was established through a careful reading of reported sample characteristics. Seven of sources exclusively focused on females and only one source had an all-male sample.

Eleven of the 12 sources focused on the Latino/Hispanic/Mexican American population (hereon referred to as “Latino”). Generally speaking, these sources indicate that Latino males and females experience BID, with mean sample scores on the body dissatisfaction subscale of the Eating Disorder Inventory ranging from 10.18 to 33.70¹⁶⁻²². More frequent viewing of mainstream television²³ and negative weight-related remarks from parents and partners were shown to contribute to BID reports among Latino females²⁴.

The one remaining source focused on Hmong immigrants ²⁵. Specifically, Mulasi-Pokhriyal and Smith ²⁵ found that only 21% of girls and 31% of boys (n=335) were satisfied with their bodies. Qualitatively, participants indicated that a heavier body shape was indicative of wealth and health within traditional Hmong culture. However, none of the focus-group participants idealized a heavier body weight or shape.

Measurement of BID

Measurement of BID reflected the affective, cognitive, and behavioural domains of BID commonly cited in the literature (Table 1). Author-created measures were the most common approach to assessing BID (n=4). This was followed by the use of the ‘Body Dissatisfaction Subscale (BD)’ of the *Eating Disorder Inventory (EDI)* ²⁶ (n=3) and the *Body Figure Perceptions and Preference Questionnaire* ²⁷ (n=3). Four of the quantitative sources used more than one BID measure. The most common combination of measures included the BD subscale of the EDI and a body-silhouette assessment. For the source using strictly qualitative methods, BID was an analytical outcome. For example, in-depth qualitative interviews by Gonzalez ¹⁸ revealed that 14-16 year old Mexican-American girls were dissatisfied with their bodies and were currently trying to change their weight.

Investigations of Acculturation

Seven of the 12 sources examined acculturation as a construct of interest. The most commonly used measure to assess acculturation was the *Acculturation Rating Scale for Mexican Americans*²⁸ (n=3). Author-specific scales of acculturation were used less often, but included length of time in the US²⁵ and language spoken at home and with friends²³. None of the sources investigated acculturative stress as an explanatory mechanism for BID.

Generally speaking, results concerning the influence of acculturation on BID are equivocal. Investigations by Mulasi-Pokhriyal and Smith²⁵, Ericksen²⁹, Contreras¹⁹ and Joiner and Kashubeck²² indicate that acculturation is not significantly correlated nor associated with BID. In contrast, Schooler's²³ work found that greater acculturation among Latina girls was significantly and positively associated with BID.

DISCUSSION

The primary objective of this review was to synthesize the literature focusing on BID among immigrant children and adolescents living in Canada and the US. Results reveal a dearth of information. No study included in this review originated from Canada. The few sources that come from the US suggest these children and adolescents experience BID. In addition, there is equivocal evidence for an association between acculturation and BID. There is no known study investigating the extent to which acculturation and acculturative stress differentially impact the BID experiences among this population group. Finally, the sources primarily focus on females, Latino children and adolescents and fail to

provide adequate attention to validity of using BID measures with an immigrant sample. Such information suggests that we can make limited conclusions about the experience of BID among immigrant children and adolescents in Canada and the United States.

Very little attention was paid to the validity of the BID measures employed within the studies. Measurement invariance (MI) refers to the extent to which the measurement properties of a construct are equivalent across population groups³⁰. None of the quantitative sources demonstrated measurement invariance prior to utilizing the BID measures with their study sample. In addition, the authors did not cite that measurement invariance had been established for the population-group under study. This is problematic given that majority of the measures employed were developed with North-American samples and that the standard estimates of reliability and validity reported in the literature (e.g. Cronbach's alpha, the Kuder-Richardson Formula 20 (KR-20)) do not adequately demonstrate that the construct (i.e. BID) is conceptually equivalent across population groups. Finally, authors of the sources did not provide adequate evidence for the age-appropriateness of the BID measure employed in their studies. This is problematic given that figure rating scales are argued to be conceptually appropriate for use among children given their non-reliance on verbal articulation, whereas questionnaire assessments (ex. EDI-BD²⁶ and SPPC¹⁶) are more appropriate for pre-adolescent and adolescent samples³¹. However, in the present review, both the EDI-BD²² and the SPPC¹⁶ were used with

younger samples and the authors did not provide empirical evidence for this application. This calls into question the extent to which we can have confidence that the measures utilized are truly tapping into the construct of BID within these specific samples.

Seven of the 12 studies investigated acculturation as a factor influencing BID reports. None of the sources assessed acculturative stress. In addition, one of the sources used a proxy measure (years lived in the US) to assess acculturation, which has been criticized in conjunction with immigrant generational status for being insensitive to the capturing of the attitudinal and behavioural change processes implicit in the acculturation experience ⁷. Emerging literature among immigrant and ethnic-minority adults supports the further exploration of the behavioural and psychological domains of acculturation—particularly acculturative stress ⁹⁻¹¹. Only by paying appropriate attention to these constructs can we adequately disaggregate the extent to which aspects of the immigrant experience exacerbate or attenuate risk for BID and eating disorders among immigrant children and adolescents.

Figure 1. Flow diagram of source search and selection

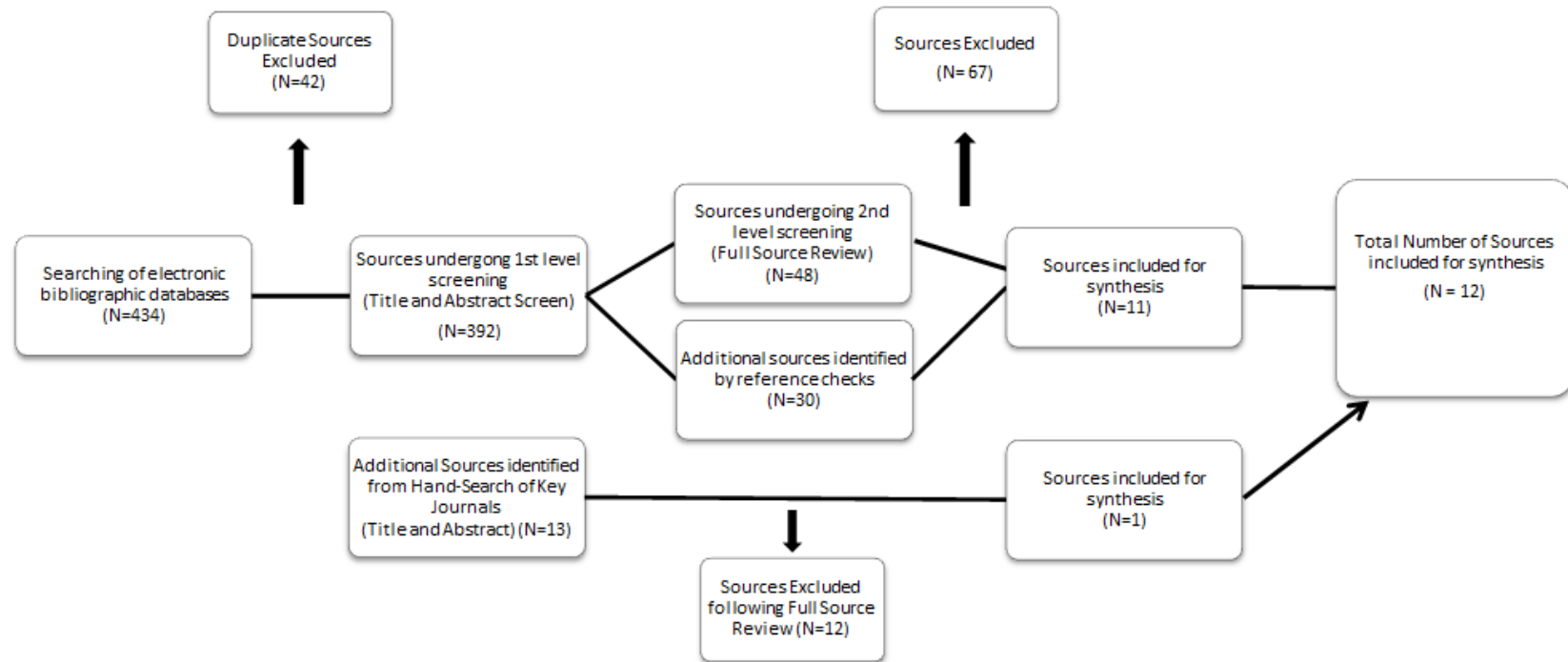


Table 1. Sources with an immigrant-specific sample

| Author, [Source], Country | Immigrant Demographic | Design (cross- sectional, longitudinal) | Sample Size (% female) | Age Range (years) | Specific Sub-Group of focus | Body Image Dissatisfaction Measure | Acculturation Measure |
|---|--|--|---------------------------------------|----------------------------------|--|--|--|
| Hall, Cousins and Power ¹⁶ , USA | 1 st generation to 4 th generation | Quantitative (cross- sectional) | N=37 (100%) | 7-12 | Mexican- American | 1.) Self- Perception Profile for Children- Physical Attractiveness Subscale ³² | |
| Joiner and Kashubeck ²² , USA | 1 st generation to 5 th generation | Quantitative (cross- sectional) | N=120 (100%) | 12-18 | Mexican- American | 1.) Eating Disorder Inventory- Body Dissatisfaction Subscale ²⁶ 2.) Body Figure Perceptions and Preference Questionnaire ²⁷ | 1.) Acculturati on Rating Scale for Mexican- Americans ²⁸ |
| Joiner ²¹ , USA | 1 st generation | Quantitative | N=506 | 13-19 | Hispanic | 1.) Eating Disorder | |

| | | | | | | | |
|--|--|---------------------------------------|-------------------|-------------------|----------------------------|--|--|
| | to 5 th generation | (cross- sectional) | (100%) | | | Inventory- Body Dissatisfaction Subscale ²⁶ | |
| Ericksen ²⁹ , USA | 1 st generation to 3 rd generation ² | Quantitative (longitudinal) | N=81 (0%) | 9-12 ³ | Mexican- American | 1.)Body Shape Discrepancy Silhouettes ³³ 2.)Author- created measure. | 1.)Acculturati on Rating Scale for Mexican- Americans ²⁸ |
| Mirza, Davis and Yanovski ¹⁷ , USA | 77% 2 nd generation or later. ⁴ | Quantitative (cross- sectional) | N=113 (~55.8%) | 12-18 | El Savadoran (Hispanic) | 1.)Kids Eating Disorder Survey-Body Silhouettes ³⁴ | |
| Ayala, Mickens, Galindo and Elder ³⁵ , USA | 1 st generation to 2 nd generation or later | Quantitative (cross- sectional) | N=167 (57%) | 8-18 | Latino | 1.)The Body Contour Test ³⁶ | 1.)Acculturati on Rating Scale for Mexican- American's ²⁸ |

² Note: generational status reported is range in parent generational status given that the author did not report individual participant generational status.

³ Note: age range is at baseline.

⁴ Author states "Most children were born in the United States (77%) but almost all parents were foreign-born"

| | | | | | | | |
|-------------------------------------|---|-----------------------------------|-------------------|-------|----------------------|--|--|
| Contreras ¹⁹ , USA | 1 st generation | Quantitative (cross-sectional) | N=60 (46.7%) | 13-19 | Spanish/ Hispanic | 1.) The Self-Esteem Questionnaire-Body Image Subscale ³⁷ | 1.) Short Acculturation Scale for Hispanic Youth ³⁸ |
| Gonzalez ¹⁸ , USA | 2 nd generation or later | Qualitative (cross-sectional) | N=40 (100%) | 14-16 | Mexican-American | 1.) Body Figure Perceptions and Preference Questionnaire ²⁷ 2.) Author-created measure. | |
| Pepper and Ruiz ²⁰ , USA | 1 st generation to 4 th generation | Quantitative (cross-sectional) | N=264 (100%) | 14-16 | Latina | 1.) Eating Disorder Inventory-Body Dissatisfaction Subscale. ²⁶ 2.) Body Figure Perceptions and Preference Questionnaire ²⁷ | 1.) The General Acculturation Index ³⁹ |
| Schooler ²³ , | 1 st generation | Quantitative | N=81 ⁵ | 11-17 | Latina | 1.) Self-Image Questionnaire | 1.) Author- |

⁵ Number denotes sample at baseline.

| | | | | | | | |
|--|-------------------------------------|---------------------------------|---|-------|------------------|---|----------------------------|
| USA | or later | (cross-sectional) | (100%) | | | for Young Adolescents-Body Image Subscale ⁴⁰ | specific scale. |
| Gosdin ²⁴ , USA | 1 st generation or later | Qualitative (cross-sectional) | N=6 (100%) | 14-18 | Mexican-American | 1.) Author-created measure. | |
| Mulasi-Pokhriyal and Smith ²⁵ , USA | 1 st generation or later | Mixed-methods (cross-sectional) | Qual: N=68 (%unclear) Quan: N=335 (~55.2%) | 9-18 | Hmong-American | 1.) Body-Shape Discrepancy Silhouettes ³³ 2.) Author-created measure. | 1.) Author-specific scale. |

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CHAPTER THREE

STUDY 2

TITLE: Ethnic minority status and body image dissatisfaction: A scoping review of the child and adolescent literature.

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CONTEXT AND IMPLICATIONS OF THIS STUDY: Early work in the body image field indicated that ethnic minority children and adolescents were at reduced risk for experiencing body image dissatisfaction (BID) compared to their white or Caucasian peers. However, emerging literature from North America and other parts of the world suggest that this is no longer the case and that body image dissatisfaction is a universal phenomenon among the child and adolescent population. This study investigates the range and extent of the literature investigating body image dissatisfaction among ethnic minority children and adolescents living in Canada and the US. Results reveal a number of substantive, conceptual and methodological concerns within the evidence; including: (1.) the conflation of immigrant generational status and ethnicity/race; (2.) a narrow investigation and understanding of sex and gender; and (3.) a concerning disregard for the validity of BID measures across diverse populations. This study makes important recommendations for increasing the methodological rigor of investigations of BID among ethnic minority children and adolescents.

CONFLICTS OF INTEREST: None

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Abstract

Objective: To systematically summarize the literature examining ethnic minority status and body image dissatisfaction (BID) among children and adolescents living in Canada and the United States. **Methods:** Literature was identified by entering search terms into six electronic databases and through an electronic hand search of key research journals. Eligible sources were those published between 1946 and November 2012, conducted within Canada or the United States, included ethnic minority children or adolescents (<19 years), and measured BID through self-report. Synthesis of the sources followed the principles of thematic and content analysis (Vaismoradi et al. in Nurs Health Sci 15:398-405, 2013). **Results:** A total of 33 sources were included in our scoping synthesis; spanning from 1991 to 2011. No results emerged from Canada. Evidence from the United States is equivocal. The literature is plagued by inconsistent nomenclature and inadequate attention to issues of measurement, sex and gender. **Discussion:** A more robust evidence-base requires advanced methods to examine the intersection of ethnicity, sex and gender on BID among children and adolescents.

KEYWORDS: scoping review; ethnic minority; children and adolescents; body image dissatisfaction; sex and gender

Ethnic minority status and body image dissatisfaction: A scoping review of the child and adolescent literature

In line with its first description by Austrian psychiatrist Paul Schilder in 1935, body image continues to be recognized as a multidimensional construct; with body image dissatisfaction (BID) denoting the extent to which individuals perceive a discrepancy between their perceived and their ideal body weight and shape ^{3,41}. Literature suggests that an individual's belief about what constitutes the ideal body weight and shape is acquired early on in life ⁴² and once established, tends to persist overtime ⁴³. In addition, a plethora of literature documents an association between BID and negative health outcomes, including obesity, eating disorders, anxiety and depression ⁴⁴⁻⁴⁸; making it an important point of intervention to decrease the incidence and prevalence of various morbidities.

An emerging body of literature documents the extent to which BID is experienced among ethnic minority individuals; calling into question the notion that ethnic minority groups are at reduced risk for eating disordered behaviour and BID compared to their 'white' counterparts. Specifically, reviews by George and Franko ⁴⁹, Franko and Striegel-Moore ⁵⁰, Franko and George ⁵¹, and Crago, Shisslak and Estes ⁵² point to important differences in BID among ethnic minority children and adolescents. Specifically, the reviews indicate that ethnic minority children and adolescents do experience BID and that the variability in BID scores within and across ethnic groups can be influenced by a number of factors; such as age, sex and personality type. The problem however, is that few of these reviews used systematic methods to identify and consolidate research findings. In addition

the reviews have disproportionately focused on females and did not incorporate the qualitative and quantitative literature nor unpublished research reports; thereby limiting our confidence in their results and recommendations. On the contrary, systematic methods that allow for the incorporation of qualitative and quantitative literature, in addition to published reports and unpublished findings have the potential to establish the extent to which BID findings are truly consistent and generalizable across population groups, while simultaneously limiting the extent to which publication bias may influence the synthesizing of information ⁵³.

Present Study:

This study is premised by the central research question: *what is known about the self-reported experiences of body image dissatisfaction among ethnic minority children and adolescents in Canada and the United States?* Therefore, the objectives of this review are to: (1) systematically summarize the literature investigating BID among ethnic minority children and adolescents; (2) identify the most commonly used measures of BID within quantitative studies; (3) describe the theoretical models, if any, informing investigations of BID among this population group; (4) identify the extent to which studies incorporate considerations of sex and gender in their investigations; and (5) characterize the existing knowledge-gaps within this area of research. This review will inform future qualitative and quantitative investigations of BID among ethnic- minority children and adolescents. This is particularly relevant for Canada and the United

States given that their child and adolescent population are significantly comprised of ethnic minority individuals^{5,6,54}. In addition, a thorough understanding of the extent and the nature of the literature focusing on BID among ethnic minority children and adolescents has the potential to inform priorities for promotion, prevention and intervention that are specific to these population groups.

METHODS

Design

This scoping review was informed by the methods detailed by Arksey and O'Malley¹ (Figure 1). Distinct from more traditional systematic review methods which are aimed at assessing the strength of the evidence-base, scoping reviews use systematic methods to identify literature, but aim to capture the breadth of the evidence, map what is substantively known about a particular content area, summarize findings, and identify key research gaps^{1,55}. In this regard, scoping reviews are necessarily grounded in broad research questions, contain broad inclusion and exclusion criteria and place greater emphasis on the relevance, credibility and contribution of evidence as opposed to methodological rigor¹³⁻¹⁵.

Despite being recognized as a formidable review method, recent methodological reports have suggested that the impact of scoping reviews have been limited by their insufficient detail pertaining to the processes involved in summarizing and synthesizing results⁵⁶⁻⁵⁸. For this reason, our team utilized thematic and content analysis to summarize and synthesize our scoping review data². As a qualitative analytical approach, thematic analysis seeks to identify

“common threads” across the data sources that are relevant for answering the research question; whereas content analysis allows for the systematic categorizing of textual information and its frequency². Our synthesis focused on an iterative evaluation of the patterns inherent within the literature focusing on BID among ethnic minority children and adolescents living in Canada and the United States, as well as the quantification of constructs of interest.

Identification of the Literature:

This scoping review took a multi-step approach to compile the appropriate search terms and selection criteria to meet our research objectives. First, we consulted formal reports from Statistics Canada e.g.⁵⁴ and the United States Census Bureau e.g.^{59,60} to identify standard language with which to identify ethnic minority children and adolescents within our database searches. Second, the lead author consulted with Information Scientists at McMaster University and the University of Toronto to identify appropriate search words, their combinations, and Boolean and truncation operators to comprehensively search electronic databases. The entire list of our search terms are given in Appendix 1; however, examples of the terms are: *body image, dissatisfaction, satisfaction, weight evaluation, Latin*⁶, Argentin*, Mexic*, Canad*, Americ*, United States, Carrib* and Europe**.

⁶ For the search criteria, an asterisk (*) denotes that the term was used as a *stem word* so that any English-language words containing that *stem* would be identified by the search engine. For example, Latin* = Latin, Latina, and Latino.

Search terms and their combinations were entered into the computerized databases *Ovid-Medline* (1946 to November 13, 2012), *Ovid-PsychINFO* (1806 to November 13, 2012), *Ovid-EMBASE* (1980 to November 13, 2012), *Ovid-Cochrane Database of Systematic Reviews* (up to November 13, 2012), *ProQuest-Applied Social Sciences Index and Abstracts* (up to November 13, 2012), and *ProQuest-Dissertation and Theses* (up to November 13, 2012). Additional papers were obtained from the reference lists of review articles and book chapters; as well as through an electronic title and abstract search of key electronic journals focusing on BID. These journals included: (1) *The International Journal of Eating Disorders* (1995-2012), (2) *Body Image* (2004-2012), (3) *Eating Disorders: The Journal of Treatment and Prevention* (1993-2012), (4) *Eating Disorders Review* (1999-2012), and (5) *European Eating Disorders Review* (1995-2012).

Selection Criteria

Figure 2 shows a flow diagram of the search and selection process for this review. Sources were included for synthesis if they addressed the central research question: *what is known about the self-reported experiences of body image dissatisfaction among ethnic minority children and adolescents living within Canada and the United States?* To focus our analysis on the literature pertinent to this research question, sources were included in the present review if: (1) the study was conducted in Canada or the United States, or the report/review included individuals residing in Canada or the United States; (2) included ethnic minority children and adolescents under the age of 19 years; (3) included body image

satisfaction or dissatisfaction as a clear construct of interest; and (4) the measure or experience of body image satisfaction or dissatisfaction was self-reported by the children or adolescents.

Given that the focus of the present review is on BID and not eating disorders, papers focusing exclusively on the prevalence or correlates of these disorders were excluded. However, studies which utilized eating disorder inventories (e.g. Eating Disorder Inventory ²⁶) to assess BID and reported results that related to BID, were included. Also omitted, were papers that focused exclusively on children or adolescents' perception of their body image or their use of dieting or weight changing strategies, as these sources can only provide an indirect assessment of one's actual BID. Third, papers focusing on the experience of immigrant children or adolescents were excluded given the literature suggesting that there are unique aspects of the immigrant experience (i.e. acculturation or acculturative stress) which are pertinent to these individuals' experiences of BID and which is outside the scope of this review ¹¹. Finally, papers using exclusively college or university-based samples were excluded. The rationale for this exclusion is that college and university-based adolescents tend to be exposed to very different socio-cultural factors that may contribute to their body image perceptions when compared to children and adolescents unexposed to these contexts ⁶¹.

After removing duplicates based on year of publication, authors and titles, a total of 392 sources were identified from the selected bibliographic databases. Titles and abstracts were scanned for relevance and indications of our inclusion and exclusion criteria, resulting in 48 sources for full review; including thirty-seven peer-reviewed journal articles, eight doctoral dissertations, and three books (five chapters in total). Reference screening of these sources resulted in an additional 30 sources for full-review, including twenty-nine peer-reviewed journal articles and one report. Finally, thirteen additional peer-reviewed journal articles were identified for full-source review through the electronic hand-search of the key journals. The 91 sources identified for ‘full-source’ screening were sorted in relation to our inclusion and exclusion criteria, stated objectives, methodology and outcomes. Based on this information, evidence tables were constructed for the final sources included for our synthesis. The evidence tables included the charting of various domains of information (e.g. methods, objective, results, etc.). Thematic and content analysis were used to inform the identification of our information domains and subsequently, extract data from the included sources. In this regard, thematic analysis was used to identify common patterns within the sources pertaining to their focus, results, methodological and measurement approaches, use of theoretical frameworks, and consideration of sex and gender. Content analysis was used to quantify the extent to which certain theoretical frameworks and measures of BID were used within and across the included sources ². Finally, thematic analysis was used to identify patterns with respect to

knowledge-gaps within our synthesized literature. Two independent reviewers were responsible for reviewing the eligible sources (MK & JC). A third reviewer (KG) was invited to make the decision of inclusion or exclusion if the two-primary reviewers did not agree. There were no instances where a third reviewer was necessary.

RESULTS

Characteristics of Included Sources

A total of 33 sources (see Figure 2) were included in our final synthesis, with sources spanning the years 1991 to 2011. Thirty-one sources were peer-reviewed journal articles, two were doctoral dissertations and one source consisted of two book chapters. Among the sources, a total of four review papers were included in the present synthesis; with twenty-six of the remaining sources having used strictly quantitative research methods, one using strictly qualitative research methods and one source employing the use of mixed methodology. Only one of the primary sources reported on a clinical sample ⁶², whereas the remaining primary studies recruited participants from the general population. No primary or secondary study included a sample from Canada. Finally, the sources included individuals ranging in age from 6 to 19 years.

Sources focusing on Latino/Hispanic/Mexican-American Children and Adolescents

Eight of the 33 sources focused their investigations of BID among the Latino/Hispanic/Mexican American population (hereon referred to as “Latino”) (Table 1). All eight of the sources were quantitative investigations, four included males and females and only one of these sources used longitudinal data. The literature suggests a significant and positive correlation between BMI, body weight and BID ⁶³⁻⁶⁶. In addition, both Latino males and females report BID in childhood and adolescence ⁶³⁻⁶⁸; however, varying sex differences have been found. Two of the eight studies suggest no significant difference in BID levels between males and females ^{69,70}; whereas one study suggests that females experience greater BID compared to males ⁶³. Finally, the longitudinal work by Ericksen, Markey and Tinsley ⁶⁴ suggests that differences in BID between males and females may change over time; with differences in levels of BID converging in preadolescence.

Inconsistent results have also been reported when comparing BID levels among Latino children and adolescents to their ‘Non-Hispanic-White’ counterparts. Specifically, cross-sectional investigations by Erickson and Gerstle ⁶⁷, Smith and Krejci ⁶⁸, and Gardner, Friedman and Jackson ⁶⁹ suggest no significant differences in BID among Latino children and adolescents compared to their non-Hispanic-White peers. However, the work by Ceballos and Czyzewska ⁶³ found that early-teen Mexican Americans and Anglo Americans significantly differ with respect to BID scores; with Anglo Americans reporting a

significantly greater mean level of BID compared to their Mexican-American counterparts.

Sources focusing on African/Black Children and Adolescents

Table 2 summarizes the eight sources focusing on BID among African/Black (herein referred to as ‘Black’) children and adolescents living within the US. Seven of the eight sources explicitly focused on females. One of the eight sources was classified as a review, with six of the remaining sources having employed quantitative research methods and one utilizing mixed methods. Results reveal that Black children and adolescents—males and females—experience BID ^{50,71-74}. In addition, BID has been shown to be significantly and positively associated with BMI among Black females ^{71,72,74,75}.

Sources which compared BID levels among Black females to their white counterparts indicate that Black girls experience less BID ^{50,71-74,76}. Similarly, the association between BMI and BID has been found to be significantly stronger among white girls. Specifically, the average increase in BID is higher among white girls with a higher BMI compared to the average increase in BID scores among black girls with the same BMI status ^{71,72}; suggesting that ethnic identity modifies the association between BMI and BID. In addition, a cross-sectional survey by Kelly, Bulik and Mazzeo ⁷⁵ found that among 6-11 year old black and white girls, BMI was positively associated with BID however; mean levels of BID did *not* differ between the ethnic groups. In contrast, McConnell ⁷⁷ found no

significant difference in the correlation between BID and feelings of body shame among 9th and 10th grade African American and White-American females.

Sources with a 'Multi-Ethnic' Sample of Children and Adolescents

Table 3 details the characteristics of the seventeen sources investigating BID among various ethnic groups in the US. Thirteen of the sources used quantitative research methods and the remaining four sources were classified as reviews. Two of the sources exclusively focused on males^{78,79} and seven of the sources strictly focused on females. Among the non-review sources, six included participants of White, Black, Hispanic/Latino, and Asian American ethnic identity; whereas the remaining primary and secondary sources reported a sample with some combination of these populations (e.g. Whites, Hispanics and Asian Americans; or African, Latino and Asian Americans).

Results from the multi-ethnic studies are mixed. Some sources suggest that male and female ethnic-minorities experience higher levels of BID compared to their white counterparts^{49,80,81}, while others report null differences between these population groups^{79,82-85}. For example, some sources reveal that Latino (i.e. Hispanic, Mexican-American, Latino/Latina) girls report greater BID compared to their Non-Hispanic-White peers^{81,86}. However, investigations with older children and adolescents report the reverse, with Non-Hispanic-White or Anglo American females reporting greater BID than their Latino counterparts^{62,87}. Similarly, Asian American girls and boys have been shown to report greater BID compared to their

white peers⁸⁰ and to report significantly less BID than whites and other ethnic-minorities^{81,84}.

Perhaps the most robust findings thus far are those which focus on children and adolescents who identify as Black/African American/Caribbean. Overall, synthesized sources indicate that black males and females are significantly less likely to report BID compared to their white and other ethnic minority peers^{45,52,78,80,81,85}. Only two sources indicate results which do not support these findings. In Barry and Grilo's⁶² cross-sectional study of 12-19 year old males and females, Caucasian adolescents reported significantly greater BID than their African American and Latino peers; however, the latter two groups did not significantly differ from one another. In addition, the authors completed a sex-stratified analysis, revealing that BID scores did not significantly differ among males across ethnic groups; but did so among females. Specifically, Caucasian females reported significantly greater BID than African American and Latino American females. Furthermore in their cross-sectional study with African and Latino American females in grades four and five, Vander Wal and Thomas⁸⁸, found that African American girls reported significantly greater BID than their Latino American peers, with males not included in this study sample.

Theoretical Frameworks informing BID research among ethnic minority children and adolescents

Very few of the 33 sources identified a theoretical framework informing their research objectives, nor gave a theoretical basis for investigating their variables of interest (Table 4). Specifically, only four of the 33 sources situated their research within the context of a previously published theoretical framework; with one of these sources citing two theoretical models informing their research⁸⁷. In addition to the theoretical models noted in Table 4, Franko and Striegel-More⁵⁰ explored whether an etiological model that included BID and early puberty as risk factors for adolescent depression applied equally well to white and black girls. However, the authors provided no over-arching theoretical framework for the exploration of these factors in these populations, nor provided evidence that the combination of the two factors represent a theoretically-sound point of departure.

Measurement of BID

The measures used to assess BID among our included sources are listed in Table 5. The body dissatisfaction subscale of the *Eating Disorder Inventory (EDI)*^{26,89-91} was the primary data collection measure for eight of the 26 sources employing quantitative measurement methods; followed by the *Kids Eating Disorder Survey-Body silhouettes* (n=4;³⁴) and author-derived measures (n=4). Seven of the quantitative sources used more than one BID measure; with the most common combination of measures including the body dissatisfaction subscale of the EDI and a body-silhouette assessment^{63,67,71,73,83,85,92}. For the strictly qualitative sources, BID was an analytical outcome. For example, in the study by

Taylor et al.⁹³, BID was one of the six main themes developed from a thematic analysis of focus groups exploring reasons for exercise among African-American and Latino-American 11-15 year old girls.

Evidence Limitations and Research Priorities

The iterative process of thematic analysis allowed for the ‘teasing-out’ of patterns relating to the limitations within the existing evidence-base. Specifically, this iterative process yielded evidence limitations pertaining to three major domains: (1) nomenclature, (2) measurement, and (3) design and analysis. The evidence limitations related to nomenclature include: (1) the conflation of ethnic and racial identity in literature reviews, sampling and data analysis, and (2) the inconsistent reporting of gender/sex sample characteristics.

Similarly, the identified knowledge gaps related to measurement include: (1) the need to demonstrate equivalency of BID measures across ethnic minority status and sex prior to implementing measures with ethnic minority populations and making cross-group comparisons or inferences, (2) inconsistently providing scale descriptions and item response options for measures employed within quantitative studies, (3) the low utilization of mixed-method assessment strategies to comprehensively account for the attitudinal, cognitive and behavioural domains of BID across ethnic minority statuses; and (4) acknowledging the limitations of using clinical interviews with population-based samples.

With respect to the design and analysis of the synthesized sources, limitations of the literature relate to: (1) the little attention to missing-data analysis and its implications for the interpretation of study findings, particularly in relation to minority populations, (2) a lack of consistent estimation of internal consistency reliability coefficients for study measures across sample sub-groups, (3) a lack of implementation of corrections for multiple statistical testing, and (4) little consistency in reporting the confidence intervals of effect estimates.

DISCUSSION

The primary objective of this review was to synthesize the literature focusing on BID among ethnic minority children and adolescents living in Canada and the United States. Results reveal a dearth of information about BID among ethnic minority children and adolescents. No primary or secondary study included in this review originated from Canada. In addition, few of the included sources justified their work based on a theoretical framework and none of the included sources demonstrated measurement equivalence of their BID measures prior to making cross-group comparisons.

Perhaps one of the most compelling findings of this review is that there are *consistent inconsistencies* across this body of literature. Specifically, both differences and similarities were found when comparing BID levels between ethnic-minorities and their Caucasian counterparts; results which were apparent for both Asian as well as Latino children and adolescents. For example, among the studies focusing on Latino children and adolescents, some work found

significant sex differences in BID reports, whereas another study reported null results. In addition, Latino as well as Asian children and adolescents have been found to experience greater and lower levels of BID compared to their non-Hispanic-White and other ethnic minority peers. Explanations for the variability in results may be due to the inconsistent use of a standardized measure to assess BID. In addition, some literature focusing on Latino children and adolescents suggests that BID differences within and across ethnic minority groups may be a function of age or a developmental trajectory of BID; whereby for some children and adolescents (e.g. Latinos) BID levels may lower over time and for others (e.g. non-Hispanic-Whites), BID levels may increase over time. The one caveat includes studies focusing on Black/African American children and adolescents. Generally speaking, these sources demonstrate a degree of convergence in asserting that both males and females consistently experience less BID than their white and ethnic minority counterparts. Longitudinal studies which involve adequate sample sizes of various ethnic minority groups and which employ standardized and robust measures of BID will yield greater information about the extent to which ethnic minority children and adolescents truly differ in BID experiences and the extent to which the developmental trajectory of BID may differ within and across ethnic minority groupings.

The conflation of terms relating to ethnic, immigrant and racial identity made it difficult to clearly identify sources for inclusion in the synthesis, but also, disaggregate findings that were specific to ethnic minority children and

adolescents. In addition, ethnic-origin (Mexican vs. Peruvian) tended to be conflated under a denoted ‘dominant group’ (e.g. Latino). Literature suggests that the conflation of these terms is not uncommon. This is despite the fact that a number of reports have been published suggesting that the constructs of immigrant status, ethnic origin and race are distinct domains of identity shown to be associated with varying patterns of inequity in health and mental health ^{94,95}. Specifically, socio-epidemiological research has alluded to within and between racial and ethnic differences among individuals on a myriad of social, behavioural and psychological health outcomes; including child maltreatment, depression, anxiety and obesity ⁹⁶⁻¹⁰⁰. Future work investigating BID should be clear with respect to the inclusion of ethnic minority children and adolescents within study samples; but also, the extent to which included participants represent a range of ethnic and racial groupings. Only by doing so will researchers and practitioners be able to adequately understand the mechanisms by which BID is experienced among ethnic minority children and adolescents and therefore, make accurate inferences in relation to BID among these population groups.

Sources disproportionately focused on females, with only one review and one quantitative source exclusively focusing on males. Of particular concern is that a number of sources did not report how participant sex was determined and yet, still reported results across male and female sub-groups e.g. ¹⁷. Similarly, sources which were exclusive to males or females did not regularly indicate how their sample was identified. Specifically, authors did not report whether sample

participants self-selected for participation based on their sex or gender, or rather, participant selection was given by the authors' perception of who was 'male' or 'female' ^{23,79,88,101}. Finally, in no instance did any of the included sources indicate that they allowed the opportunity for participants to self-report a sex or gender outside of the traditional male/female binary.

The inconsistent and limited assessment of sex and gender parallels what is commonly seen in the broader literature and has been the topic of much scrutiny among those devoted to sex and gender-based analysis (GSBA) (see Oliffe and Greaves ¹⁰²). GSBA researchers indicate that explicit consideration of sex and gender is “critically important to attending to the biological and social aspects of growth, development, illness and recovery” ¹⁰³. Thus, the conflation of sex and gender, overlooking or neglecting issues of sex and gender within health and social services research, limits the conclusions we can make from these investigations. This is particularly relevant given recent literature suggesting the importance of gender identity and 'gendered expectations' for body shape and weight on BID and eating disorder experiences ^{104,105}. Future BID research needs to equally engage individuals representing the full spectrum of gender identity, consider the ways in which sex and gender can be measured and evaluated in relation to BID; and finally, be specific with respect to the construct under study—that is, whether or not the study measures and reports on biological sex or self-reported gender identity. Finally, and most crucial, we call for future research

to examine the influence and intersection of ethnicity, sex and gender on BID experiences.

Only four sources situated their work within a theoretical framework, with each of these sources citing distinct theoretical platforms from which their research objectives were pursued. This is particularly compelling given that it is the theoretical framework which delineates the proposed explanatory influence of the variables of interest; and therefore, gives meaning and understanding to the associations and relationships found. Given the inconsistency with which theory was utilized within our included sources, it is difficult to postulate the extent to which any one specific model holds greater utility or explanatory influence than another. We would argue that a theoretical grounding in intersectionality may prove to be useful for future work investigating the BID experiences among ethnic minority children and adolescents. Specifically, a recent paper by Bowleg¹⁰⁶ points to the importance of considering multiple aspects of one's identity when investigating health phenomena and situating these investigations within the context of micro and macro influences. In doing so, researchers have the potential to truly delineate the true effect of distal and proximal influences on BID while simultaneously being able to examine the extent to which these influences interact with one another to exacerbate or attenuate risk for BID; thereby providing a more robust understanding of the explanatory mechanisms of BID incidence and prevalence.

Perhaps most crucial to the conclusions that we can make from the present review was the lack of attention paid to the validity of the BID measures employed within the synthesized sources. This is of particular relevance given that just over 75% of the sources employed quantitative methods. Measurement invariance (MI) refers to the extent to which the measurement properties of a given construct are equivalent across the groups of interest³⁰. A seminal article by Gregorich¹⁰⁷ points to the importance of demonstrating MI prior to making cross-group comparisons; suggesting that researchers who do not demonstrate MI on their measure of interest risk making biased and inaccurate conclusions. Specifically, researchers who fail to empirically demonstrate that BID can be measured in the same way, with the same indicators—and their associated measurement error—across the groups of interest, potentially negate any quantitative conclusions to be drawn from the study^{30,108,109}. None of the quantitative sources included in this review demonstrated MI prior to making cross-group comparisons on their BID measure, nor cited literature documenting that MI has been established. Thus, relying on standard internal consistency reliability estimates (e.g. Cronbach's alpha) to affirm that the authors measure of BID is invariant across population groups could lead to the erroneous assumption that similarities or differences in BID scores approximate what would be found in the true population.

Limitations

The potential limitations of this scoping review are four-fold. First, we neglected to focus on the experience of eating disorders (EDs) among ethnic minority children and adolescents; which is an important limitation considering that literature has suggested a strong and positive association between EDs and BID. However, we would argue that our focus has revealed critical conceptual, substantive and methodological limitations that would likely be of equal concern in the literature investigating the association of BID and EDs among these children and adolescents. Second, while this review did consult with stakeholders in the identification of search strategies and terms, our scoping process did not engage in formalized stakeholder methods to identify research limitations and directives. Future scoping reviews might consider undertaking such methods like those employed by Sanu et al ¹¹⁰ and recommended by Levac, Colquhoun and O'Brien ⁵⁸. Third, a key distinction between standard systematic reviews and scoping reviews is that the latter, by definition, has no intent of assessing the quality of the literature. While we have steered clear of assessing the overall rigour of the included sources, conceptual and methodological criticism could not be avoided and does play a significant role in the reporting of our results. Our team feels that this focus was necessary for our work given that the conceptual and methodological concerns dictated the sources included for synthesis; and clearly, the claims we could make in relation to the scope of the literature on our subject area.

Finally, we did not include papers focusing on immigrant samples, nor attempt to delineate the participation of immigrants in the included studies. It is well recognized that the ethnic groups included in this paper constitute a significant proportion of the immigrant population in the United States and Canada. For example, recent work by Hernandez ¹¹¹ suggests that up to 12% of children and adolescents in the US live with a black immigrant parent; suggesting the possibility that black immigrant children or black children with immigrant parents could have been included in the samples included in this review. This is even more likely given that a number of the sources included large, representative, population-based samples.

Conclusion

This scoping review applied a systematic approach in an effort to identify the extent and range of the literature focusing on body image dissatisfaction among ethnic minority children and adolescents within Canada and the United States. The few studies that explicitly included ethnic minority children and adolescents lend support for the suggestion that these individuals do experience BID. However, the results from the included sources are equivocal.

Our findings suggest that BID investigations with ethnic minority children and adolescents have disproportionately focused on the Latino population, have tended to conflate ethnicity, race and immigrant status, have disproportionately focused on females and demonstrated a lack of design and measurement rigour necessary to make accurate conclusions regarding BID estimates. Future work

should aim to clearly articulate the composition of study samples and their associated demographics, be broadened to include the heterogeneity inherent within ethnic and gender identity, and incorporate the use of theoretical frameworks in order to fully explain research findings.

Appendix 1

Search terms for Electronic Database Search

*body image, dissatisfaction, satisfaction, weight evaluation, weight perception, weight concern, body preference, weight control, self evaluation, body evaluation, appearance, Central, South, Latin*⁷, Argentin*, Mexic*, Canad*, Americ*, United States, Carrib*, Carrib* Island*, Bermud*, Europe*, United Kingdom, Northern Europe*, Western Europe*, Southern Europe*, Eastern Europe*, Africa*, North Africa*, South Africa*, West Africa*, East Africa*, Central Africa*, Asia*, South Asia* South*East*Asia*, South*West*Asia*, East* Asia*, West* Asia*, Central Asia*, Middle East*, Oceani*, child*, adoles*, teen*, preteen*.*

⁷ For the search criteria, an asterisk (*) denotes that the term was used as a *stem word* so that any English-language words containing that *stem* would be identified by the search engine. For example, Latin* = Latin, Latina, and Latino.

Figure 1. Stages of scoping review approach informed by Arksey & O'Malley¹

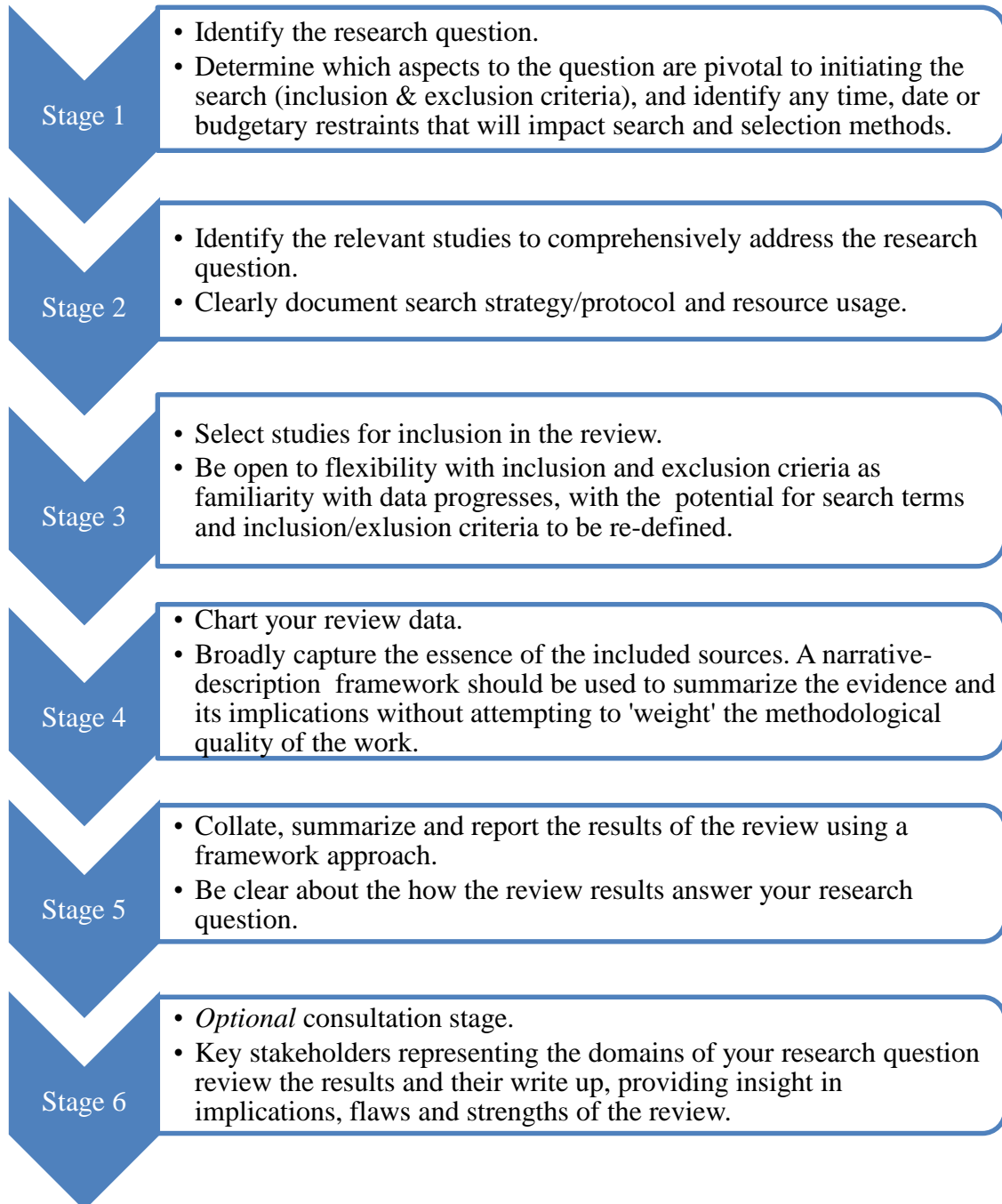


Figure 2. Flow diagram of source search and selection

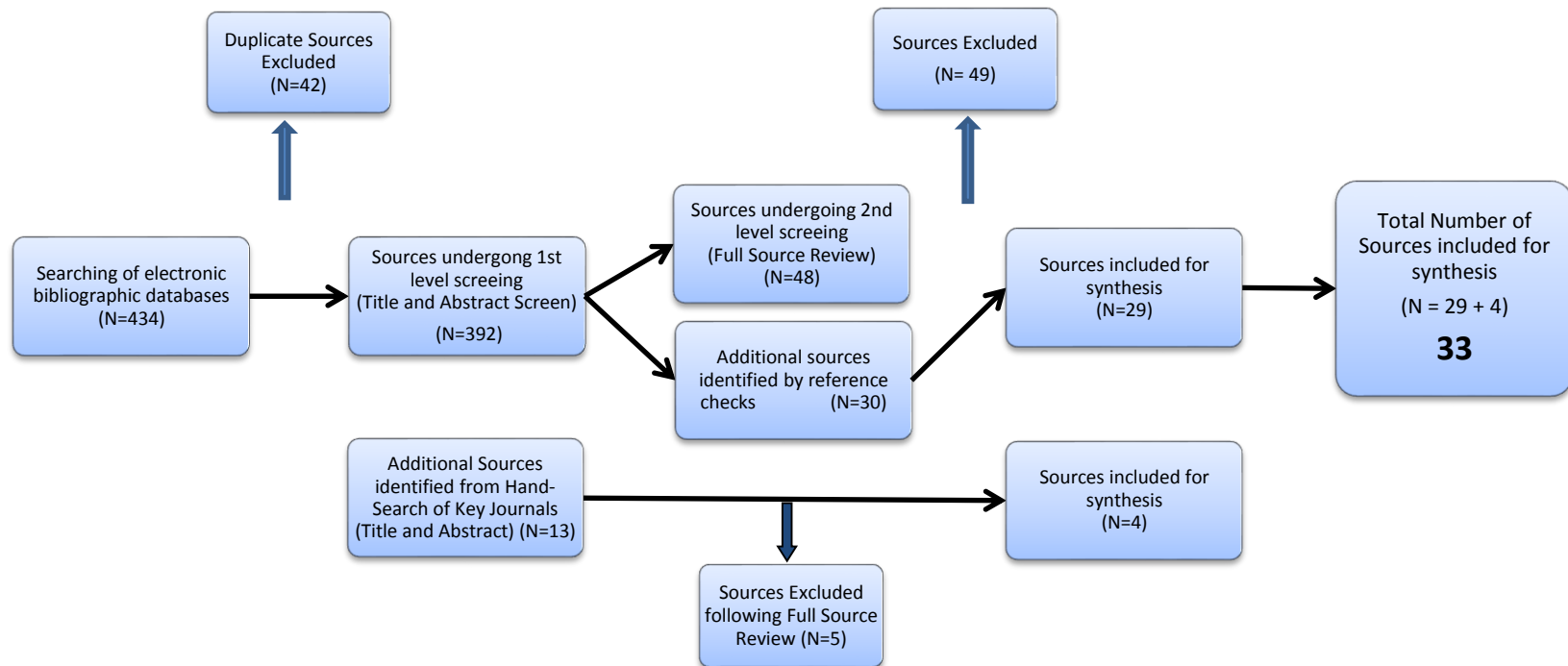


Table 1. Latino-focused sources

| Author, [Source], Country | Design (cross-sectional, longitudinal, review) | Sample Size (% female) | Age range (years) |
|--|--|--|-----------------------------------|
| Smith and Krejci ⁶⁸ , USA | Quantitative (cross-sectional) | N=545 (55.2%) | High school |
| Guinn, Semper, Jorgensen and Skaggs ⁶⁶ , USA | Quantitative (cross-sectional) | N=254 (100%) | 13-15 years |
| Gardner, Friedman and Jackson ⁶⁹ . USA | Quantitative (cross-sectional) | N=189 (47.6%) | 7, 10 & 13 years |
| Guinn, Semper and Chilek ⁶⁵ , USA | Quantitative (cross-sectional) | N=153 (100%) | 15-19 years |
| Ericksen, Markey and Tinsley ⁶⁴ , USA | Quantitative (longitudinal) | N=81 (44.8%) | 10 (at time 1) |
| Erickson and Gerstle ⁶⁷ , USA | Quantitative (cross-sectional) | N=141 (100%) | 8-12 years |
| Ceballos and Czyzewska ⁶³ , USA | Quantitative (cross-sectional) | N=319 (100%) | 12-15 years |
| Mirza, Mackey, Armstrong, Jaramillo and Palmer ⁷⁰ , USA | Quantitative (cross-sectional) | N=113 (49.0%) | 7-15 years |

Table 2. African/Black-focused sources

| Author (date), country | Design (cross-sectional, longitudinal, review) | Sample size (% female) | Age range |
|---|---|-----------------------------------|---|
| Parker, Nichter, Nichter, Vuckovic, Sims and Ritenbaugh ⁷⁴ , USA | Mixed methods (cross-sectional) | N=257 (100%) | 8 th -12 th grade |
| Brown, Schreiber, McMahon, Crawford and Gee ⁷¹ , USA | Quantitative (cross-sectional) | N=1652 (100%) | 9-10 years |
| Halpern, Udry, Campbell and Suchindran ⁷² , USA | Quantitative (longitudinal) | N=208 (100%) | Average = 13.8 years @time 1 |
| Botta ⁷⁶ , USA | Quantitative (cross-sectional) | N=178 (100%) | Average = 15.28 years |
| McConnell ⁷⁷ | Quantitative (cross-sectional) | N=85 (100%) | 9 th & 10 th grade |
| Franko and Striegel-Moore ⁵⁰ , USA | Review | N=12 (studies) (100%) | Adolescents |
| Jones, Fries and Danish ⁷³ , USA | Quantitative (cross-sectional) | N=384 (47.7%) | 7 th grade |
| Kelly, Bulik and Mazzeo ⁷⁵ , USA | Quantitative (cross-sectional) | N=58 (100%) | 6-11 years |

Table 3. Sources with a multi-ethnic focus

| Author, [Source], Country | Design (cross-sectional, longitudinal, review) | Sample size (% female) | Age range (years) |
|--|---|---------------------------------------|-------------------------------|
| Crago, Shisslak and Estes ⁵² , USA | Review | # of studies unclear (100%) | Unclear |
| Robinson, Killen, Litt, Hammer, Wilson, Haydel, Hayward and Taylor ⁸⁶ | Quantitative (cross-sectional) | N=761 (100%) | 10-14 years |
| French, Story, Neumark- Sztainer, Downes, Resnick and Blum ¹⁰¹ , USA | Quantitative (cross-sectional) | N=17,159 (100%) | Elementary school students |
| Taylor, Yancey, Leslie, Murray, Cummings, Sharkey, Wert, James, Miles and McCarthy ⁹³ , USA | Qualitative (cross-sectional) | N=34 (100%) | 11-15 years |
| Gowen, Hayward, Killen, Robinson and Taylor ⁸³ , USA | Quantitative (cross-sectional) | N=683 (100%) | 9 th grade |
| Robinson, Chang, Haydel and Killen ⁸⁴ , USA | Quantitative (cross-sectional) | N=895 (46%) | 3 rd grade |
| Barry and Grilo ⁶² , USA | Quantitative (cross-sectional) | N=714 (44.3%) | 12-19 years |
| Neumark-Sztainer, Croll, | Quantitative | N=4669 | Middle and high |

| | | | |
|--|-----------------------------------|----------------------------------|--|
| Story, Hannan, French and Perry ⁸¹ , USA | (cross-sectional) | (49.7%) | school students |
| Perry, Rosenblatt and Wang ⁸² , USA | Quantitative (cross-sectional) | N=144 (100%) | Average = 15.5 years |
| Vander Wal and Thomas ⁸⁸ , USA | Quantitative (cross-sectional) | N=124 (100%) | 3 rd & 4 th grade |
| Nishina, Ammon, Bellmore and Graham ⁸⁵ , USA | Quantitative (cross-sectional) | N=1123 (55.9%) | 9 th grade |
| Ricciardelli, McCabe, Williams and Thompson ⁷⁸ , USA | Review | N=104 studies (0%) | Pre-adolescents, adolescents, adults |
| Klein ⁷⁹ , USA | Quantitative (cross-sectional) | N=339 (0%) | 11-14 years |
| Smolak and Thompson ⁴⁵ , (review) | Review (Chapter's 5 & 6) | # studies unclear (% unclear) | Youth |
| Harrison ⁹² , USA | Quantitative (longitudinal) | N=512 (53.7%) | 7-12 years |
| George and Franko ⁴⁹ , USA | Review | # of studies unclear | Children and Adolescents |
| Xanthopoulos, Borradaile, Hayes, Sherman, Vander Veur, Grundy, Nachmani and Foster ⁸⁰ , USA | Quantitative (cross-sectional) | N=1212 (54.6%) | 4 th to 6 th grade |

Table 4. Theoretical Frameworks informing synthesized sources

| Theoretical Framework | Brief description of the model | Sources citing the framework |
|--|---|-------------------------------------|
| Social Comparison Theory ^{112,113} | Model insists that individuals have an innate drive to evaluate and compare themselves to others for the purposes of meaning-making; with individuals having the potential to make both upward and downward comparisons. Upward comparisons are those made to individuals perceived to be ‘superior’ in some trait; whereas downward comparisons are those made to individuals perceived to be ‘less’ than thyself. | Botta ⁷⁶ |
| Psychological Feminist Theory ^{114,115} | Suggests that a true understanding of psychology and psychological practice demands a consideration of the importance of gender roles, gender socialization and gender-based discrimination as a precursor on which all other experiences are manifested. | McConnell ⁷⁷ |
| Socio-cultural Theory ¹¹⁶⁻¹¹⁸ | Model asserts that what is valued by society as a whole will be valued by the individual; and for this reason, will serve as the platform from which the individual judges themselves and others. What is valued can be communicated through a number of channels, including media, popular-culture, peers and family. | Klein ⁷⁹ |
| Cognitive Behavioral | Presupposes that a number of | White and |

| | | |
|-----------------------------------|--|-------------------------------|
| Maintenance Model ¹¹⁹ | interrelated mechanisms (thoughts, feelings, behaviours) account for the persistence of anorexia nervosa, bulimia nervosa and atypical eating disorders; of which, BID is a consistent concern. | Grilo ⁸⁷ |
| Dual Pathway Model ¹²⁰ | Model suggests that internalization of a thin ideal and pressure to be thin from familial, peer and media sources contributes to BID among women; which then leads to subsequent behavioural and emotional outcomes which are reinforced by one another to result in bulimic symptomatology. | White and Grilo ⁸⁷ |

Table 5. Measures of Body Image Dissatisfaction employed in synthesized sources

| Measure [Author] (# of sources using this measure) | Sources using this measure |
|---|--|
| <i>Eating Disorder Inventory</i> -Body Dissatisfaction Subscale 26,89-91 (n=8) | Smith and Krejci ⁶⁸ ; Robinson, Killen, Litt, Hammer Wilson, Haydel, Hayward and Taylor ⁸⁶ ; Gowen, Hayward, Killen, Robinson and Taylor ⁸³ ; Botta ⁷⁶ ; Nishina, Ammon, Bellmore and Graham ⁸⁵ ; Jones, Fries and Danish ⁷³ ; Erickson and Gerstle ⁶⁷ ; Xanthopoulos, Borradaile, Hayes, Sherman, Vander Veur, Grundy, Nachmani and Foster ⁸⁰ ; |
| <i>Body Esteem Scale</i> -Weight Concern Factor ¹²¹ (n=2) | Brown, Schreiber, McMahon, Crawford and Ghee ⁷¹ ; McConnell ⁷⁷ ; |
| <i>Body-Esteem Scale</i> ¹²²⁻¹²⁴ (n=2) | Nishina, Ammon, Bellmore and Graham ⁸⁵ ; Erickson and Gerstle ⁶⁷ ; Vander Wal and Thomas ⁸⁸ |
| <i>Body Figure Perceptions and Preference Questionnaire</i> ²⁷ (n=4) | Perry, Rosenblatt and Wang ⁸² ; Jones, Fries and Danish ⁷³ ; Harrison ⁹² ; Ceballos and Czyzewska ⁶³ |
| <i>Child Specific Silhouettes</i> ¹²⁵ (n=1) | Harrison ⁹² |
| <i>Body Cathexis Scale</i> ^{126,127} (n=2) | Guinn, Semper, Jorgensen and Skaggs ⁶⁶ ; Guinn, Semper and Chitek ⁶⁵ |
| <i>Weight Concerns Index</i> ¹²⁸ (n=1) | Gowen, Hayward, Killen, Robinson and Taylor ⁸³ ; |
| <i>Kids Eating Disorder Survey</i> -Body Silhouettes ³⁴ (n=4) | Gardner, Friedman and Jackson ⁶⁹ ; Robinson, Chang, Haydel and Killen ⁸⁴ ; Erickson and Gerstle ⁶⁷ ; Mirza, Mackey, Armstrong, Jaramillo and Palmer ⁷⁰ |

| | |
|--|--|
| <i>Culturally Relevant Body Image Instrument</i> ¹²⁹ (n=1) | Kelly, Bulik and Mazzeo ⁷⁵ |
| <i>Millon Adolescent Clinical Inventory-Body Disapproval Subscale</i> ¹³⁰ (n=2) | Barry and Grilo ⁶² ; White and Grilo ⁸⁷ ; |
| <i>Body Shape Satisfaction Scale</i> ¹³¹ (n=1) | Neumark-Sztainer, Croll, Story, Hannan, French and Perry ⁸¹ |
| <i>Body Shape Discrepancy Silhouettes</i> ³³ (n=1) | Ericksen, Markey, Tinsley ⁶⁴ |
| <i>The Multidimensional Body-Self Relations Questionnaire</i> ¹³² (n=1) | Klein ⁷⁹ |
| Author specific quantitative measures (e.g. “How satisfied are you with your weight?” “How proud of your body are you?” “How satisfied are you with your arms?” “How satisfied are you with your breasts?” “Do you wish to add more muscle to your body?” (n=4) | Parker, Nichter, Nichter, Vuckovic, Sims and Ritenbaugh ⁷⁴ ; French, Story, Neumark-Sztainer, Downes, Resnick and Blum ¹⁰¹ ; Halpern, Udry, Campbell and Suchindran ⁷² ; Ceballos and Czyzewska ⁶³ |
| Author-specific qualitative questions (e.g. “Tell me the reasons you would want to exercise, ⁸ ” “Where do you get your ideas about what is beautiful/pretty?”) (n=1) | Taylor, Yancey, Leslie, Murray, Cummings, Sharkey, Wert, James, Miles and McCarthy ⁹³ |

⁸Note: This is an example of a qualitative question which resulted in participants identifying that enhancing their body image satisfaction was an outcome.

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CHAPTER FOUR

STUDY 3

TITLE: Body image and appearance perceptions from immigrant adolescents in Canada: An interpretive description.

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CONTEXT AND IMPLICATIONS OF THIS STUDY: The scoping reviews completed as part of this thesis identified no studies investigating the body image dissatisfaction experiences among immigrant adolescents in Canada. For this reason, and with the goal of identifying avenues for future investigation, the present study uses qualitative research methods and a clinical and population-based sample to investigate body image and body image dissatisfaction among immigrant adolescents in Canada. Findings challenge the current notions of body weight and shape ideals among adolescents and call for the expansion of the measurement and classification of body image and body image dissatisfaction among adolescents.

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Abstract

Body dissatisfaction has been linked to a number of poor health outcomes, including eating disorders. However, very few studies have investigated body dissatisfaction among immigrant adolescents. Using inductive qualitative inquiry, this study recruited a purposeful sample of immigrant adolescents ($N = 18$, 78% female) with an eating disorder ($n = 8$) and without an eating disorder ($n = 10$). All adolescents were between 16 to 19 years of age ($M = 16.80$, $SD = 0.89$) and were recruited from three municipalities in Ontario. Each adolescent participated in a face-to-face, qualitative interview. Content analysis revealed descriptions of body image that were similar across the sample. The main themes emerging from this work include: (a) the “moderately slim” and “moderately muscular” ideal, (b) the “slim *and* curvy paradox,” (c) “ideal” privilege, (d) having an “expected” appearance, and (e) wishful comparisons. Findings have implications for reducing appearance-related dissatisfaction among immigrant adolescents in Canada.

KEYWORDS: Canada, adolescents, qualitative interviews, culture, appearance comparison, body dissatisfaction

Body Image and Appearance Perceptions from Immigrant Adolescents in Canada: An Interpretive Description

Defined as the extent to which an individual experiences displeasure with the whole or parts of their body, body dissatisfaction has garnered extensive attention in the literature. This attention is not only due to its identification as a risk factor for negative health outcomes, but also because of its prevalence across the population (Swami et al., 2010). Specifically, body dissatisfaction has been shown to place individuals at increased risk for obesity (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006; Sonnevile et al., 2012), depression (Hamlat et al., 2014; Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Stice, Hayward, Cameron, Killen, & Taylor, 2000) and eating disorders (Keel, Fulkerson, & Leon, 1997; Rohde, Stice, & Marti, 2014; Stice, Marti, & Durant, 2011; Stice & Shaw, 2002). While early studies suggested that body dissatisfaction is a ubiquitous phenomenon among women in Westernized nations, more recent literature indicates that body dissatisfaction is universally experienced across sex and geography (Smolak & Thompson, 2009). For example, population-based surveys in Asia/Pacific (Mellor et al., 2010; Musaiger & Al-Mannai, 2014; Thomas, Khan, & Abdulrahman, 2010; Xu et al., 2010), Africa (Frederick, Buchanan, Sadehgi-Azar, & Peplau, 2007; Swami et al., 2010; Szabo & Allwood, 2006), Latin America and the Caribbean (Caqueo-Uribe et al., 2011; Forbes et al., 2012; Nichols, Dookeran, Ragbir, & Dalrymple, 2009) document a significant amount of body dissatisfaction among male and female adolescents and adults (Al Sabbah et al., 2009; McCabe et al., 2012). Surprisingly however, few studies have examined body dissatisfaction among immigrant children and

adolescents. The lack of research in this area is concerning given that children and adolescents living in immigrant families constitute a significant and growing proportion of the population in Westernized nations, particularly Canada.

In Canada, approximately 30% of children and adolescents under the age of 18 are living in an immigrant family (Statistics Canada, 2013). The 2011 National Population Household Survey suggests that a significant proportion of these families have origins in South-East Asia (15%; e.g., Philippines, Thailand), South Asia (14%; e.g., India, Pakistan), East Asia (11%; e.g., China, South Korea), and the Middle East (10%; e.g., Iran, United Arab Emirates); with close to 60% of immigrant children and adolescents belonging to non-White or ethnic minority group (Statistics Canada, 2014). Compared to their non-immigrant peers, immigrant children and adolescents are exposed to disproportionate levels of social and economic adversity. Specifically, representative surveys indicate that immigrant children and adolescents in Canada are twice as likely to live in impoverished families and impoverished neighbourhoods; however, they are more likely to demonstrate resiliency compared to Canadian-born youth in these contexts (Beiser, Hou, Hyman, & Tousignant, 2002; Georgiades, Boyle, & Duku, 2007; Georgiades, Boyle, Kimber, & Rana, 2011). These characteristics suggest that in Canada, immigrant children and adolescents are raised in markedly different contexts than multi-generation Canadian peers and may experience differential risk for various forms of mental health **sequelae**, including body dissatisfaction.

Unfortunately, we know very little about the body dissatisfaction experiences of immigrant children and adolescents. Specifically, a recent scoping review by Kimber and

colleagues (2014a), which includes the synthesis of qualitative and quantitative publications as well as masters and doctoral theses, identified only 12 studies in the United States (US) and no studies from Canada that examined body dissatisfaction among immigrant children and adolescents. Results from the available literature in the US suggest that findings related to body dissatisfaction among immigrant children and adolescents are equivocal and are limited to those with Latino and Hmong cultural origins. Specifically, the scoping review identifies studies which have found greater *and* lower levels of body dissatisfaction among immigrant adolescents compared to their non-immigrant peers. However, the measurement of body dissatisfaction across the included studies was inconsistent, as were the methods by which immigrant adolescents were identified.

In addition, Magtoto and colleagues (2013) have used population-based data from Canada to investigate the influence of body dissatisfaction on eating disorder behaviours among immigrant and non-immigrant adolescents aged 12 to 19 years. Adolescents who were born outside of North America (i.e., Canada or the US) reported greater body dissatisfaction and eating disordered behaviours compared to North American-born adolescents. In addition, more recent immigrants (< 5 years) experienced significantly greater body dissatisfaction and eating disorder behaviour compared to longer-term immigrants and multi-generation Canadians (Magtoto et al., 2013). These quantitative findings suggest that living in an immigrant family and recency of immigration may play a significant role in adolescents' experience of body dissatisfaction and eating disordered

behaviour. What remains unclear is whether or not immigrant adolescents differ in their “lived experience” of body dissatisfaction compared to multi-generation Canadians. Specifically, the global measure of body dissatisfaction used by Magtoto and colleagues (2013) provides important, quantitative information about the prevalence of body dissatisfaction and eating disordered behaviour among immigrant adolescents. However, their study was unable to determine the extent to which body dissatisfaction experiences among immigrant adolescents may or may not differ from their non-immigrant peers.

It is plausible to suggest that the experience of body dissatisfaction may manifest differently among immigrant adolescents compared to their multi-generation Canadian peers; as living in an immigrant family can involve a number of exposures that are specific to the migratory experience. For example, adolescents and their families may experience significant gains and losses when relocating to Canada. Depending on their country of origin, they may experience substantial gains by escaping political, racial, ethnic, and religious persecution (Fleras, 2015). However, migration can also involve the loss of social ties with family and friends left in the country of origin, as well as language difficulties and loneliness upon relocation (Chuang & Moreno, 2011). For adolescents, they are quickly forced to contend with the Canadian culture through required school attendance. Here, immigrant adolescents are forced to interact with teachers, peers, and education materials that are largely informed and represented by the dominant culture, which may or may not align with the values, expectations, and behaviours encouraged by her or his culture of origin (Chuang & Moreno, 2011). If one considers these migratory

experiences in combination with the developmental importance of appearance during the adolescent years (Damon, Lerner, Kuhn, Siegler, & Eisenberg, 2012), then an explicit and purposeful investigation into the body dissatisfaction experiences among immigrant adolescents in Canada is needed.

The Present Study

The primary objective of this study is to qualitatively explore and describe immigrant adolescents' perceptions of their body image. Using a purposeful sample of immigrant adolescents with and without an eating disorder, we aim to describe their experiences of body image and body dissatisfaction to assist in understanding of the influence of migratory experiences on the spectrum of body image and appearance perceptions. Allowing for the opportunity to capture potential variation in body dissatisfaction among immigrant adolescents, investigating and describing immigrant adolescents' body image experiences can provide important information to help develop or adapt prevention and intervention strategies to reduce the onset and duration of body dissatisfaction sequelae among this growing and understudied population.

METHODS

This study is premised by the central research question, "How do immigrant adolescents in Canada describe their body image and the importance of appearance?" Given the dearth of information available on the body image experiences of immigrant adolescents in Canada, this study drew on the tenants of naturalistic inquiry and the methodological principles of interpretive description to complete sampling, data

collection, and analysis procedures for this study (Thorne, 2008). The strength of a naturalistic approach is its ability to inductively explore and describe how adolescents experience their body image within the context of health and illness (Thorne, Reimer-Kirkham, & Macdonald-Emes, 1997). As per the principles of naturalistic inquiry and interpretive description, the participants' descriptions of their experiences are allowed to be broadened through an interpretive analysis of the data collected. More specifically, adolescents' own words and experiences can be considered in relation to previous knowledge about the phenomenon of interest to: (a) generate new, practical knowledge that is needed to address clinical and population health challenges related to body dissatisfaction among immigrant youth; (b) make recommendations related to promotion, prevention, and intervention; and (c) inform the generation of new research questions with high clinical, policy, and practical salience (Thorne, 2008, 2011; Thorne et al., 1997).

Participants

Table 1 details characteristics of the 18 adolescents who participated in this study. Thorne (2008) asserts that studies that follow the principles of interpretive description have been completed with samples of many sizes, including five to more than 200 participants. She argues, however, that “the best way to justify a sample size is to generate a rationale that is consistent with the research question” (p. 94). Given the paucity of information about the body image and body dissatisfaction experiences of immigrant adolescents in Canada, we aimed to provide an initial description of the body

dissatisfaction experiences among immigrant adolescents with and without an eating disorder in the Canadian context. In this regard, recruiting a purposeful sample of 18 immigrant adolescents was considered justifiable as the goal was not to compare body dissatisfaction experiences between those with and without an eating disorder, but rather allow for the opportunity to capture potential variation in body dissatisfaction. In addition, we restricted our sample to adolescents between 16-19 years of age, as evidence suggests that this time period is a formidable one with respect to biological and social transitions, particularly in relation to the emphasis on one's appearance (Damon et al., 2012).

To be eligible to participate in this study, potential participants needed to self-identify as an adolescent living in an immigrant family. That is, the adolescent needed to indicate that she or he was foreign-born (i.e., born outside of Canada) or living with at least one foreign-born parent. In addition, adolescents had to be between 16-19 years of age and have the ability to speak English. Third, to help ensure we were capturing the variation of body dissatisfaction experiences among the adolescent immigrant population, nearly half of our sample was recruited from clinical programs providing intervention to adolescents with eating disorders. Adolescents recruited for the clinical portion of our sample required a current diagnosis of an eating disorder based on criteria within the Diagnostic and Statistical Manual of Mental Disorders (5th edition; American Psychiatric Association, 2013).

The clinical sample ($n = 8$) was recruited from three pediatric eating disorder programs located in Ontario, Canada. Treatment staff members at these programs were made aware of the study and its objectives and were provided with a script and screening tool to complete with adolescents thought to be eligible for participation. The screening tool confirmed that the adolescent was living in an immigrant family, had an active eating disorder diagnosis, and provided permission for the treatment staff to provide her or his contact information to the first author. The eating disorder diagnosis was determined by the lead physician or psychiatrist associated with the program. Patients with any type of eating disorder were eligible to participate. Treatment staff then faxed the completed screening tool to the first author's confidential fax number. The first author then contacted the adolescent to discuss potential participation in the study and answer any questions regarding participation and the requirements of participation.

The sample of adolescents without a documented eating disorder ($n = 10$) was recruited through multiple methods. These methods included poster advertisements displayed at three Ontario-based universities. In addition, the same advertisement was distributed through e-mail to the membership of 49 undergraduate student associations at these universities and was distributed to community-based organizations providing community integration and school-support services to immigrant adolescents in Ontario. Interested adolescents who viewed the poster advertisement were instructed to contact the first author in order to ensure her or his eligibility for participation, answer any study related questions, and determine a date, location, and time for the qualitative interview.

At the time of data collection, all participants were living in one of three municipalities in Southern Ontario. The average age range of study participants was 16.80 years ($SD = 0.89$). As detailed in Table 1, across the entire sample, four participants identified as male and 14 identified as female. Eight participants were currently undergoing treatment for a DSM-5 diagnosed eating disorder, including one male and seven females. All participants spoke at least two languages, and 16 (89%) of the 18 participants reported speaking a language other than English inside their home. The most common non-English languages spoken within participants' homes were Dutch ($n = 3$), Spanish ($n = 2$), Korean ($n = 2$), and Arabic ($n = 2$). Twelve of the study's participants were foreign-born, meaning that six of the participants were born in Canada and being raised by foreign-born parents. The average length of time in Canada for adolescents who were foreign-born was similar at 7.40 ($SD = 4.72$) years (clinical sample) and 7.12 ($SD = 5.98$) years (nonclinical sample), respectively. Participants generally demonstrated moderate levels of acculturation to Canada, as defined by her or his summative score on our adapted acculturation measure (Marin, Sabogal, Marin, Oterosabogal, & Perezstable, 1987). Specifically, the mean acculturation score across the entire sample was 33.67 ($SD = 6.22$), with a range 24 to 45 and higher scores representing greater acculturation to the Canadian context. The average acculturation score among participants belonging to the clinical sub-sample ($M = 35.25$, $SD = 5.60$) was slightly higher than that of the participants recruited from the general population ($M = 32.40$, $SD = 6.69$). However, this difference was non-significant ($p = .760$).

Research Team

The authors included on this manuscript were the investigators of this study. The authors represent an interdisciplinary team with expertise in qualitative and quantitative research methods, child and adolescent development, mental health, eating disorders, and immigration. The research team spanned 31 to 62 years of age, and all team members identified as female. The first author was born in Canada, identifies as White-Canadian, and grew up in a non-immigrant family. She is a doctoral candidate at McMaster University in Ontario, Canada. For the last eight years, her research has focused on the health and social experiences of immigrant women, youth, and children in the Canadian context. The current manuscript comprises one of four empirical papers that were completed in partial fulfillment for her doctoral degree in Health Research Methodology. Specifically, the first author's dissertation included the completion of two scoping reviews, a quantitative secondary data analysis of population-based data from the United States and the present, qualitative study. The first author was responsible for designing all of the studies included in her dissertation, including the present study. For the present study, the first author was additionally responsible for conducting all of the individual interviews and completing the data analysis. The results presented here novel and not replicated elsewhere. The second author was born in Canada to immigrant parents, and she identifies as White-European. She is an Associate Professor whose research focuses on the individual and contextual influences that contribute to the mental health well-being of immigrant children and adolescents. She is the first author's Ph.D. supervisor and as

such, was responsible for confirming codebook generation and the appropriate application of codebook themes to the qualitative interviews. More detail pertaining to the analysis process is included in the Data Analysis and Methodological Rigor section of this manuscript.

The third author was born in Canada, was raised in a non-immigrant family, and identifies as White-Canadian. She is an Associate Professor and focuses her research on the development of community-based nursing interventions. With over 10 years of teaching and practical experience in the application of qualitative research methodology, she was responsible for informing and overseeing the methodological rigor of the present study. The fourth author was born in Canada and was raised in an immigrant family. She is an Associate Professor, a child and adolescent psychiatrist, and identifies as White-Canadian. She has over 10 years of experience treating children and adolescents with eating disorders and body dissatisfaction. Given her expertise in body dissatisfaction and eating disorders, she played a critical role in ensuring the applied interpretation of the findings through the “thoughtful clinician test” (Thorne, 2008) . More information pertaining to the thoughtful clinician test is included in the Data Analysis and Methodological Rigor section of this manuscript. Finally, the fifth author is an Assistant Dean for an undergraduate nursing program based in Southern Ontario. She was born outside of Canada to Canadian-born parents and identifies as White. She has over 10 years of experience researching health system access and performance in relation to refugee and immigrant health in Canada. All authors approved the design of this study

and participated in the development of the interview guide. All authors approved the final version of the codebook and the interpretive analysis and discussion of the findings.

Procedure

This study was reviewed and approved by the Hamilton Integrated Research Ethics Board. To gain an in-depth description of the adolescents' perceptions of their body image and the importance of appearance, each participant engaged in a semi-structured, face-to-face interview. All interviews were completed by the first author, a trained and experienced qualitative researcher and registered social worker who has extensive knowledge about body image, eating disorders, and issues related to immigration for children and adolescents. Individual interviews were the chosen data collection method for the present study for two primary reasons. First, the use of interviews assumes that when individual experiences are purposefully and respectfully elicited, they are meaningful sources of information that can be used to generate practical suggestions and direction for change in the applied health context (Thorne, 2008). Second, speaking about one's body can be perceived as a sensitive topic. This is especially the case among cultures that may have particular practices around speaking about one's body in the presence or absence of others (Fleras, 2015). For this reason, group-based qualitative data collection methods, such as focus groups, were perceived to be inappropriate by the research team. Individual interviews were felt to be more respectful of these potential cultural preferences.

Each participant gave her or his informed consent to participate in the study, to complete the qualitative interview, and to have the interview audio recorded and transcribed verbatim by the first author. As per the ethical requirements of the Hamilton Integrated Research Ethics Board, parental consent was not required for adolescents aged 16 years or older. Each participant was given a choice to have her or his interview completed at one of four locations. In general, the interviews were conducted at the first author's office. The length of the interviews ranged from 48 to 82 minutes, and the interviews were completed between April 2014 and July 2014. A participant debrief protocol was established during the design phase of the study. At the end of the qualitative interview, the audio-recorder was turned off and the first author asked the participant to share her or his thoughts about the interview process and whether or not she or he felt upset, distressed, or worried about the content of the interview and/or her or his responses. Information regarding mental health and body image support services was available for participants, if requested. Given the potential sensitivity of the interview questions and that some participants were currently undergoing treatment for an eating disorder, the study's collaborating clinician (the fourth author) was available to speak with the research participants if they were feeling upset or distressed. None of the adolescents reported feeling upset or distressed following the completion of the interview.

All adolescents who volunteered to participate and who were determined to have met the study inclusion criteria were interviewed for this study. Participants were provided remuneration for study-related travel costs, if requested. In addition, participants

were provided a token of appreciation following the completion of the interview. This token included a “Certificate of Volunteer Service” and a choice of a \$25.00 gift card for one of two local stores. The Certificate of Volunteer Service noted that the adolescent completed 3 hours of volunteer service for a research study at McMaster Children’s Hospital. Adolescents were informed that the certificate could be submitted to her or his high school as partial fulfillment for the community service requirements for an Ontario Secondary School Diploma.

Interview Guide

A semi-structured interview guide was collaboratively developed by the research team to ensure that the questions asked would address the research objectives of the study. In this regard, the initial interview guide was developed by the first author and then amended by the research team based on each member’s expertise in eating disorders, body dissatisfaction, immigrant child and adolescent mental health, and qualitative research methods. In line with the methodological literature on inductive qualitative inquiry, the research team agreed that the foundation of the interview guide would consist of 5-7 key interview questions (Creswell, 2013; Rubin & Rubin, 2012). In addition, it was agreed that as interviews progressed, interview probes and follow-up questions could be amended given the completion and content of previous interviews and in order to elicit the most comprehensive information possible from the research participants (Rubin & Rubin, 2012). Table 2 details the semi-structured “foundational interview questions” for the present study. These questions were approved by all members of the research team.

Data Analysis and Methodological Rigor

Interviews, transcription, and analysis were conducted concurrently, allowing the opportunity for new themes to emerge across participants and for these themes further exploration throughout the remaining interviews (Thorne, 2008). A seminal paper by Hsieh and Shannon (2005) details the three most commonly used forms of content analysis to make meaning from qualitative data, these include: conventional, directed, and summative content analysis. Given the dearth of information available on the body image experiences among immigrant adolescents in Canada, conventional content analysis was deemed appropriate for this study. Conventional content analysis assumes that there is no underlying explanation for the participants' experiences. Rather, the analysis allows for themes generated through qualitative data analysis to inductively emerge from within and across the collected data. In this manner, the data analysis and the findings therein are intrinsically linked to what is actually said by participants and form the basis of the recommendations for moving the field forward with respect to research and applied practice.

Given that the present study was one of four studies for the first author's doctoral dissertation, all of the transcripts were independently coded by the first author. Specifically, the first author completed iterative readings of each transcript. This allowed her to gather, label and compare key words from the text that were felt to capture the key thoughts and concepts described by the participants, referred to as "codes" (MacQueen & McLellan, 1998). The first author generated overarching themes among the codes through

a process of identifying patterns of coding within and across participants. The first author generated an initial codebook with definitions of each code and the linking themes. The draft codebook was refined through the process of theoretical memoing by the first author and bi-weekly meetings with the second author. Theoretical memoing refers to the documentation of the researcher's thinking process. Specifically, it allows the opportunity for the first author to engage in reflexive data analysis, to think of and be critical of her previous understandings of the concepts and text under analysis, and to be open to the understandings and experiences that were being described by the participants (Montgomery & Bailey, 2007). Bi-weekly meetings with the second author allowed for the discussion of the codes, their definitions, their patterns, their consistent application to the textual data, and the extent to which the linking themes that were proposed by the first author fit with the codes generated.

Once the first and second author were comfortable with the initial copy of the codebook, the codebook was shared with the remainder of the research team as a form of expert panel analysis (Thorne, 2008). As per Thorne (2008), this form of "analysis check" enhances the dependability of the data analysis process, the clarity of the codes, and their application to the qualitative data. Once approved by the entire research team, the final codebook was systematically applied to all transcripts by the first author. To ensure transferability, dependability, and trustworthiness of the data analysis, the second author read 50% of the sample's transcripts to determine if the linking themes were present within and across each transcript. The second author confirmed that each of the linking

themes was within each of the transcripts and confirmed that no new themes or codes needed to be added to the codebook.

Finally, to enhance the credibility and applicability of the data analysis, our research design incorporated Thorne's (2008) "thoughtful clinician test." As per her recommendations, this test included the presentation and discussion of interim findings to a health professional having clinical expertise with the phenomenon under study—in this case, body image, appearance, and eating disorders. Specifically, the first author consulted with the fourth author, who is a psychiatric expert in eating disorders and body dissatisfaction, in order to: (a) gather her thoughts on the relevance of emerging codes and themes, (b) to provide recommendations for further exploration in the remaining qualitative interviews, and (c) to provide approval on the interpretive analysis of the data and its relevance for the treatment of eating disorders and body dissatisfaction among adolescents. It is important to note therefore, that the concept of "saturation" did not drive the completion of data analysis, as it is neither relevant nor appropriate for studies employing interpretive description. As per Thorne (2008), the ceasing of data collection and analysis was reliant on the extent to which our engaged and informed research team could agree that the research findings are credible, confirmable, had been identified through a recurrent pattern of textual analysis, and were transferable and trustworthy given the expertise of the research team. All coding by the first author was completed in Nvivo 10 (QSR International Pty Ltd., Version 10, 2012), a software program used to manage, code, and sort qualitative research data.

RESULTS

Conventional content analysis revealed five major themes which describe immigrant adolescents' experiences of body image, body dissatisfaction, and appearance preferences. The five main themes emerging from this work include: (a) the “moderately slim” and “moderately muscular” ideal, (b) the slim *and* curvy paradox, (c) ideal privilege, (d) having an “expected” appearance, and (e) wishful comparisons. What follows is a description of these overarching themes and direct quotes from research participants which supported each theme's development.

Describing the Ideal: Moderately Slim and Moderately Muscular

Across the entire sample ($n = 18$), adolescents were consistent in the description of the ideal appearance for males and females, tending to emphasize a particular body shape and appearance as opposed to defining an ideal body weight or weight threshold. Males ($n = 4$) and females ($n = 14$) were equally likely to describe the ideal male appearance as one that is recognizably muscular and masculine looking. Specifically, adolescents' description of the ideal male is captured by the following comment from Abhay:

He's supposed, he'd have to have like abs, like he really, he'd have to have muscle, yeah, muscled. Like he's like slender but like he's got some like muscle, like his arms are not super muscled though. Like they're really, but like just like good muscles and like nice abs. And I don't know, like just kind of chiseled face,

I think that is what like they are like, just, that they're like very handsome and kind of rugged looking. (16-year-old male, no eating disorder)

Similarly male and female participants were remarkably similar in the description of the ideal female; which is exemplified by this quote from Elise:

Really fit looking, slim waist, large breasts, and long hair usually. Although right now a lot of people are going for short hair and it looks really good. Toned, but slim I guess, no really huge muscles. (18-year-old female, no eating disorder)

In addition, descriptions of the ideal male and female were consistent across the sample, and were very specific with respect to their markers of the ideal appearance for males and females. For example, when asked to describe what she thought the ideal female looks like in Canada, Elizabeth had this to say:

There is this popular girl at our school, and she has brown hair, greenish-blue eyes. Or like for my ideal it's kind of like a brunette and bluish-greenish eyes, small nose, full lips, long lashes, long hair, a big chest, big butt, a small waist, not extremely small but curvy body, about 5'3. Arms aren't too long, quite skinny, legs long and like the thigh gap. Like a flat kind of stomach, almost abs. And collarbones. (17-year-old female, eating disorder)

Notably, when asked to share their perception about the ideal male and female, participants ($n = 18$) went beyond describing characteristics of weight and shape to also include other aspects of one's appearance; including one's hair colour and length, skin

tone, skin texture, choice of clothing, and the shape and the size of one's eyes. Similarly, when asked to describe the extent to which they felt that the ideal appearance for males and females differed from Canada to their culture of origin, the majority of adolescents ($n = 15$) reported that appearance ideals were remarkably similar, with a few ($n = 3$) of the participants describing that the emphasis on thinness and appearing young for females is of greater importance in their culture of origin. All three of these participants (Lindsay, Lisa, and Elizabeth) were diagnosed with an eating disorder, had family origins in South Korea, and indicated that the ideal female in Korea should be significantly slimmer and look younger than the ideal female in Canada. For example, Lisa said:

In Korea, the ideal female is generally a bit thinner, they prefer their women thinner. They don't care so much about their boob or butt size; just I think they focus a lot on having thin body with long legs. And they like to have people with faces that are really young looking, almost youthful childlike, doll like. But in Korea, it's like they have this exact image, it's like all the girls are looking at the exact same picture of one girl that they have to aspire to look like, almost. (17-year-old female, eating disorder)

A persistent sense of "moderation" was noted throughout the participants' descriptions of the ideal male and female. All 18 participants recurrently expressed characteristics of the ideal male and female with a caveat. That is, it is important to not have too much or too little of something. For example, it is important to "be thin, but not too thin," or "muscular, but not too muscular." All participants suggested that too much

of one characteristic or another would make an individual look weird, unappealing, or undesirable. In relation to the female appearance, Jessica said, “Yeah. Being thin is better...but not too thin. Looks like a witch, it looks so weird” (17-year-old female, no eating disorder). In the same token, participants had similar descriptions around the importance of “moderation” for the male appearance, suggesting that too much emphasis on muscularity or asymmetry in muscularity is unappealing. For example, Aamil said, “Yeah and he can’t have like small legs and really big [muscular] upper body. That just looks weird” (16-year-old male, no eating disorder).

The Slim and Curvy Paradox

A remarkable “paradox” was found in participants’ descriptions of the ideal appearance for females. Without hesitation or prompting, 17 (94%) participants described an ideal body shape for females that emphasized both slimness and curves, where curves were described to be in the buttocks, breast, and hip area. For example, Josephine said the following:

Like, not like super skinny, like bones showing everywhere, but still like, yeah like looks really good naked kind of thing. You like you have to have a flat stomach and you have to have curves, nice beautiful boobs. I don’t know, that’s...I guess like, I don’t know like you can’t be flat chested, you have to have like nice big boobs, I guess. Yeah, I’m not quite sure ‘cause I just know like, from all of the bikini pictures that people put up, it’s just like you want to have

nice looking boobs that are kind of spilling out. (17-year-old female, no eating disorder)

Similarly, when describing the ideal female, Arif had this to say,

A woman...she's...I don't really know. They're the same as guys, they're all different, but, ideal, I don't know if there's an ideal woman. Like it's just, I guess pretty eyes, nice smile, a big butt, I guess. Like, I guess that's it, she's not like fat. (16-year-old male, no eating disorder)

One female participant was more ambivalent about the importance of curves for the ideal female appearance. Specifically, Daniela indicated that while having larger breasts and a “big butt” is generally perceived as a “good thing,” it cannot mitigate the importance of being slim (17-year-old-female, eating disorder).

Ideal Privilege: Popularity, Success, and Relationships

All 18 participants reported certain privileges that are associated with or afforded to males and females who embody the ideal appearance. Specifically, participants ($n=18$) described that males and females who look the ideal tend to be popular, successful, more likely to receive attention from the opposite sex, and more likely to be involved in intimate relationships. When asked about why it might be important to look a certain way or have a certain appearance, Josephine said the following:

Basically the beautiful people are the winner's kind of thing, like you know, like it seems that like the prettier you are and the like better looking and stuff you are,

that's like, that's really good. It's not about your like character anymore; like I find a lot of relationships are based on that now too. (17-year-old female, no eating disorder).

Similarly, Aamil was convinced that looking closer to the ideal would mean that in general, you would have a better life. He said,

It's been proven that better looking people usually they find...they have a better life somehow. Like maybe getting a job or something, maybe if you look very, very, very, very ugly, I mean very ugly, maybe they won't, they'll probably not recruit you or something. Yeah, but let's say they were really smart and someone was equally smart but really, really good looking, they'd probably pick that [better looking] person over the other one, I think. (16-year-old male, no eating disorder)

Finally, all of the participants indicated that adolescents who fit the ideal were more likely to be able to fit into trendier clothes and less likely to be made fun of or bullied by peers. Specifically, participants felt that “looking” the ideal or having characteristics of the ideal appearance would afford protection from being bullied at school.

The “Expected” Appearance: Appearance Messaging, Type-Casted Bodies, and Racial and Ethnic Stereotypes

All 18 participants identified several sources of “appearance messaging” that reiterated the need for having a certain appearance, with the messengers including the

media, members of her or his family, and her or his peers. For example, Abhay spoke to the extent to which his mother would consistently tell him to do something about his acne. He said: “No, just like my mother’s always say, told me to do something for your pimples. Do something for your pimples. I don’t know. Just like, she wants to me look good” (16-year-old male, no eating disorder). Similarly, 15 participants commented that there is an intense focus on aspects of appearance within friend-ship circles. These participants described that the “common-place” discussions and comments about appearance make it difficult to not be concerned with how one looks. For example, Nela had this to say:

Well like even like around friends, you can’t really go a day without someone commenting on themselves or saying, does this look good or is my hair fine, is this good, or...so there’s always comments towards everything all the time, all throughout the day, so yeah. (16-year-old female, eating disorder)

Finally, participants ($n = 18$) discussed the pervasive focus of the media on communicating appearance related “expectations” and reinforcing notions of the ideal male and female appearance. Participants described that media reinforcement of the ideal is done in a variety of ways, part of which includes explicit messaging about the importance of looking good. In addition, participants ($n = 15$) described that they have noticed that the media ties together the notion of looking good with feelings of happiness and accomplishment. As Daniela aptly stated,

And for girls there's a whole industry like makeup industries dedicated to selling their product and by doing that, they tell you that you will look good, you will be happy. I don't know, I see it in commercials all the time, get this and you'll be thinner. Buy this and you'll look better, things like that. (17-year-old female, eating disorder)

Secondly, participants ($n = 17$) described how the type-casting of bodies by the media reinforces what is perceived as the ideal appearance. Specifically, these participants noted that individuals who are overweight or obese, perceived as nerdy, or unattractive, are typically casted in comedic roles; whereas individuals who fit the ideal appearance tend to be casted in roles that the viewer would admire or aspire to be. When asked to describe what types of appearance or bodies we tend to see in the media, Josephine had this to say:

It's geared more towards prettier, skinnier, healthy, good looking people, and they do use people that might not be as attractive as others. And they use chubbier and they use obese people, but I find they often use obese people in comic situations. Which I find kind of, I kind of find that annoying. And just how the media portrays them, like it's okay to laugh at those kind of people. That's what they're kind of like [saying], oh look, haha that's funny cause they're like chubby or they're obese. (17-year-old female, no eating disorder)

Interestingly, 11 of the participants described how appearance biases and type-casting within the media extended beyond body weight and shape, but also to ethnic and racial minorities. These participants described the extent to which they felt that ethnic and racial

minorities were largely absent from main stream media in Canada, and given the globalization of North American media and appearance ideals, this was also the case in the country of origin. In addition, these participants described representations of ethnic minorities as stereotypical or essentialist, suggesting that members of non-Caucasian cultural or ethnic groups tend to be represented by single types of action or behaviour. For example, Aysha had this to say,

Well, really general example is the whole terrorism thing. I think it's sort of...it's mostly media because I guess people see these images, and they show you pretty much, they show you a bombing and then they show you somebody with a head scarf or something. Then people automatically associate the two together when they have nothing to do with each other... You have this sort of westernized version [of minorities]. I think it's more to appeal to different people... Often times when you do see those minorities, they're very stereotypical. So the Asian person, will generally speaking, be very smart, very hard working. So I don't think it's fair. (17-year-old female, no eating disorder)

Wishful Comparisons: Friends, Family, and the Stars

Interestingly, none of the participants in this study described themselves as being completely satisfied with her or his appearance. Participants' ($n = 18$) comparisons to members of their family, their friends, and celebrities in the TV, film, and sporting industries were described as influential on how participants thought about their appearance and any strategies they may have used or would use in the future to change or

enhance aspects of their appearance. For example, Helena reported actively changing her eating habits after seeing her cousin in a bathing suit and feeling like she could not wear the same swim wear. When asked why she felt she could not wear the same type of bathing suit, she said:

Well because I was bigger and I didn't think that it would be nice looking. I was like okay, I can't wear that and I want to. So then I started just not eating, I think I was worse than her even, she would actually eat kind of normally, but I just went overboard. (19-year-old female, no eating disorder)

In addition, participants ($n = 13$) consistently described the process of comparison as an ingrained one, an automated process where this notion of “wishful” thinking just occurs when coming in contact with someone who represents the ideal. For example, when asked about what informs her appearance, Aysha said she looks at others and will compare how another person looks in relation to her own appearance. She indicated that this is just something that people naturally do. Aysha said, “I think it's something that you sort of do on your own, it's kind of a mental thought. You just kind of think about it, you just...you kind of look at them, you go oh; I wish I looked like that” (17-year-old female, no eating disorder). These “wishful” comparisons were described to occur through a variety of mediums, including in-person, through social media, and in one's imagination. For example, Selome described that when she listened to music, she would day dream about the singer, her or his appearance, and imagine that she was them. Selome stated,

It's like when you're listening to music and you dance to it, you're sitting on the bus, daydreaming your dancing, the singer has this perfect body and stuff; that happens a lot. Yeah I don't know, just when you watch a music video, then you listen to all the music on the bus or something, then you could see yourself being that person dancing and like looking good.

Interviewer: Okay and then what about when you come back to reality and you realize you're not that person?

A little disappointment, yeah. (16-year-old, female, no eating disorder)

Similarly, participants ($n = 15$) described scrolling through pictures and videos of their friends, family members and celebrities on social media (Twitter, Instagram, Facebook, Tumblr, YouTube) and thinking to themselves, "I wish I had this" or "I wish I had that" in relation to her or his appearance. In discussing how she uses social media to inform her appearance and compare herself to others, Nela had this to say,

Just even like going down and even though it may not be always like famous people, just like other girls that we know, or have heard like live around us or just kind of like scrolling down. It's like oh I wish this, or I wish that. But if like there's one feature about her, like oh her hair is really nice. I wish I had that, or oh look at her legs, I wish I had that. So it may not be like the full picture, but I like pinpoint like little things. (16-year-old female, eating disorder)

Remarkably, all 18 participants noted that their own appearance comparisons were focused on people who they perceive to be closer to the ideal than themselves. That is, they would only compare their appearance to individuals who more closely resembled the ideal and would not take notice of or compare themselves to individuals who were perceived to be less attractive. Josephine captured this sentiment when she said, “It’s not the same as when I see pretty people. When I see people that might be like less attractive than me, I’m not right away like oh, you are less attractive. It’s different.”

DISCUSSION

Findings from this study are important for a number of reasons. First, to our knowledge, this is the first study to qualitatively explore body image, appearance perceptions, and body dissatisfaction among immigrant adolescents in Canada. Given this information, findings from this study provide an important platform from which future substantive and methodological investigations can be made. Notably, none of the participants in this study were satisfied with their appearance. The rich and candid descriptions given by the participants extend the work of Magtoto and colleagues (2013) by providing the context in which immigrant adolescents’ body dissatisfaction is actually experienced. Specifically, participants described appearance characteristics of the male and female ideal that went beyond body-weight and shape to include the texture and colour of one’s skin, hair style, bone structure, teeth, height and clothing. Similarly, immigrant adolescents in this study described male and female appearance ideals that were characterized by muscularity and slimness respectively, but also emphasized the

notion of “moderation” with respect to body weight and shape. More specifically, for these participants, it was important to be not *too* fat or *too* muscular.

Similar notions of moderation and more broadly defined characteristics of the ideal appearance have been found in a small number of studies with ethnic-minority and immigrant individuals living outside of Canada. For example, recent qualitative work by Watt and Ricciardelli (2012) included 15 men of Chinese ancestry and who were living in Australia. The authors found that participants preferred a moderately muscular body shape and spoke to the importance of maintaining a certain hairstyle and wearing trendy clothing to fit-in with peers and stay relevant to expected trends. Similarly, Hmong immigrant and non-immigrant children and adolescents living in the US have highlighted the importance of females to not be too thin, reiterating the perception that being too thin is both unhealthy and socially unappealing (Mulasi-Pokhriyal & Smith, 2010). These findings may have important implications for approaches to prevent and treat body dissatisfaction and its related sequelae. For example, evidence-based approaches for addressing severe body dissatisfaction typically focus on the cognitive restructuring of negative thoughts around body weight and shape (Collins-Donnelly, 2014; Smolak & Thompson, 2009). Our work suggests that this may not be enough in the context of working with immigrant adolescents, as it does not address the distress related to non-body and weight-related concerns. It would be prudent for future work to quantitatively consider the extent to which adolescents’ distress related to appearance is driven by weight or shape related concerns, in addition to other bodily attributes. In addition, future

work must consider the extent to which an adolescents' drive for the moderately-muscular or moderately-slim body weight or shape contributes to body image distress and discern the extent to which previously published evidence-based treatments are appropriate for these body image concerns.

Paradoxically, curves were described as important characteristics of the ideal female body by both our male and female participants and across participants with and without an eating disorder. In other population-based samples of predominantly college-age ethnic-minority males and females, research has found that women perceive a dual pressure to be thin and curvy, that men prefer women with “under-to-normal-weight” body types who also have moderate-to-large breasts, hips, and buttocks, and women who experience dissatisfaction with their own breasts and buttocks are more likely to experience higher levels of overall body dissatisfaction and body shame (Freedman, Carter, Sbrocco, & Gray, 2007; Harrison, 2003; Overstreet, Quinn, & Agocha, 2010; Poran, 2006). Our results suggest that the internalization of this “thin and curvy” ideal occurs long before the college years. However, our qualitative approach was unable to determine the extent to which this characterization of the ideal female appearance influenced the appearance satisfaction or dissatisfaction of our adolescent participants. It is possible that this “slim and curvy” paradox may induce greater appearance-related distress than traditionally seen among adolescents who internalize the thin ideal given the explicit emphasis on having “purposeful fat distribution,” that is, having one's fat distributed specifically at the breast, buttocks, and hip area. Future work exploring the

influence of cultural identity on the internalization of body ideals and associated distress would be valuable. It may be the case that adolescent immigrant females with a strong cultural identity may be more susceptible to appearance-related dissatisfaction if they perceive a discrepancy from a thin-curvaceous body shape. This may be particularly the case among females who identify as Latina or Black given previous work which has suggested a celebration of the curvaceous body figure within these cultural groups (Durham, 2012; Franko et al., 2012). On the contrary, other work has found null and negative effects of acculturation to mainstream Western (i.e., Canadian or US) ideals on body dissatisfaction among immigrant (Bettendorf & Fischer, 2009), ethnic minority (Webb, Looby, & Fults-McMurtery, 2004) and religious minority men and women (Chaker, Chang, & Hakim-Larson, 2015). Prospective, longitudinal surveys designed with adequate power to explore aspects of acculturation, acculturative stress, and cultural identity are needed before scholars can make any firm conclusions about the extent to which these factors may be driving the body dissatisfaction experiences of immigrant adolescents.

The findings of the present study support an emerging body of literature suggesting that body size and weight are aspects of identity upon which “difference” is identified and social hierarchies are made and reinforced. A recent paper by van Amsterdam (2013) applies critical feminist Nina Lyyke’s (2011) intersectional analysis to argue that it is social and health discourses which have co-constructed a body hierarchy that positions slender people as the norm and fat people as the “other.” In doing so, social

and health discourses have appropriated the marginalization of fat or overweight people to the “negative,” situating them as individuals to be laughed at, to be presumed as lazy, and as people that need health advice. In our study, these discourses ran loud and true, with participants consistently describing the ideal body type as one which affords and represents both implicit and explicit advantages and privileges, including greater likelihood for employment, romantic relationships, popularity, and protection from bullying or peer victimization. In contrast, participants identified larger or fat people as nerdy or ugly, obnoxious, careless, loners, inactive, and lazy. Similarly, participants described how popular media categorized body weights and shapes, articulating how ideal bodies tended to be characters in TV and film that people would aspire to be, whereas fatty or overweight people tend to be type-casted into comedic roles or shows that sensationalize the opportunity to lose weight and become the ideal.

The fact that immigrant adolescents in this study co-described body weight and shape ideals in parallel to social and class characteristics clearly implies that the internalization of body ideals corresponds with an internalization of social expectations far beyond those of just weight and shape. Rather, it is the internalization of a larger dogma that serves to justify and maintain social and class hierarchies and continues to perpetuate the polarization of “thin versus fat” as “good versus bad.” Only by truly understanding the extent to which ideals and discourses about body weight and shape act as markers of social and class status, can we truly address the influence of the internalization of such ideals on the psyche of immigrant and non-immigrant children and

adolescents. Investigating the methods by which adolescents have challenged these problematic social and class ideals may prove to be the next logical step in the identification of strategies to reduce the internalization of problematic body weight and shape concerns. Emerging research on the conceptualization and experience of body pride among Aboriginal youth in Canada may present as a platform from which to engage in such an endeavor. For example, a recent study by McHugh, Coppola and Sabiston (2014) used in-depth qualitative interviews to investigate the conceptualization and experience of body pride among Aboriginal females aged 15 to 18 years. Participants described body pride as an important component to their overall physical and emotional health. In addition, they indicated that body pride is a multifaceted phenomenon that can include being comfortable with and accepting of one's whole body, celebrating aspects of one's body and using cultural traditions to appreciate one's body. To our knowledge, there are no studies in Canada or the US that investigate experiences of body pride amongst adolescents living in immigrant families. Similarly, a recent review paper by Tylka and colleagues (2014) points to the utility of preventative and intervention approaches which celebrate body diversity and bodily ability, as opposed to programs promoting "normalized" metrics for body weights and shapes. Future work may want incorporate the work of McHugh (2014) and Tylka and colleagues (2014) to try to determine the extent to which immigrant adolescents may experience instances of body pride and how the promotion of body diversity and ability can assist in counteracting the internalization of negative ideals associated with body weights and shapes.

Interestingly, each of the participants in this study whose family originated from South Korea described that her or his culture of origin had more stringent expectations for the female appearance compared to Canadian culture. This observation is in contrast to the remainder of participants who described that the Canadian culture had more stringent expectations for adolescents' weight and shape. For this reason, we would argue that this is an important phenomenon that requires further investigation, which is especially the case when one considers that cross-sectional, population-based surveys have documented significantly greater body dissatisfaction among Korea-born adolescents compared to their North American-born peers. For example, a cross-sectional, population-based survey by Jung, Forbes, and Lee (2009) recruited adolescents aged 12-15 years from Korea and the United States and found that despite the Korean adolescents having lower BMIs than their US-born counterparts, adolescents in Korea reported significantly greater body dissatisfaction and disordered eating behaviours. Even more concerning is the recent work which has found a significant association between body dissatisfaction and suicidal ideation among Korean adolescents. Using a nationally representative sample of Korean adolescents, Kim and Kim (2009) examined the longitudinal association between body dissatisfaction and suicidal ideation. Even after controlling for depressed mood, self-esteem, and peer bullying, body dissatisfaction positively predicted suicidal ideation among male and female adolescents, suggesting that body dissatisfaction may be a critical point of intervention to reduce morbidity and mortality among adolescents with Korean origins. While we did not examine adolescent suicidal ideation in the present study, nor did we compare and contrast the body dissatisfaction experiences of our eating disordered

and non-eating disordered sub-samples, we do think it is important to note that the three participants, who noted strict body expectations for Korean females, were currently diagnosed with an eating disorder. It would be prudent for future work to explore the extent to which adolescents with and without an eating disorder and who have Korean origins differ—if at all—in retaining and internalizing Korean-specific expectations around weight, shape, and appearance and the extent to which these expectations contribute to their body dissatisfaction experiences.

Implications for Research and Practice

Findings of this study have important implications for research and practice. Perhaps most critical is the need for researchers and clinicians to consider the internalization of appearance ideals that are outside the typical realms of thinness and muscularity. Our work clearly details the purposeful pursuit of moderated slimness and muscularity in addition to a “thin and curvy” ideal among immigrant adolescents. What remains to be seen, however, is the extent to which the objective of achieving the moderately slim, moderately muscular or thin-and-curvy ideal causes any more or less appearance-related distress than what has been previously found in the literature.

Furthermore, there remains a lack of clarity with respect to what defines the moderately slim, moderately muscular, and the thin-and-curvy appearance ideals. That is, future work should aim to characterize the “markers” of these ideals, quantitatively examine the associated distress in aiming to achieve such ideals and finally, investigate the extent to which distress may be elevated, attenuated or absent across gender, ethnicity

and culture of origin. Relatedly, careful consideration should be made when measuring characteristics of these ideals in research and practice. Body contour drawings have been widely used metrics to provide a global estimate of body-related dissatisfaction among immigrant and ethnic-minority males and females (Kimber et al., 2014a, b). However, the use of these figural images confounds perceptual dis/satisfaction across the waist, breast, hip, buttocks, shoulder, and leg areas. In addition, figural images fail to assess appearance-related satisfaction with the important characteristics identified by our study participants, including: hair, skin colour, skin texture, bone structure, etc. Researchers and clinicians should attempt to unpack these confounds by measuring satisfaction and dissatisfaction across these body and appearance areas along with a measure of associated distress in order to truly understand the manifestation of body image and appearance-related concerns across the adolescent immigrant population. Finally, prevention, promotion, and intervention programs need to challenge the social and class assumptions ingrained in the internalization of appearance-related ideals. That is, clinicians can help adolescents explicitly challenge the assumptions that one should look a certain way in order to be successful in education, employment, and relationships.

This study makes a significant contribution to the literature by detailing the extent to which immigrant adolescents' appearance comparisons to members of family, friend, and peer groups inform their body image and their experiences of body dissatisfaction. The findings in this study align those found in a recent meta-analysis by Myers and Crowther (2009). Consolidating data from 156 studies, Myers and Crowther (2009) found

that individuals' unfavorable comparison of oneself to others was significantly and positively related to higher levels of body dissatisfaction. This finding suggests that reducing the internalization of weight and shape ideals has the potential to subsequently reduce youth's body shape and weight comparisons and therefore, could reduce youth's body dissatisfaction experiences. Emerging prevention research which focuses on reducing adolescents' comparisons to figures in the mass media suggests that reducing the internalization of media messages in relation to body image, weight, and shape can reduce the onset, duration, and severity of body dissatisfaction (McLean, Paxton, & Wertheim, 2013; McVey et al., 2010). The problem, however, is that these population-based interventions are premised on the objective of reducing the internalization of the media messages and fail to consider the importance of appearance messaging from family and peers—which have clear importance for our adolescent immigrant sample. In addition, this previous intervention work does not explicitly consider the multiple methods through which immigrant adolescents can internalize these messages; that is, through in-person contact, social media, television, and movies. It would be prudent for future work to consider the extent to which any previously validated interventions to reduce body dissatisfaction, like that which has been detailed by McVey and colleagues (2010), can be adapted to incorporate the comparison targets and methods identified by our participants.

Limitations and Future Considerations

Findings from this study indicate that body dissatisfaction among immigrant adolescents in Canada is a significant concern. It is possible that self-selection bias is contributing to the prevalence of body dissatisfaction in the present sample. Additional qualitative work with immigrant adolescents in other parts of Ontario and Canada are needed to confirm the present study's findings within and across immigrant males and females of varying cultural and ethnic identities. In addition, although our recruitment of adolescents with and without a diagnosed eating disorder was an attempt to capture the potential variation of body image experiences, we did not explicitly recruit adolescents with a positive body image or those who were high in body pride. Thus, we cannot proclaim that the body image experiences reported on here, truly reflect the variation in body image experiences that would be expected among the immigrant adolescent population. Recent work has called for greater attention to the body pride and positive body image experiences among adolescents and adults, making the critical argument that the field's ability to address body image concerns will continue to be limited without the understanding of how these positive experiences are differentiated from poor body image concerns (Tylka & Wood-Barcalow, 2015). Thus, it would be prudent for future work to recruit and consider the positive body image experiences among immigrant adolescents and the extent to which these circumstances can offer important information with respect to the prevention and intervention for poor body image among this adolescent population.

An additional limitation of this work is that we were unable to quantitatively explore the link between our participants' religious affiliation, level of acculturation, and

appearance-related satisfaction. Although our study did not find any significant differences on our unidimensional measure of acculturation between adolescents with and without an eating disorder in the present study, other work with males and females in the US and Australia suggest that acculturation, acculturative stress, heritage identification and religious affiliation have important implications for the experience of body dissatisfaction and eating disordered behaviour among immigrant and ethnic minority individuals (Dunkel, Davidson, & Qurashi, 2010; Kimber et al., 2014a; Mussap, 2009; Warren & Rios, 2013). Similarly, religious stereotypes and appearance messaging was of particular relevance to one of the participants in our study (Aysha). In addition, recent work has asserted the importance of considering bi-directional measure of acculturation, suggesting that this cultural process is one that respects immigrant individual's need to negotiate and live within the social values and behaviours and expectations of their own and the host culture (Kerivan-Marks & Conn, 2015). Unfortunately, our measure of unidimensional measure of acculturation was unable to assess the spectrum of these experiences. Given this information, future research should incorporate the best available evidence on the assessment of acculturation, heritage identification, acculturative stress, and religious affiliation to examine the influence and intersection of these factors on appearance-related distress among immigrant adolescents.

It is important to note that any study, particularly those which focus on social aspects of behaviour and interaction, is at the risk of being influenced by social desirability bias. This may be especially the case where the interviewer and the

participant are of the opposite sex and the participant may perceive that their honesty may offend the interviewer or make them uncomfortable. However, our team feels that this can be largely mitigated in qualitative research studies by using a well-trained and empathic qualitative interviewer. We believe that the data provided by adolescents in the present study, particularly their willingness to speak frankly about their perceptions around appearance, body weight, and shape speaks to the fact that participants were comfortable sharing their “truth” with the interviewer. However, it would be prudent for future researchers to incorporate a measure of social desirability bias, such as the Need for Approval Scale by Crowne and Marlow (1960, 1964) in their qualitative and quantitative research work. In addition, it may be useful for researchers to critically examine the extent to which results may or may not differ with opposite-sex versus same-sex interviewers and participants. In doing so, one could not only comment on the extent to which social desirability bias may be a factor in their findings, but researchers could also use such information for keeping an audit trail of the qualitative research process and the team’s ability to elicit honest and meaningful information from research participants in the context of opposite-sex and cross-cultural qualitative inquiry. Audit trails go beyond the experience of theoretical memoing during the data analysis process to include the documentation of study design and implementation processes, with the view that in documenting these process and decisions, methodological and substantive gains can be made for generating rigorous and replicable scientific inquiry (Carcary, 2009).

It is important to note that we did not find any salient differences in the descriptions of body image and appearance ideals across males and females in the present study, nor did we explicitly compare and contrast the descriptions provided by adolescents with and without an eating disorder. Unfortunately, the disproportionate representation of females in our study, has been recognized as a broader limitation of the body image literature (Smolak & Thompson, 2009). Future work should aim to have more balanced representation of males and females in their study samples, as there is compelling information regarding body dissatisfaction as a salient concern among child and adolescent males and females. Finally, our qualitative interview questions asked adolescents to describe their perceptions using what they have experienced or noticed. This meant that their qualitative descriptions could include experiences that they had, or witnessed others having. Although one could argue that this may introduce some form of third-party bias, it is important to note that observed versus lived experiences are both experiences (Rubin & Rubin, 2012); and therefore, can shape an individual's perception of body weight and shape ideals which may or may not inform their own body image.

Conclusion

This qualitative study is the first to describe immigrant adolescents' appearance-related concerns in Canada. None of the adolescents in our study were satisfied with their appearance and described important aspects of appearance and body image that have been typically neglected in the literature. More generally, our results provide support for the field testing of body image and appearance-related ideals that extend beyond slimness

and muscularity and the expansion of measures to include constructs and characteristics that can more broadly define appearance-related distress within and outside immigrant and ethnic-minority groups. Future research and clinical work should pay attention to how body and appearance-related categorizations (i.e., slim vs. curvy vs. fat) are equated with notions of social and class status, the extent to which these categorizations vary within and across immigrant generational status, and the extent to which these perceived social and class hierarchies reinforce the internalization of body and appearance-related expectations and investment. Only by recognizing body weight, shape, and appearance as a “status” that is created and reinforced by social and health discourses can we adequately disrupt the sensationalizing of appearance and the perception that one’s appearance in relation to others defines an individual’s self-worth.

Table 1:

Participant Characteristics

| Name ^a | Diagnosed with an Eating Disorder (Yes/No) | Age (Years) | Gender | Place of Birth | Ethnicity | Biological Mother's Place of Birth | Biological Father's Place of Birth | Primary Language Spoken at Home | Acculturation Score ^b | Interview Length (Minutes) |
|-------------------|--|-------------|--------|----------------|------------------|------------------------------------|------------------------------------|---------------------------------|----------------------------------|----------------------------|
| Martina | Yes | 16 | Female | Mexico | Hispanic | Mexico | Mexico | Spanish | 33 | 60 |
| Viona | Yes | 17 | Female | Canada | Dutch | Holland | Canada | Dutch | 40 | 64 |
| Nela | Yes | 16 | Female | Canada | Croatian | Poland | Croatia | Croatian | 42 | 68 |
| Jakob | Yes | 16 | Male | Mexico | Eastern European | Mexico | Mexico | Low-German | 27 | 56 |
| Lindsay | Yes | 16 | Female | Canada | Korean | South Korea | South Korea | Korean | 33 | 69 |
| Daniela | Yes | 17 | Female | Peru | Hispanic | Peru | Peru | Spanish | 35 | 46 |
| Lisa | Yes | 17 | Female | South Korea | Korean | South Korea | South Korea | Korean | 42 | 79 |
| Elizabeth | Yes | 17 | Female | South Korea | Korean | South Korea | South Korea | English | 30 | 76 |
| Josephine | No | 17 | Female | Canada | Western-European | Canada | Holland | Dutch | 32 | 81 |
| Helena | No | 19 | Female | Canada | Western-European | Canada | Holland | Dutch | 33 | 79 |
| Jessica | No | 17 | Female | China | Chinese | China | China | Mandarin | 24 | 74 |
| Aysha | No | 17 | Female | Dubai | Tunisian | Tunisia | Tunisia | Arabic | 36 | 48 |

| | | | | | | | | | | |
|--------|----|----|--------|--------------|-----------|----------|----------|---------|----|----|
| Arif | No | 16 | Male | Pakistan | Afghani | Pakistan | Pakistan | Pashto | 45 | 55 |
| Aasiya | No | 18 | Female | Saudi Arabia | Somalia | Somalia | Arab | Somali | 37 | 61 |
| Abhay | No | 16 | Male | India | Hindu | India | India | Hindi | 29 | 62 |
| Aamil | No | 16 | Male | Dubai | Tunisian | Tunisia | Tunisia | Arabic | 32 | 50 |
| Selome | No | 16 | Female | Ethiopia | Ethiopian | Ethiopia | Ethiopia | Amharic | 26 | 82 |
| Elise | No | 18 | Female | Canada | Chinese | China | China | English | 40 | 71 |

Note. ^a All names are pseudonyms. ^b Total acculturation scale scores can range from 5 to 45, with higher scores representing greater acculturation to Canadian culture.

Table 2:

Semi-Structured Interview Guide

| Question Number | Question |
|-----------------|---|
| 1 | In today's society, how important do you think it is to 'look good'? |
| 2 | Why do you think looking a certain way is really important to some girls and boys? |
| 3 | Based on what you've noticed or experienced, how would you describe the ideal body shape or appearance for a girl and a boy? |
| 4 | You had mentioned that you identify as [<i>insert adolescent's self-identified ethnic identity, e.g. Chinese</i>]. Based on what you've noticed or experienced, do you feel that there are any differences in the ideal body shape or appearance for [<i>insert adolescent's self-identified ethnic identity, e.g. Chinese</i>] girls and boys and White-Canadian girls and boys? |
| 5 | Now I am interested in talking for a little while about what you think of your own appearance. Can you tell me about how you feel about your own appearance? |
| 6 | Sometimes people get their ideas about what 'looks' good from other people, like friends, classmates, strangers or famous people on TV. Can you tell me a little bit about where you get your ideas about what looks good? |
| 7 | We are trying to understand how adolescents who live in an immigrant family feel about their bodies and appearance. Given that you identified as an adolescent living in an immigrant family, what do you feel is important for us to know? |

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CHAPTER FIVE

STUDY 4

TITLE: Adolescent body image distortion: A consideration of immigrant generational status, immigrant concentration, sex and body dissatisfaction

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CONTEXT AND IMPLICATIONS OF THIS STUDY: Recent research and clinical manuals suggest that the substantive prevalence of body image dissatisfaction limits its utility as an indicator of psychological concerns, such as eating disorders and body dysmorphic disorder. However, the assessment of body image distortion may hold more promise in this regard. Unfortunately, no study has investigated body image distortion among immigrant adolescents in Canada or the US and this is despite the fact that they are a significant and growing proportion of the population in both nations. This study uses nationally representative data from the US and multilevel modeling to examine the influence of immigrant generational status, immigrant concentration, sex and body image dissatisfaction on the body image distortion experiences among adolescents. Findings indicate that immigrant generational status moderates the association between sex and body image distortion as well as the association between body image dissatisfaction and body image distortion.

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Abstract

Immigrant adolescents represent a significant and growing proportion of the population in the United States. Yet, little is known about their experiences of body image distortion. This is particularly concerning given that body image distortion has been identified as a significant and modifiable risk factor for a number of mental illnesses, including depression and eating disorders. This study uses multi-level modeling to examine the associations between immigrant generational status, neighborhood immigrant concentration, sex, body dissatisfaction and risk for body image distortion. Data come from the National Longitudinal Study of Adolescent Health and includes 10,962 11-19 year olds (49.6% female). First generation immigrant females were significantly more likely than 3rd generation-or-later adolescents to experience underweight body image distortion. There was no association between neighborhood immigrant concentration and risk for body image distortion. Body dissatisfaction was associated with greater risk for underweight and overweight body image distortion, with the magnitude of underweight distortion risk significantly greater among 1st generation immigrants. Interventions that encourage the development of a healthy body image have the potential to reduce the onset and duration of body image distortion among immigrant and non-immigrant adolescents.

KEYWORDS: body image distortion; adolescents; immigrant status; sex; immigrant concentration; multi-level modeling; body dissatisfaction

Adolescent Body Image Distortion: A Consideration of Immigrant Generational Status, Immigrant Concentration, Sex and Body Dissatisfaction

Introduction

Body image refers to an individual's perception about their body weight and shape. A vast amount of literature demonstrates the perceptual, attitudinal and developmental importance of body image during the pre-adolescent and adolescent years; with body dissatisfaction and body image distortion considered two of the most stable dimensions of the body image construct (Smolak & Thompson, 2009; Tremblay & Limbos, 2009). Specifically, body dissatisfaction refers to the discrepancy between an individual's perceived versus an ideal body weight and shape. Body image distortion refers to the discrepancy between one's perceived and actual weight status (Rosen, 1992). Both body dissatisfaction and body image distortion have been shown to be associated with negative physical and psychological outcomes, including anxiety, depression and eating disorders (Bucchianeri & Neumark-Sztainer, 2014; Tang et al., 2010). However, more recent work suggests that the substantive prevalence of body dissatisfaction limits its utility as an indicator of psychological distress (Liechty, 2010). On the contrary, body image distortion may be a more salient predictor of these problematic experiences as it represents a cognitive misinterpretation of one's true body weight and shape (Liechty, 2010; Rosen, 1992). Specifically, underweight body image distortion refers to the perception that one's weight is less than their true weight status and overweight body image distortion refers to the perception that one's weight is greater than their actual weight status. Compared to children

and adolescents who do not experience body image distortion, those who do are more likely to experience body dissatisfaction (Cohen's $d = 0.3$) and demonstrate higher levels of psychological distress (Cohen's $d = 0.3$ to 0.5) (Blashill & Wilhelm, 2014; Cho, Han, Kim, & Lee, 2012; Hagman et al., 2015). The problem, however, is that very few population-based studies have investigated the prevalence, correlates and predictors of body image distortion, with no known studies investigating these experiences among immigrant children and adolescents in the United States (US).

Recent statistics from the 2012 Census and American Community Survey indicate that 25% of US children and adolescents under the age of 18 are living in an immigrant family (Nwosu, Batalova, & Auclair, 2014). According to the same surveys, the largest proportion of these immigrant families has origins in Mexico (28.3%), India (4.8%), the Philippines (4.6%) and China (4.2%); with over 50% of immigrant children and adolescents belonging to a non-White or ethnic-minority group (Nwosu et al., 2014). Compared to non-immigrants, immigrant children and adolescents are significantly more likely to live in families and neighborhoods characterized by high levels of poverty (Grieco et al., 2012), live in neighborhoods with a higher proportion of immigrants (Lara-Cinisomo, Xue, & Brooks-Gunn, 2013) and speak a language other than English inside their home (Grieco et al., 2012). These individual and neighborhood-level characteristics suggest that immigrant children and adolescents develop in contexts that can be markedly different and more stressful than their 3rd

generation-or-later American peers. This may mean that immigrant children and adolescents might be more susceptible to negative psychological sequelae, such as body image distortion. The following describes the literature pertinent to investigating immigrant children and adolescents' risk for body image distortion in the US, including the individual and neighborhood-level risk factors that will be considered in this study.

The social-ecological model of human health and development provides a framework for addressing the risk and protective factors for psychological health among immigrant children and adolescents (Bronfenbrenner, 1979). Framed within this model, body image distortion can be considered a consequence of individual, family and community-level risk factors that work together to create a distorted perception about one's body weight and shape. At the individual-level, children and adolescents' risk for body image distortion is influenced by their age, sex, body mass and body dissatisfaction. Specifically, age and body mass index are positively associated with an increased risk for body image distortion (Littleton & Ollendick, 2003). In addition, both male and female children and adolescents have been shown to experience body image distortion. Typically, females have been shown to be at greater odds for experiencing overweight distortion, whereas males tend to have greater odds for experiencing underweight body image distortion. For example, representative epidemiological studies have found that between 17% and 43% of adolescent females with a normal body mass index (BMI) experience overweight body image distortion, with this proportion

increasing with one's BMI status (Khambalia, Hardy, & Bauman, 2012; Liechty, 2010; Park, 2011; ter Bogt et al., 2006). In contrast, 20-27% of males with a normal BMI perceive themselves as underweight (i.e., experience underweight body image distortion) (Blashill & Wilhelm, 2014; Park, 2011; ter Bogt et al., 2006). In addition, other literature focusing on overweight African American adolescents' reports that up to 58% of these males perceive themselves to be a normal weight or underweight (underweight distortion) (Wang, Liang, & Chen, 2009).

Unfortunately, the epidemiological studies focusing on body image distortion among children and adolescents have focused on non-immigrants or have not considered immigrant generational status as a potential risk factor. Thus, the extent to which the association between individual-level factors of age, sex, BMI, and body image distortion hold among immigrant children and adolescents is unclear. This is particularly intriguing given population-based data suggesting that children and adolescents who live in an immigrant family are significantly more likely to be overweight or obese compared to their 3rd generation-or-later peers (Singh, Kogan, & Yu, 2009; Van Hook, Baker, Altman, & Frisco, 2012). If the previously found pattern between BMI and body image distortion among non-immigrants holds for 1st and 2nd generation immigrant adolescents, then one could argue that immigrant females may be at greater risk for experiencing overweight body image distortion and immigrant males may greater risk for underweight body image distortion compared to their 3rd generation-or-later peers.

Body Dissatisfaction as an Individual-Level Risk Factor for Body Image Distortion

Body dissatisfaction is an individual-level characteristic that is significantly and positively associated with body image distortion (Mable, Balance, & Galgan, 1986). Although no study has investigated the link between body dissatisfaction and body image distortion among immigrant children and adolescents, a recent scoping review by Kimber and colleagues (2014a) identifies twelve studies that have investigated the experience of body dissatisfaction among immigrant children and adolescents in the US. Of these twelve studies, eleven focused on the body dissatisfaction experiences of Latino/Hispanic/Mexican American (hereafter referred to as Hispanic) immigrant adolescents. Body dissatisfaction among Hispanic adolescents varied from average to clinically significant levels (Kimber et al., 2014a). The twelfth paper focused on 1st and 2nd generation Hmong immigrants (n = 335) and reported that only 21% of girls and 31% of boys were satisfied with their body image (Mulasi-Pokhriyal & Smith, 2010). Similarly, a recent epidemiological study from Canada (n = 29,315) reported that 1st generation (i.e., foreign-born) immigrants who were between 12 to 19 years of age experienced higher levels of body dissatisfaction than their Canadian-born counterparts (Magtoto, Cox, & Saewyc, 2013). Given the emerging evidence suggesting that immigrant children and adolescents can experience high levels of body dissatisfaction and that literature has previously

linked body dissatisfaction and risk for body image distortion, it may be that immigrant children and adolescents experience greater risk for body image distortion compared to non-immigrants. However, a study with a representative sample of immigrant and non-immigrant adolescents is needed to fully understand the extent to which links between body dissatisfaction and body image distortion are influenced by one's immigrant generational status.

Association between Depressive Symptoms and Body Image Distortion

Emerging evidence suggests that depressive symptoms are associated with adolescent body image distortion. For example, in a secondary data analysis of the National Longitudinal Survey of Adolescent Health (Add Health), Blashill and Wilhelm (2014) estimated the longitudinal influence of body image distortion on depressive symptoms among boys from adolescence (\bar{x} 16 years) to adulthood (\bar{x} 29 years). The results indicated that normal weight boys who viewed themselves as very underweight or overweight were significantly more likely to experience depressive symptoms. Similarly, Cho et al's (2012) analysis of data from a representative sample of fifth and sixth grade Korean children found a significant association between overweight distortion and depressive symptoms. However, their measure of depressive symptoms was captured by a single item "I get tired and annoyed easily." Unfortunately, neither of these studies considered immigrant generational status in their analysis. In addition, their findings are limited given their focus on boys (Blashill & Wilhelm, 2014) and overweight body image distortion (Cho et al., 2012). Furthermore, the work by Blashill and

Wilhelm (2014) first measures body image distortion and depressive symptoms at age 16. Thus, although the authors found a longitudinal association between these variables, they are unable to confidently proclaim the temporal sequencing of adolescents' body image distortion and depressive symptoms and confirm causality. Given the morbidity associated with depressive symptoms among adolescents, more studies are needed to confirm the link between these concerns and body image distortion among male and female adolescents and the extent to which the link between these two variables differ—if at all—between underweight versus overweight body image distortion.

Neighborhood-Level Influences on Body Image Distortion

To our knowledge, there is no population-based study examining the association between family and neighborhood-level characteristics and body image distortion among immigrant children and adolescents. This is despite the information that family poverty, neighborhood concentration of poverty and neighborhood concentration of immigrants have been independently linked to physical and psychological outcomes related to body image distortion (Grieco et al., 2012; Kazemipur & Halli, 2000). For example, family financial hardship during childhood has been linked to emotional and behavioral disorder onset. Specifically, children whose families experienced financial hardship are 1.5 to 2.5 times more likely to develop an emotional or behavioral disorder compared to children whose families do not experience these circumstances (McLaughlin et al., 2011). Similarly, low parental education, as a relative indicator of economic

disadvantage, has been shown to be associated with persistence of psychiatric disorder and severity in childhood, adolescence and adulthood. With respect to neighborhood disadvantage, studies by Kling, Liebman, and Katz (2007), Xue, Leventhal, Brooks-Gunn, and Earls (2005) and Rudolph, Stuart, Glass, and Merikangas (2014) indicate that children and adolescents living in neighborhoods with a higher concentration of poverty can experience up to 59% greater odds of having an emotional or behavioral disorder compared to children and adolescents living in low-poverty contexts.

Unfortunately, the influence of neighborhood immigrant concentration on child and adolescent mental health is less clear. In the US, higher neighborhood concentration of immigrants has been found to have a null and positive association with child and adolescent mental health problems (Lara-Cinisomo et al., 2013; Lee et al., 2014; Xue et al., 2005). Contrariwise, in Canada, population-based studies suggest that immigrants living in neighborhoods with a higher concentration of immigrants experience lower levels of mental health problems, with the opposite association found for non-immigrants (Georgiades, Boyle, & Duku, 2007). The former results suggest that neighborhood concentration of immigrants may dilute the negative influence of concentrated poverty on mental health outcomes, including body image distortion, among immigrant children and adolescents. In this regard, person-context fit theory would suggest that immigrants living in neighborhoods with a higher concentration of immigrants—and, therefore, peers who may have undergone similar migration and acculturative

experiences—may be more likely to experience the protective processes of community belonging and social support (Magnusson & Stattin, 1998). For this reason, immigrant children and adolescents may experience a protective effect against poor mental health in the context of living in a neighborhood with a higher concentration of immigrants—even after being exposed to greater socio-economic disadvantage. However, a representative population-based study that takes into account immigrant generational status as well as neighborhood-level influences is still needed to determine the extent to which neighborhoods offer any protective effect for the risk of body image distortion.

Also relevant to the present investigation is the literature demonstrating an association between neighborhood concentration of poverty, neighborhood concentration of immigrants and BMI status. For example, epidemiological studies of children and youth in the US have found significant associations between neighborhood concentration of poverty and child and adolescent obesity, arguing that over 20% of the variation in child and adolescent obesity can be explained by neighborhood concentration of socioeconomic disadvantage (Grow et al., 2010; Singh, Siahpush, & Kogan, 2010). Specifically, living in neighborhoods with a higher concentration of poverty increases children and adolescents' odds of being obese, with some evidence indicating that this concentration effect is stronger for children under 11 years of age.

In regards to neighborhood concentration of immigrants, information with respect to the influence of this contextual variable on child and adolescent BMI is limited and unclear. In a nationally representative survey of children in the US (N = 21,400), children living in neighborhoods with a higher concentration of foreign-born (i.e., 1st generation) residents were significantly less likely to be classified as obese (Kimbrow & Denney, 2013). However, the opposite was true in Sastry and Pebley's (2003) epidemiological study of adolescents in Los Angeles, California. The authors found that children and adolescents living in neighborhoods with a higher concentration of foreign-born residents were at 2.71 greater odds of being classified as overweight or obese. Results from the former two studies suggest that percent immigrant concentration can influence the BMI status of immigrant and non-immigrant children and adolescents. Yet, we are unclear about the extent to which this neighborhood characteristic may translate to adolescents' body image distortion experiences.

If one considers that the construct of body image distortion is derived through the discordance between one's perceived versus their actual weight status (i.e., their BMI), it is plausible to argue that neighborhood concentration of poverty and neighborhood concentration of immigrants may influence adolescents' experiences of body image distortion. Thus, while we have no information about the association between neighborhood concentration of poverty, neighborhood concentration of immigrants and child and adolescent body image distortion, the literature focusing on the correlates of body image

distortion—including BMI and psychological distress—suggest that these neighborhood characteristics may be associated with body image distortion among 1st, 2nd and 3rd generation-or-later children and adolescents.

Present Study

In view of the limited knowledge about the experiences of body image distortion among immigrant children and adolescents and the extent to which individual and neighborhood-level factors may influence these experiences, this study uses nationally representative, population-based data from the US and advanced multi-level modeling to examine these relationships. First, we examine whether there is an unadjusted association between immigrant generational status, neighborhood immigrant concentration and adolescent body image distortion (Research Question 1). Given the paucity of literature considering immigrant generational status and contextual effects on adolescent body image distortion, we have no apriori expectations as to whether or not these variables significantly increase or attenuate adolescents' odds for experiencing body image distortion. Second, we examine whether adolescent sex is significantly associated with adolescents' body image distortion and the extent to which this association is modified by adolescents' immigrant generational status (Research Question 2). Given previous findings by Blashill and Wilhelm (2014) and Liechty (2010), we anticipate that females will be at significantly greater odds for experiencing overweight body image distortion, that males will be at significantly greater odds for experiencing underweight body image distortion and that 3rd generation-or-

later males and females will experience a magnified risk for each type of body image distortion compared to their 1st and 2nd generation immigrant peers.

Third, and after controlling for adolescent age and sex, we examine whether neighborhood immigrant concentration is associated with adolescent body image distortion and whether this relationship is modified by adolescents' immigrant generational status (Research Question 3). The aforementioned literature indicates that immigrants are more likely to live in neighborhoods with a higher concentration of immigrants and that this experience may have a protective effect on the mental health of immigrant adolescents. Given this information, we anticipate that 1st and 2nd generation immigrant adolescents living in a neighborhood with a higher concentration of immigrants will experience significantly lower odds of body image distortion compared to 3rd generation-or-later adolescents living in these contexts.

Our fourth research question tests whether adolescent body dissatisfaction is significantly and positively associated with body image distortion and whether adolescent immigrant generational status modifies this association (Research Question 4). Previous literature links body dissatisfaction with psychological disorders characterized by experiences of body image distortion, including eating disorders and body dysmorphic disorder. Given this information, we anticipate that irrespective of immigrant generational status, adolescent body dissatisfaction will be significantly associated with body image distortion. Finally, we examine whether immigrant generational status modifies the associations between

adolescent sex, adolescent body dissatisfaction, neighborhood concentration of immigrants and body image distortion after accounting for family and neighborhood-level socio-economic disadvantage and adolescent depressive symptoms (Research Question 5).

METHODS

Data

Data for this cross-sectional study comes from the National Longitudinal Study of Adolescent Health (Add Health), one of the largest representative, population-based surveys of children and adolescents in U.S.A (Harris, 2013). The objectives of the Add Health survey were to examine the social, economic, psychological and physical well-being of children and adolescents. Briefly, data was collected at the individual, family, school and community-level. The Add Health cohort was established during the 1994-1995 school year when respondents were approximately 14.5 years of age. Researchers have collected three subsequent waves of data: Wave II (1996, 13-20 years), Wave III (2001, 18-26 years), and Wave IV (2008, 24-32 years). The study employed a two-stage stratified random sampling strategy to identify the school-based Wave I cohort. All consenting schools were asked to provide a roster of their students so that the “target students” and their families could be approached for an in-home interview (see Harris, 2013).

In-home interviews included a parent interview (or the person most knowledgeable (PMK) about the “target student”), adolescent self-report interviews (with the “target student”) and sibling self-report interviews. The total sample of adolescents with completed in-home self-report interviews was 20,745 at Wave 1. Excluding 12th grade students from Wave 1, a total of 14,738 original Wave I in-home respondents completed Wave II in-home data questionnaires. This yielded a Wave II response rate of 88.2%. While completing data collection for the in-home interviews, Add Health staff compiled contextual (neighborhood-level) data using information provided by multiple government sources. These sources included: the US Census, the Centers for Disease Control and Prevention, the National Center for Health Statistics, the Federal Bureau of Investigation, and the National Council of Churches (Billy, Wnzlow, & Grady, 1998). This contextual data was linked to respondents’ individual interview using respondents’ residential postal code and a unique geocoding system. Given that a number of the variables for the present study were collected in Wave I and Wave II, we used Add Health’s respondent identification variable to combine data from the Wave I and Wave II in-home interview and extract neighborhood-level data from the Wave II contextual data file. This allowed our team to generate a complete cross-sectional dataset for analysis. Specifically, PMK-reported parent education and household income came from Wave I data. Adolescent self-report of their race/ethnicity, their own foreign-born status, their resident-parent’s foreign-born status, their resident-family structure and their resident-parent’s

education also came from Wave I data. All remaining variables were extracted from the Wave II data files. To ensure our analysis represented an independent study sample, we excluded any respondent in our combined data file who was classified as a full, half or non-related sibling to a “target student”. This resulted in 12,122 independent observations (respondents) eligible for analysis.

Sample for Analysis

Among the 12,122 respondents eligible to be included in the present study, those who were missing information related to their age, sex, perception of weight status, height and weight were excluded from the analysis ($n = 179$, 1.5%); as this information was necessary to compute our outcome variable of body image distortion. In addition, we excluded respondents who were missing an Add Health sample weight ($n=731$, 6.0%) and those who were older than 19 years of age ($n=104$, 0.9%). Finally, we excluded those who were missing information on neighborhood identification variables ($n=136$, 1.1%), as this prevented our ability to assign neighborhood-level information to the individual respondent. Of the remaining adolescents ($n=10,962$), 54.4% ($n=5963$) had complete data on the covariates of interest (e.g., immigrant status, parental education, depressive symptoms, household income, etc.). Among those with missing data, 37.9% ($n=4152$) were missing information on one item, 7.3% ($n=801$) were missing information on two items, .3% ($n=38$) were missing information on three items and .1% ($n=8$) were missing information on four or more items. The most common items missing data were those relating to youth and PMK reported

parental education and PMK reported household income; with 337 (3.1%) and 2537 (23.1%) adolescents missing data on these variables, respectively.

Missing data analysis

To examine characteristics of non-response, missed responses on our covariates were combined and re-coded as 0 (*responded*), or 1, (*not responded*) and modeled as a dependent variable in a logistic regression analysis. The independent variables entered into the logistic regression equation were respondents' age, sex, immigrant generational status and family structure. Compared to 3rd generation-or-later respondents, 1st (OR = 2.55, .95_{CI} = 2.20, 2.96, $p = .000$) and 2nd (OR = 1.84, .95_{CI} = 1.61, 2.09, $p = .000$) generation immigrant adolescents were significantly more likely to be missing data. Adolescents living in two-parent homes (OR = 0.67, .95_{CI} = 0.54, 0.84, $p = .000$) were significantly less likely to be missing data than those living in other types of family structures. Finally, missing data was significantly associated with age. That is, older adolescents were more likely to be missing data (OR = 1.10, .95_{CI} = 1.06, 1.14, $p = .000$). Missing information was imputed using imputation techniques in SPSS 22 (Schafer, 1999). Specifically, we used expectation maximization methods to impute 100 data files, with one of these imputed datasets randomly selected for descriptive analysis in SPSS and multi-level, multinomial logistic regression analysis in MLwIN (Version 2.32; Rasbash, Steele, Browne, & Goldstein, 2015).

Concepts and Measures

Body image distortion

Body image distortion was computed through measures of actual and perceptual weight-status (Liechty, 2010). Respondent's actual weight status was represented by the standard BMI-for-Age-Classification System that was developed by the World Health Organization (WHO) and validated with an international sample (Cole, Bellizzi, Flegal, & Dietz, 2000; World Health Organization, 2007). Adolescents' weight and height were objectively measured by Add Health interview staff using standardized policies and procedures (Harris, 2013). This information was used to compute the BMI for each respondent by dividing respondent's weight in kilograms (kg) by the squared value of their height in metres (m²). The computation of respondents BMI was followed by creating a BMI z-score using respondents' BMI, self-reported age, sex and the external reference sample from the WHO (Cole et al., 2000; de Onis et al., 2007). Based on BMI z-scores and the recommendations of the WHO, each respondent's actual weight status was classified as one of the following: obese ($>+2SD$), overweight ($>+1SD$), underweight ($<-2SD$), severely underweight ($<-3SD$) or normal weight ($\leq +1SD$ and $\geq -2SD$) (de Onis et al., 2007). SPSS Syntax for the computation of WHO's BMI-for-Age-Classification System among 5-19 year olds is freely accessible on the WHO website (<http://www.who.int/growthref/tools/en/>) (World Health Organization, 2007).

Respondents' perceptual weight-status was assessed with the following self-report item: How do you think of yourself in terms of weight? Response options included: very underweight, slightly underweight, about the right weight, slightly overweight, and very overweight. Respondents' perceptual weight-status and actual weight-status were then used to compute a body image distortion variable that consisted of three categories: undistorted (reference group, (0)), underweight distortion (1) and overweight distortion (2). Those classified as "undistorted" were those whose actual and perceived weight status were underweight, average weight or overweight. Those classified with underweight distortion were those respondents with either: (1) an average actual weight status and an underweight or severely underweight perceptual weight-status; or (2) an overweight or obese actual weight status and a normal, underweight or severely underweight perceptual weight status. Finally, those classified with overweight distortion were those respondents with either: (1) an average actual weight-status and a slightly overweight or very overweight perceptual weight-status; or (2) an underweight or severely underweight actual weight status and a normal, slightly overweight or very overweight perceptual weight status. A similar classification approach was implemented by Blashill and Willheim (2014) using normed values provided by the Centre for Disease Control (CDC). We use the normed sample estimates provided by the WHO given that these estimates were validated with an international, multi-cultural sample of cross-sectional growth surveys from six countries, including: Brazil, Great Britain, Hong Kong, the Netherlands, the US

and Singapore (Cole et al., 2000). For these reasons, we would argue that the overweight, obesity and underweight thresholds provided by the WHO are more likely to incorporate the body-mass index variability seen in the adolescent immigrant and non-immigrant population in the US.

Immigrant generational status

Adolescent immigrant generational status was computed through the self-report of the respondent's and his or her resident parents' place of birth. Two dummy variables were created to classify respondents as either a 1st generation immigrant (i.e., born outside of the US), or 2nd generation immigrant (i.e., born in the US to at least one foreign-born parent). All other respondents were classified as 3rd generation-or-later respondents (i.e., US born to US-born parents) and served as the reference group in all analyses.

Neighborhood concentration of immigrants

As mentioned previously, the Wave II Contextual Data file was used to extract respondent neighborhood characteristics. Census blocks are the smallest form of geography from which contextual-level information can be obtained; and because of their size (~1000 people/ 452 housing units), are relatively homogenous levels of geography that are well suited to model neighborhood-level characteristics. In the present study, immigrant concentration is the proportion of 1st generation (i.e., foreign-born) immigrants living in an Add Health respondent's census block prior to the 1990 census day.

Body dissatisfaction

A binary variable representing adolescent body dissatisfaction was derived using adolescents' responses to the following question: are you currently trying to lose weight, gain weight, or stay the same weight? Adolescents who responded with lose weight or gain weight were classified as experiencing body dissatisfaction and coded as a "1". Adolescents' who responded with stay the same weight or not trying to do anything about my weight were classified as not experiencing body dissatisfaction, and were coded as a "0". Previous work has implemented similar measures of body dissatisfaction and argue that the active pursuit of weight change is highly indicative of dissatisfaction with one's body weight and a significant precursor for body image and weight-related disorders (Smolak & Thompson, 2009).

Adolescent depressive symptoms

Depressive symptoms were measured by twenty items from the Centre for Epidemiologic Studies Depression Scale, a four factor, 20-item scale (Radloff, 1977). In the Add Health Survey, small amendments were made to make the items more developmentally appropriate for adolescents. Response options for the 20 items were treated as a continuous scale and ranged from zero (rarely or none of the time) to three (most or all of the time). After reverse scoring the four positive affect items, total scores were generated by summing responses across all 20 items, with possible scores ranging from zero to sixty. A principal components analysis on the un-imputed dataset demonstrated

component scores on the first factor above .40 for all items and an internal consistency reliability estimate of $\alpha = 0.70$. Thus, the summation of the 20 items for a depressive symptoms scale score was deemed appropriate.

Family structure

Family structure was represented by two dummy coded variables. One of these variables represents respondents living in single parent homes and the other represents respondents living in two parent homes. Adolescents living in all “other” living arrangements served as the reference group.

Family income

Information pertaining to family income was collected from the PMK during Wave I data collection and exported in to our Wave II cross-sectional data file. In 80.2 % of the cases, the PMK was the respondent’s biological or step-mother. Family income (before taxes) was reported by the respondent’s PMK in response to the following question: about how much total income, before taxes, did your family receive in 1994? This information was reported and rounded to the nearest thousand. For example if a PMK reported a family income of \$80,000 before taxes, this was recorded as “80” in the data file.

Parental education

Information from the respondent and the PMK was used to generate our parental education variable. Specifically, information from the PMK and respondent were combined to compute a variable representing the highest level of parental education within the respondent’s household. PMK reported information

was prioritized and accounted for 87.5% of the information on this combined variable. This parental education variable were coded as from 0 (less than high school) to 3 (completed college, university or higher). Dummy codes were generated for each level of parental education, with less than a high school education serving as the reference group.

Adolescent demographics

Age, sex, and adolescents' race/ethnicity, were included as individual-level covariates. The respondent's age was calculated using their date of birth and the date of their Add Health interview. Sex was a self-reported binary coded variable, where 1 = female and 0 = male. Classification of respondent race/ethnicity followed guidelines provided by Add Health (see <http://www.cpc.unc.edu/projects/addhealth/data/code/race/index.html>).

Specifically, dummy variables for race/ethnicity included Hispanic, Black, Asian, Native American and Other, with non-Hispanic-White adolescents serving as the reference group.

Neighborhood socio-economic disadvantage

Additional neighborhood-level socio-economic disadvantage covariates extracted from the Wave II contextual data file included: the proportion of lone mother (female-headed) households, the proportion of individuals living below the poverty level; the proportion of persons 25 years of age and older with no high school diploma, and the proportion of unemployed residents. Given that immigrants tend to live in neighborhoods characterized by high levels of

economic disadvantage and that neighborhood concentration of immigrants is significantly correlated with neighborhood economic disadvantage, controlling for each of the aforementioned variables is intended to help isolate the effect of neighborhood-level immigrant concentration on adolescent body image distortion.

Analysis

Statistical significance was set at $p < 0.05$ (two-sided) and the characteristics of our study sample were examined using the Statistical Package for the Social Sciences 22.0 (IBM, 2011). To ensure that the findings were representative of the adolescent US population, all descriptive analyses were weighted according to Add Health guidelines and took into consideration sampling probability and non-response (Chen & Chantala, 2014). One-way analysis of variance (ANOVA) tests were used to compare continuous measures of individual and neighborhood-level characteristics between 1st, 2nd and 3rd generation immigrants. Subsequent post-hoc comparisons on these variables were made using Scheffé's Test. Pearson's chi-square test and Bonferroni-Holm corrections were used to compare categorical measures of individual-level characteristics across immigrant generational status (Cramer & Howitt, 2004).

Multi-level modeling and the statistical software, MLwiN (Version 2.32; Rasbash et al., 2015), were used to examine the influence of immigrant generational status and neighborhood-level immigrant concentration on body image distortion (Rasbash et al., 2015). Multi-level modeling is a form of statistical modeling that accounts for the correlation of responses within

hierarchical data structures (Tabachnick & Fidell, 2007). The data in this study take the form of a hierarchical structure given that the sampling of respondents (level 1) is nested within neighborhoods (level 2). If adolescents' experiences of body image distortion are modeled without taking into account the hierarchical structure of the data, the Type I error rate—that is, the probability for finding a statistically significant outcome, when this is not the case—is inflated given that the analyses are based on too many degrees of freedom (Tabachnick & Fidell, 2007). Multi-level modeling addresses the lack of independence in hierarchical data by allowing the standard intercepts (means), as well as the slopes (the associations between independent and dependent variables) that would be produced in ordinary least squares regression to vary across the higher level units. As such, the variability in the outcome of interest (body image distortion) is partitioned across each level of the analysis so that the residual variation that would be explained by a single level regression model is now a product of the variability at the adolescent-level and the neighborhood-level.

For multi-level, multinomial logistic regression, the $t-1$ log-odds of each outcome category is estimated. In the case of our three category body image distortion variable, the “no distortion” group serves as our reference category and our multi-level, multinomial logistic regression model is given by the following equation:

$$y_{ij} = \log \left(\frac{\pi_{ij}^{(s)}}{\pi_{ij}^{(t)}} \right) = \beta_0^{(s)} + \beta_1^{(s)} X_{ij} + u_j^{(s)}, \quad s = 1, \dots, t-1$$

Where y_{ij} is the categorical body image distortion response for individual i in neighborhood j and the probability of being in category ' s ' is given by $\pi_{ij}^{(s)}$. Similarly, $u_j^{(s)}$ is a neighborhood-level random effect that is assumed to be normally distributed with a mean of zero and a variance of $\sigma_j^{2(s)}$. In addition, beta (β) parameters are interpreted as the additive effect of one-unit increase in "X" (explanatory variable of interest) on the log-odds of being in category s compared to category t (i.e., the reference group). However, to aid readers in the interpretation of our estimates, we take the exponentiation of β and present the multiplicative effect of the explanatory variable (e.g, immigrant generational status) on adolescents' odds of being in the underweight or overweight distortion group, compared to the undistorted (reference) group (t)—this is also referred to the odds ratio (OR). Finally, in a multi-level multinomial logistic regression framework, variation in body image distortion at the adolescent-level is assumed to have a standard logistic distribution with a mean of zero and a variance of $\pi^2/3 = 3.29$. At the neighborhood-level, the proportion of the total variance in underweight and overweight body image distortion that is accounted for by adolescents' neighborhood residence is given by the intraclass correlation coefficient (ICC). In these cases, the ICC is calculated by dividing the neighborhood-level residual variance ($\hat{\sigma}^2$) by the total residual variation across all levels ($\hat{\sigma}^2 + \pi^2/3$).

The derivation of model estimates followed the recommendations of MLwIN manual for multi-level multinomial logistic regression analysis and included the application 2nd order predictive quasi-likelihood estimation methods (Rasbash et al., 2015). We first estimate the unadjusted association between immigrant generational status and body image distortion and the unadjusted association between neighborhood immigrant concentration and body image distortion. Model 1 estimates the association between immigrant generational status and body image distortion adjusting for individual age and sex and considers the interaction between immigrant generational status and sex on these outcomes. Model 2 expands Model 1 to investigate whether there is a main effect on body image distortion for neighborhood immigrant concentration and the extent to which immigrant generational status moderates this association. Model 3 builds upon Model 2 to consider the association between body dissatisfaction and body image distortion, with this model also considering the extent to which immigrant generational status modifies the association between body dissatisfaction and body image distortion. Model 4 is our final model and adjusts for our individual and neighborhood-level measures of socio-economic disadvantage and adolescent depressive symptoms. All continuous variables at the individual and neighborhood-level were grand mean centered for model-based analyses.

RESULTS

Sample Characteristics

Our sample included 10,962 adolescent respondents in 3,354 neighborhoods. The average number of adolescents per neighborhood was 3.3, with a minimum of 1 to a maximum of 97. Approximately 49.6% of our total sample identified as female. The age of respondents ranged from 11-19 years, with the average age of the sample being 15.9 years. Across the entire sample, 8.3% were 1st generation, 12.9% were 2nd generation and 78.8% were 3rd generation-or-later immigrants. Table 1 presents the weighted socio-demographic characteristics of our study sample by immigrant generational status and Table 2 presents the weighted prevalence of body image distortion among males and females across immigrant generational status. Across all adolescents, 25.7% were classified with underweight body image distortion and 9.7% were classified with overweight body image distortion. Second generation immigrant males reported the highest prevalence of underweight body image distortion at 36.0%. This was followed by 3rd generation-or-later males (35.6%) and 1st generation immigrant males (27.2%), respectively. First and 3rd generation-or-later females had similar prevalence rates of overweight body image distortion at 14.8%, followed by 2nd generation immigrant females at 14.6%.

The predicted response probabilities for body image distortion were 0.65 for no body image distortion, 0.25 for underweight body image distortion and 0.09 for overweight body image distortion. The between-neighborhood variation

in underweight and overweight body image distortion was 1.6 % ($p < .05$) and 1.3 %, respectively.

Research Question 1: Is there an unadjusted association between immigrant generational status, neighborhood concentration of immigrants and adolescent body image distortion?

Unadjusted models considering the influence of immigrant generational status and neighborhood concentration of immigrants on our body image distortion outcomes (not shown) were mostly, non-significant. The one exception was the association between neighborhood immigrant concentration and overweight body image distortion. Specifically, adolescents living in a neighborhood with a higher concentration of immigrants were found to be at significantly greater odds for experiencing overweight body image distortion (OR = 1.55, CI₉₅ = 1.08, 2.22, $p = 0.03$).

Research Question 2: Is adolescent sex significantly associated with body image distortion and does immigrant generational status modify this relationship?

Table 3, Model 1 considers the influence of immigrant generational status on body image distortion while adjusting for adolescent age and sex. As expected, compared to males, females were significantly more likely to experience overweight body image distortion (OR = 3.16, CI₉₅ = 2.62, 3.80) and significantly less likely to experience underweight body image distortion (OR = 0.38, CI₉₅ = 0.34, 0.43). In addition, a significant interaction between 1st generation

immigrant status and adolescent sex was found for underweight body image distortion. Specifically, first generation immigrant females were significantly more likely than their 3rd generation-or-later peers to experience underweight body image distortion (OR = 1.60, CI₉₅ = 1.19, 2.14, Figure 1). For overweight body image distortion, no significant interaction between immigrant generational status and sex was found.

Research Question 3: After adjusting for adolescent age and sex, is neighborhood immigrant concentration associated with body image distortion and does immigrant generational status modify this relationship?

Table 3, Model 2 demonstrates that after accounting for adolescent age and sex, neighborhood immigrant concentration was not associated with underweight or overweight body image distortion.

Research Question 4: Is adolescent body dissatisfaction significantly associated with body image distortion and does immigrant generational status modify this relationship?

Table 3, Model 3 considers the influence of body dissatisfaction on body image distortion. As expected, adolescents with body dissatisfaction were at significantly greater odds for experiencing underweight (OR = 1.30, CI₉₅ = 1.17, 1.44) and overweight body image distortion (OR = 2.84, CI₉₅ = 2.39, 3.37). Immigrant generational status modified the association between body dissatisfaction and underweight body image distortion, only. Specifically, body dissatisfaction significantly magnified the odds for underweight body image

distortion (OR = 1.62, CI₉₅ = 1.20, 2.20, Figure 2) among 1st generation immigrants.

Research Question 5: Does immigrant generational status modify the association between adolescent sex, body dissatisfaction, neighborhood concentration of immigrants and body image distortion even after accounting for family and neighborhood-level socio-economic disadvantage and adolescent depressive symptoms?

Model 4 in Table 3 adjusts for family and neighborhood socio-economic disadvantage and adolescent depressive symptoms. The previously reported estimates remained consistent and significant in this final model. In addition, a significant main effect was found for Black racial/ethnic status on underweight and overweight body image distortion. Black adolescents were at significantly greater odds (OR = 1.30, CI₉₅ = 1.14, 1.48) for underweight body image distortion and lower odds (OR = 0.55, CI₉₅ = 0.44, 0.69) for overweight body image distortion compared to their Non-Hispanic-White peers. Adolescent depressive symptoms were found to have null effects on underweight body image distortion. However, those with depressive symptoms were at significantly greater odds for experiencing overweight body image distortion (OR = 1.04, CI₉₅ = 1.03, 1.05). Finally, none of the family and neighborhood-level indicators of socio-economic disadvantage were associated with underweight or overweight body image distortion.

DISCUSSION

Research investigating poor body image experiences among children and adolescents has been criticized for disproportionately focusing on non-immigrants and for failing to consider potential contextual effects on these experiences (Kimber et al., 2014a; Kimber, Couturier, Georgiades, Wahoush, & Jack, 2014b; Smolak, 2004). This is concerning given that the US is experiencing its highest ever proportion of children and adolescents living in an immigrant family and the majority of these individuals belong to a non-White or ethnic minority group (Nwosu et al., 2014). In addition, developmental research focusing on immigrants clearly demonstrates that these children and adolescents are raised in contexts marked by disproportionate levels of socio-economic disadvantage, racial and ethnic victimization, as well as oppression (Garcia Coll & Marks, 2012). Such experiences have been repeatedly linked to greater risk for poor physical and psychological sequelae during adolescence and the present study partially confirms this argument with respect to experiences of body image distortion. Informed by a socio-ecological model, this study used multi-level modeling to examine the relationships between adolescent immigrant generational status, sex, body dissatisfaction, neighborhood immigrant concentration and body image distortion among a nationally representative sample of 1st, 2nd and 3rd generation-or-later adolescents in the US. Immigrant generational status was associated with underweight body image distortion experiences, only. Sex and body dissatisfaction were found to be significantly associated with the experience of

underweight and overweight body image distortion; however, opposite associations between sex, underweight and overweight body image distortion were found. Finally, neighborhood-level immigrant concentration was not associated with body image distortion experiences.

Compared to males and consistent with previous literature, females were less likely to experience underweight body image distortion. The one exception to this finding was for 1st generation immigrants. Specifically, 1st generation immigrant females were significantly more likely than their 3rd generation-or-later peers to experience underweight body image distortion. That is, they were more likely to perceive their body weight to be lower than their actual weight status. It is possible that the disproportionate representation of Hispanic adolescents in our 1st generation group may be driving this interaction effect. Previous work with females who identify as Hispanic (Schooler & Daniels, 2014) or Black (Hesse-Biber, Howling, Leavy, & Lovejoy, 2004) have endorsed heavier body weights and shapes as an “ideal,” with females from these groups tending to select significantly larger body shapes as an “ideal” compared to those shapes selected by Caucasian females. Thus, it may be the case that the large proportion of 1st generation Hispanic females included in this study—despite having actual weights that fall within the average or overweight range—may have been more susceptible to underweight body image distortion. This would be the case if the perception of their body weight or shape fell short of an internalized culturally-informed “heavier-set” ideal. Future work should explore the influence of body

weight and shape ideals on female immigrants' experiences of body image distortion and the extent to which these associations are modified by one's race or ethnicity.

Previous work has found that, compared to males, females are significantly less likely to experience underweight body image distortion and the low prevalence of underweight body image distortion among females tends to further decrease over time (ter Bogt et al., 2006). However, our work suggests that this may not be the case for 1st generation immigrant females. Determining the extent to which ethnicity and body-weight ideals play a role in the body image distortion experiences of 1st generation immigrants will assist in disaggregating the extent to which these immigrant status-by-sex interactions for underweight body image distortion hold across various ethnic groups. In addition, following the body image distortion experiences among 1st generation immigrants over time will be important to determine the extent to which previously found patterns in relation to age and underweight body image distortion hold among the 1st generation immigrant population. It may be that, over time, the body image distortion experiences among 1st generation immigrant females mimic those of 3rd generation-or-later Americans. That is, they may be more likely to experience overweight body image distortion as they age or the longer that they reside in the US and are exposed to the body weight ideals espoused by 3rd generation-or-later Americans.

Previous research suggests that experiencing body dissatisfaction may place children and adolescents at greater risk for body image distortion. Similar results were found in the present study. Specifically, body dissatisfaction was associated with greater odds for experiencing underweight and overweight body image distortion. Notably, the effect of body dissatisfaction on the probability of adolescents' experiencing overweight body image distortion did not significantly differ across immigrant generational status. In addition, the effect of body dissatisfaction on adolescents' probability of experiencing underweight body image distortion did not differ between 2nd generation and 3rd generation-or-later Americans. However, 1st generation immigrant status was found to significantly modify the association between body dissatisfaction and underweight body image distortion. More specifically, the increased odds for underweight body image distortion among those with body dissatisfaction was magnified by 62% for 1st generation immigrants. These findings are particularly poignant given previous work that has linked body dissatisfaction and eating disordered behavior among 1st generation adolescents. In a representative, population-based study of foreign-born and North American-born adolescents in Canada, Magtoto and colleagues (2013) found that body dissatisfaction partially mediated the relationship between foreign-born status and binge eating behavior, with foreign-born adolescents who were experiencing body dissatisfaction being significantly more likely to engage in binge eating.

These as well as the findings from the present study point to critical importance of implementing body image promotion and body image distortion prevention programs for 1st generation adolescents that help to support a developmentally appropriate understanding of healthy body weights and shapes. Similarly, it is possible that the body dissatisfaction by 1st generation immigrant status interaction is tapping into aspects of “acculturative” stress, which may be driving the significantly higher odds for 1st generation immigrants with body dissatisfaction to experience underweight body image distortion. For example, first generation immigrant adolescents are required to attend school on a regular basis soon after relocating to the US. In these contexts, foreign-born adolescents are forced to interact with peers, educational materials, educators and social circumstances that resemble the behaviors and values of Western culture, a culture which has been found to have tremendous emphasis on appearance—specifically slimness and muscularity for females and males, respectively. It is possible that, through these interactions, foreign-born adolescents may internalize a perceived difference regarding their own appearance versus that which is celebrated by their host-country and, in-turn, may experience a form of acculturative stress or distress in relation to their appearance compared to that of their peers.

A recent cross-sectional study of college-age males, completed by Warren and Rios (2013), supports the above hypothesis given that they found that acculturative stress (i.e., the perceived stress associated with adopting to a new

culture), rather than one's level of acculturation (i.e., the extent to which a new immigrant has adopted the values and behaviors of a new culture), was significantly associated with body image concerns. Unfortunately, no study has investigated these phenomena in relation to body dissatisfaction and body image distortion among immigrant adolescents and we were unable to explore these potential relationships in the present study. Prospective, longitudinal surveys designed with adequate power to explore and explain these mechanisms.

The adjustment for individual and neighborhood-level covariates known to be associated with various psychological outcomes produced little change in the odds ratios between our explanatory variables of interest, their interaction terms and our body image distortion outcomes. This is surprising given previous literature documenting the extent to which neighborhood concentration of poverty is associated with mental health problems among non-immigrant children and adolescents. In addition, it is important to note that neighborhood concentration of immigrants did not confer a magnified risk, nor a protective effect, on the odds of experiencing underweight or overweight body image distortion. These findings align with previous work that has demonstrated null effects of this neighborhood-level characteristic on mental health problems among children and adolescents in the US (Lara-Cinisomo et al., 2013). Given this information, one could argue that individual-level factors, rather than neighborhood-level characteristics, appear to account for a higher proportion of underweight and overweight body image distortion risk. This is further supported by the significant effects found for the

individual-level variables of age, race/ethnicity and depressive symptoms on our body image distortion outcomes.

What remains to be explained is the significant percentage of neighborhood-level variation in our underweight body image distortion outcome. Specifically, our null model determined that 1.6% of the variation in our underweight body image distortion outcome could be accounted for at the neighborhood-level. It is possible that we did not appropriately tap into the neighborhood-level characteristic that is driving this between-neighborhood variation. One potential area for future exploration is the extent to which congruence between an adolescent's immigrant generational status, their race and ethnicity and the immigrant/race/ethnic composition of their neighborhood may influence their risk for body image distortion. While results have been mixed, a small number of studies with representative samples in UK and the US demonstrate a protective effect for individual and neighborhood immigrant, ethnic and racial congruence on mental health outcomes (Das-Munshi, Becares, Dewey, Stansfeld, & Prince, 2010; Shaw et al., 2012). In addition, a recent paper by Georgiades and colleagues (2013) used the school sample of the National Longitudinal Study of Adolescent Health to examine the influence of immigrant generational status and racial/ethnic congruence on emotional and behavioral problems among adolescents. The authors found that immigrant and racial/ethnic congruence between adolescents and the composition of their school was negatively associated with emotional and behavioral problems, for most of the

immigrant-racial-ethnic sub-groups examined. The extent to which congruence between adolescent's immigrant, racial and ethnic status and the immigrant, racial and ethnic composition of their neighborhood may be protective against underweight or overweight body image distortion, remains to be explored.

While the present study does make significant contributions to our understanding of the experiences of body image distortion among immigrant adolescents, it is not without its limitations. First, the cross-sectional nature of our study sample precluded the ability to consider the temporal sequencing of study-related variables. Therefore, we cannot proclaim any cause-effect relationships. However, the comprehensive nature of the dataset did allow for the ability to control a number of well-known body image distortion covariates. These included depressive symptoms, age, race/ethnicity and socio-economic disadvantage. Second, the grouping of 1st, 2nd and 3rd generation-or-later adolescents assumes a certain level of homogeneity within these groups and may mask some important within group differences that could influence adolescent underweight and overweight body image distortion risk. While we commented on some of the unique body size and weight preferences shown in previous literature with Black and Hispanic adolescents, other qualitative and quantitative work with adolescents originating from East Asia (e.g., China and Korea) shows a preference for slender body weights and shapes. This suggests that underweight and overweight body image distortion experiences may vary for 1st generation immigrants originating from Africa, Central/South America and East Asia (Swami et al., 2010; Xu et al.,

2010). Future work with adequate sample sizes should aim to disaggregate these potential ethnic and cultural differences and the extent to which country of origin and cultural affinity may influence the underweight and overweight body image distortion experiences among immigrant adolescents.

Third, we were unable to explore the extent to which perceptions of adiposity or muscularity had any effect on the prevalence and risk for body image distortion within our study sample. A growing amount of literature indicates that for both males and females, their perception of their own “fatness,” “leanness” and/or “muscularity”—not just their actual weight status—plays a role in the extent to which they experience body dissatisfaction and body image distortion (Eisenberg, Wall, & Neumark-Sztainer, 2012). In addition, the perception of one’s muscularity plays a critical role in the diagnosis of body dysmorphic disorder, a severe form of mental illness that has a lifetime prevalence of approximately 2% (Phillips et al., 2010). Given this information, future work that incorporates perceptual measures of adiposity and muscularity and the extent to which these variables impact the body image distortion experiences of immigrant adolescents, is warranted.

Conclusion

Changes in social and biological processes during the adolescent time-period creates a heightened sensitivity and vulnerability to body image concerns (Smolak, Striegel-Moore, & Levine, 1996). Couple this information with the fact that immigrants develop in markedly more stressful contexts than their non-

immigrant peers, then one can argue that understanding the link between immigrant-specific experiences and body image concerns is vital to support these adolescents well-being. This study demonstrates that immigrant generational status differentially influences body image distortion experiences and must be taken into consideration in the prevention and intervention for body image and weight-related sequelae. Specifically, front line clinicians and public health personnel must incorporate prevention and intervention practices that appropriately couple behavior change strategies and cultural competence to address maladaptive body-weight ideals. In addition, while the present study did not find evidence for the association between neighborhood concentration of immigrants, neighborhood concentration of socio-economic disadvantage and adolescent body image distortion, the importance of neighborhood and contextual influences on adolescent body image concerns—and mental health more generally—should not be minimized. Neighborhoods represent important and modifiable contexts for public health interventions to improve the mental health of the population (Kawachi & Berkman, 2003). Given that nearly 2% of the variation in adolescent body image distortion in the present study could be attributed to neighborhood characteristics, but remained unexplained, suggests that future work should consider the extent to which other neighborhood factors may be associated with adolescent body image distortion experiences. Finally, this study clearly demonstrated that body dissatisfaction is significantly and positively associated with body image distortion among adolescents and this is

especially the case among first generation immigrants. Prevention programs that target 1st generation immigrant children and adolescents' and which help support the development of healthy cognitions in relation to weight and shape are likely to reduce the onset and prevalence of body image distortion among these adolescents.

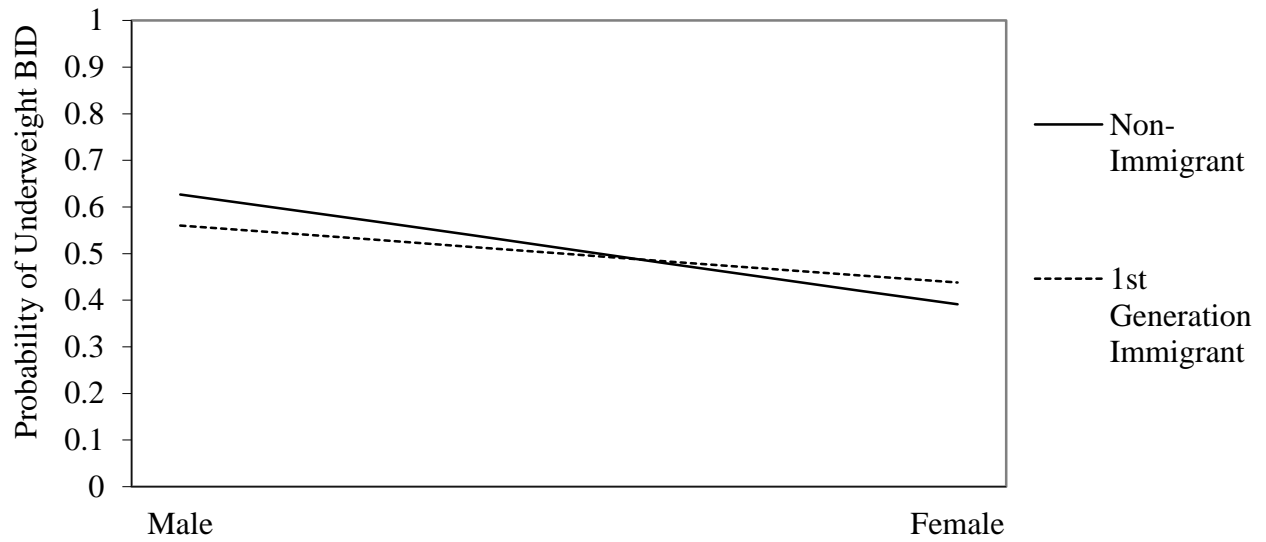


Figure 1. An interaction plot for 1st generation immigrant status and adolescent sex. This figure illustrates that 1st generation immigrant status modifies the association between adolescent sex and the risk for underweight body image distortion.

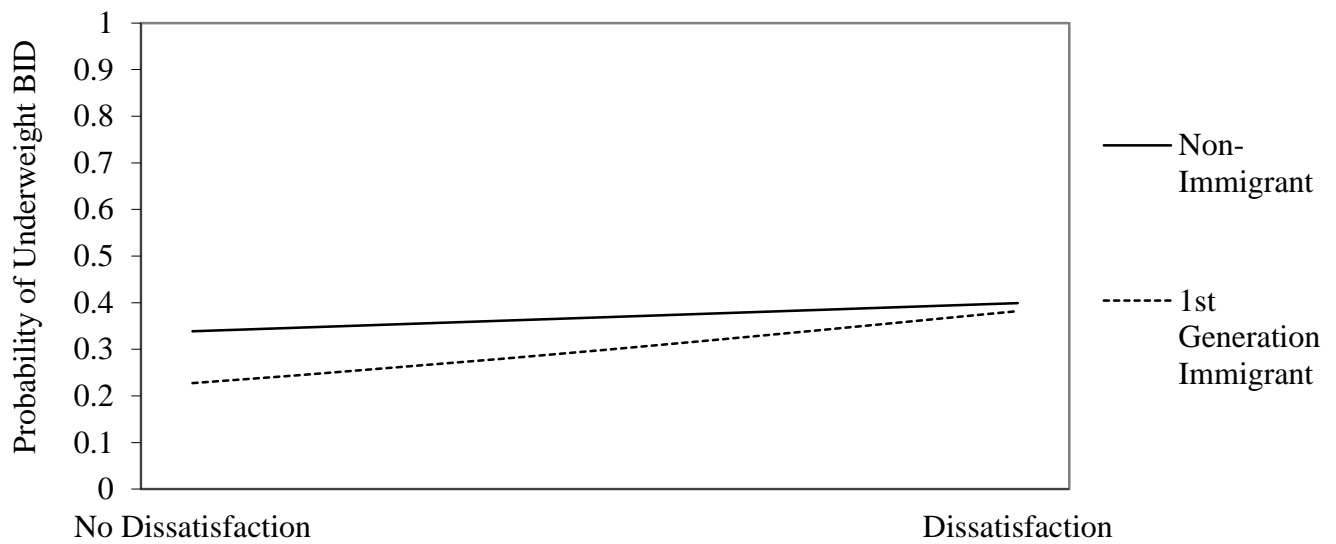


Figure 2. An interaction plot for 1st generation immigrant status and body dissatisfaction. This figure illustrates that 1st generation immigrant status modifies the association between adolescent body dissatisfaction and the risk for underweight body image distortion.

Table 1

Characteristics of Add Health Respondents by Immigrant Generational Status

| Characteristic | 1 st Generation Immigrants (n = 1,204) ^a | 2 nd Generation Immigrants (n = 1889) ^a | 3 rd Generation-or- later Immigrants (n = 7869) ^a | Overall Sample (n=10,962) ^a |
|--|--|---|---|---|
| Individual-level characteristics (%) | | | | |
| Sex (female) | 52.5 ^b | 47.2 | 49.7 | 49.6 |
| Family structure | | | | |
| Two-parent home | 56.5 ^c | 59.0 ^d | 70.3 | 67.7 |
| Single-parent home | 37.5 ^c | 37.1 ^d | 23.7 | 26.6 |
| Other-types of living arrangements | 5.9 ^b | 3.8 ^d | 6.0 | 5.7 |
| Race/ethnicity | | | | |
| Hispanic | 44.9 ^c | 43.4 ^d | 4.1 | 12.5 |
| Non-Hispanic Black/ African American | 11.6 ^c | 9.1 ^d | 16.4 | 15.1 |
| Non-Hispanic American Indian | 0.3 ^{b,c} | 1.1 ^d | 2.6 | 2.2 |
| Non-Hispanic Asian | 23.1 ^{b,c} | 10.2 ^d | 0.6 | 3.7 |
| Non-Hispanic Other | 2.7 ^c | 3.4 ^d | 0.5 | 1.1 |
| Non-Hispanic White | 17.4 ^{b,c} | 32.8 ^d | 75.8 | 65.4 |
| Parental Education | | | | |
| Less than high school | 34.6 ^{b,c} | 23.7 ^d | 6.7 | 11.2 |
| Completed high school or equivalent | 20.9 ^{b,c} | 26.0 ^d | 33.6 | 31.6 |
| Technical certification/some college or university | 13.0 ^{b,c} | 18.2 ^d | 23.3 | 21.8 |
| Completed college or university or more | 31.5 ^c | 32.2 ^d | 36.4 | 35.4 |

| | | | | |
|---|------------------------------|----------------------------|---------------|---------------|
| Body dissatisfaction | 53.2 ^c | 52.8 ^d | 49.1 | 49.9 |
| Individual-level characteristics (M, SD) | | | | |
| Age | 16.17 (1.64) ^{b,c} | 15.71 (1.58) ^d | 15.83 (1.58) | 15.85 (1.59) |
| Body mass index | 22.61 (4.62) | 22.86 (5.24) | 23.00 (5.17) | 22.95 (5.13) |
| Depressive symptoms | 16.18 (5.71) | 16.35 (5.63) | 16.57 (5.71) | 16.51 (5.70) |
| Family income | 29.03 (39.96) ^{b,c} | 39.86 (43.12) ^d | 47.10 (49.88) | 44.67 (48.59) |
| Proportion of immigrants (M, SD) | 0.22 (0.23) ^{b,c} | 0.15 (0.18) ^d | 0.04 (0.06) | 0.07 (0.12) |
| Neighborhood socio-economic disadvantage (M, SD) | | | | |
| Proportion of female headed households with children | 0.08 (0.08) ^{b,c} | 0.07 (0.07) ^d | 0.07 (0.07) | 0.07 (0.07) |
| Proportion of persons with income below 1989 poverty line | 0.18 (0.15) ^{b,c} | 0.15 (0.14) ^d | 0.14 (0.14) | 0.14 (0.14) |
| Proportion of persons ≥ 25 years old with no high school diploma | 0.33 (0.20) ^{b,c} | 0.30 (0.18) ^d | 0.26 (0.15) | 0.27 (0.15) |
| Proportion of individuals unemployed | 0.09 (0.06) ^{b,c} | 0.08 (0.06) ^d | 0.07 (0.06) | 0.08 (0.06) |

Note: ^a Unweighted sample size; estimates based on weighted data ^b Significant difference in mean concentration between 1st and 2nd generation immigrants at $p < .05$ ^c Significant difference in mean concentration between 1st and 3rd generation immigrants at $p < .05$ ^d Significant difference in mean concentration between 2nd and 3rd generation immigrants at $p < .05$
^e Note: Family income is reported in the thousands. Therefore, the average family income among 1st generation immigrants before taxes was approximately \$29,000

Table 2

Prevalence of body image distortion by immigrant generational status and gender

| | 1 st Generation Immigrants (n = 1,204) ^a | | 2 nd Generation Immigrants (n = 1889) ^a | | 3 rd Generation-or-later Immigrants (n = 7869) ^a | | Overall Sample (n=10,962) ^a | |
|------------------------|---|-------------------------------------|--|-------------------------------------|---|--------------------------------------|---|--------------------------------------|
| | Male (n=567) ^a % | Female (n=637) ^a % | Male (n=961) ^a % | Female (n=928) ^a % | Male (n=3808) ^a % | Female (n=4061) ^a % | Male (n=5336) ^a % | Female (n=5626) ^a % |
| No distortion | 66.6 | 66.0 | 60.0 | 65.7 | 59.7 | 69.9 | 60.3 | 69.0 |
| Underweight distortion | 27.2 | 19.2 | 36.0 | 19.5 | 35.6 | 15.3 | 35.0 | 16.2 |
| Overweight distortion | 6.0 | 14.8 | 4.0 | 14.6 | 4.7 | 14.8 | 4.7 | 14.8 |

Note: ^a Unweighted sample size; estimates based on weighted data

Table 3

Multilevel multinomial logistic regression models

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|-------------------------------|---|--|---|--|---|--|---|--|
| | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion |
| | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) |
| Intercept (SE) | -0.53 | -2.76 (0.08) | -0.54 (0.04) | -2.75(0.09) | -0.67 (0.05) | -3.36 (0.10) | -0.81 (0.13) | -3.27 (0.20) |
| Individual-level influences | | | | | | | | |
| Immigrant generational status | | | | | | | | |
| 3 rd Generation | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| 2 nd Generation | 0.99 (0.85, 1.15) | 0.99 (0.69,1.43) | 1.05 (0.89,1.24) | 0.90 (0.61,1.33) | 1.10 (0.89,1.35) | 0.79 (0.48,1.29) | 1.01 (0.81,1.26) | 0.76 (0.46,1.27) |
| 1 st Generation | 0.75 (0.62, 0.92) | 1.20 (0.80,1.79) | 0.77 (0.61,0.96) | 1.17 (0.76,1.80) | 0.57 (0.42,0.76) | 0.97 (0.56,1.67) | 0.51 (0.37,0.69) | 0.99 (0.57,1.74) |
| Age | 0.98 (0.85, 1.15) | 1.14 (1.10,1.19) | 0.98 (0.95,1.01) | 1.14 (1.09,1.19) | 0.97 (0.95,1.00) | 1.14 (1.09,1.19) | 0.97 (0.95,1.00) | 1.13 (1.08,1.18) |
| Sex (female) | 0.38 (0.34, 0.43) | 3.16 (2.62,3.80) | 0.38 (0.34,0.43) | 3.17 (2.63,3.81) | 0.38 (0.34,0.42) | 3.05 (2.53,3.68) | 0.38 (0.34,0.42) | 2.82 (2.33,3.40) |
| Body dissatisfaction | -- | -- | -- | -- | 1.30 (1.17,1.44) | 2.84 (2.39,3.37) | 1.27 (1.14,1.41) | 2.84 (2.39,3.39) |
| Race/ethnicity | | | | | | | | |
| Non-Hispanic White | -- | -- | -- | -- | -- | -- | 1.00 | 1.00 |
| Hispanic | -- | -- | -- | -- | -- | -- | 1.11 (0.93,1.32) | 0.83 (0.64,1.08) |
| Black | -- | -- | -- | -- | -- | -- | 1.30 (1.14,1.48) | 0.55 (0.44,0.69) |

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|--|---|--|---|--|---|--|---|--|
| | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion |
| | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) |
| Asian | -- | -- | -- | -- | -- | -- | 1.28 (1.03,1.59) | 1.07 (0.79,1.47) |
| American Indian | -- | -- | -- | -- | -- | -- | 1.18 (0.86,1.62) | 0.85 (0.52,1.40) |
| Other | -- | -- | -- | -- | -- | -- | 1.12 (0.71,1.78) | 1.06 (0.56,2.01) |
| Family structure | | | | | | | | |
| Other arrangements | -- | -- | -- | -- | -- | -- | 1.00 | 1.00 |
| One-parent homes | -- | -- | -- | -- | -- | -- | 1.31 (1.07,1.61) | 0.95 (0.71,1.27) |
| Two-parent homes | -- | -- | -- | -- | -- | -- | 1.23 (1.00,1.50) | 1.08 (0.82,1.42) |
| Parental education | | | | | | | | |
| Less than high school | -- | -- | -- | -- | -- | -- | 1.00 | 1.00 |
| Completed high school | -- | -- | -- | -- | -- | -- | 0.85 (0.73,1.00) | 0.99 (0.78,1.27) |
| Technical certification/some college or university | -- | -- | -- | -- | -- | -- | 0.87 (0.74,1.04) | 1.06 (0.82,1.37) |
| Completed college or university or more | -- | -- | -- | -- | -- | -- | 0.86 (0.73,1.02) | 1.03 (0.80,1.32) |
| Family income | -- | -- | -- | -- | -- | -- | 1.00 (1.00,1.00) | 1.00 (1.00,1.00) |
| Depressive symptoms | -- | -- | -- | -- | -- | -- | 1.00 (1.00,1.01) | 1.04 (1.03,1.05) |
| Neighborhood-level influences | | | | | | | | |

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|--|---|--|---|--|---|--|
| | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion | Underweight Body Image Distortion | Overweight Body Image Distortion |
| | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) | Odds Ratio (95% CI) |
| Proportion of 1 st generation immigrants | -- | -- | 0.82 (0.42,1.60) | 1.29 (0.50,3.29) | 0.78 (0.40,1.53) | 1.22 (0.47,3.15) | 0.66 (0.33,1.31) | 1.59 (0.58,4.35) |
| Proportion of persons with income below 1989 poverty line | -- | -- | -- | -- | -- | -- | 0.79 (0.45,1.39) | 0.66 (0.27,1.62) |
| Proportion of female headed households with children | -- | -- | -- | -- | -- | -- | 1.06 (0.43,2.64) | 1.29 (0.29,5.75) |
| Proportion of individuals unemployed | -- | -- | -- | -- | -- | -- | 1.19 (0.39,3.64) | 0.91 (0.15,5.41) |
| Proportion of persons ≥ 25 years old with no high school diploma | -- | -- | -- | -- | -- | -- | 1.58 (1.02,2.47) | 0.63 (0.32,1.24) |
| Interaction Terms | | | | | | | | |
| Sex * 1 st generation immigrant status | 1.60 (1.19, 2.14) | 0.96 (0.60,1.51) | 1.60 (1.19,2.14) | 0.96 (0.60,1.51) | 1.65 (1.23,2.22) | 1.02 (0.64,1.61) | 1.65 (1.23,2.22) | 1.05 (0.66,1.67) |
| Sex * 2 nd generation immigrant status | 1.15 (0.90, 1.46) | 1.12 (0.74,1.69) | 1.14 (0.89,1.45) | 1.12 (0.74,1.70) | 1.15 (0.90,1.47) | 1.20 (0.79,1.83) | 1.16 (0.91,1.48) | 1.26 (0.82,1.92) |
| Proportion of 1 st generation immigrants * 1 st generation immigrant status | -- | -- | 1.15 (0.49,2.73) | 0.84 (0.26,2.73) | 1.21 (0.51,2.86) | 0.89 (0.27,2.94) | 1.30 (0.54,3.12) | 0.87 (0.25,3.03) |
| Proportion of 1 st generation immigrants * 2 nd generation immigrant status | -- | -- | 1.14 (0.89,1.45) | 1.35 (0.42,4.33) | 0.77 (0.33,1.80) | 1.17 (0.36,3.81) | 0.77 (0.33,1.80) | 1.25 (0.37,4.24) |
| Body dissatisfaction * 1 st generation immigrant status | -- | -- | -- | -- | 1.62 (1.20,2.20) | 1.26 (0.80,1.98) | 1.65 (1.22,2.23) | 1.20 (0.76,1.89) |
| Body dissatisfaction * 2 nd generation immigrant status | -- | -- | -- | -- | 0.92 (0.72,1.16) | 1.10 (0.73,1.66) | 0.93 (0.73,1.17) | 1.08 (0.71,1.63) |

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CHAPTER SIX

DISCUSSION

Not to have confidence in one's body is to lose confidence in oneself

–Simone de Beauvoir (*The Second Sex*, 1959, pp. 332)

Poor body image—including body image dissatisfaction and body image distortion—has been robustly and extensively linked to a range of serious morbidities. These include obesity, eating disorders, anxiety and depression (Brausch and Gutierrez 2009; Stice and Bearman 2001; Rohde et al. 2015; Sonnevile et al. 2012). In addition, a breadth of literature demonstrates that poor body image is a global concern, with children and adolescents on all five of the world's continents shown to experience this phenomenon (e.g. Swami et al. 2010). Yet, we know very little about the body image experiences of immigrant children and adolescents in Canada and the US. This is concerning for a number of reasons. First, North America has been recognized as an influential area of the world with respect to establishing and reinforcing problematic body image ideals through pervasive social and popular media campaigns (Smolak and Thompson 2009). Second, both Canada and the US are among the top five immigrant receiving nations in the world (OECD 2014). In Canada, the immigration arrival rate contributes more to the country's population growth than natural means of population increases; with approximately 20.6% of Canada's current population being foreign-born (Statistics Canada 2013). Similarly, one-fifth of the world's international migrants live in the US, accounting for approximately 14% of the

current US population (Nwosu et al. 2014). Most importantly, approximately 30% of children and adolescents under the age of 18 years in Canada and 25% of similarly-aged children and adolescents in the US are living in an immigrant family (Statistics Canada 2013; Oabrera and The SRDC Ethic & Racial Issues Committee 2013). If one considers that the country-level costs of intervening with children and adolescents living with obesity, eating disorders, anxiety and depression can each exceed billions of dollars on an annual basis, then body image dissatisfaction and body image distortion research, prevention and intervention among immigrant and ethnic minority children and adolescents in Canada and the US is of public health importance (Canadian Psychological Association 2014; Public Health Agency of Canada 2011; Crow 2014; Greenberg et al. 1999; Hammond and Levine 2010; Paxton et al. 2012; Stephens and Joubert 2001). The preceding chapters (Studies 1,2,3 and 4 described in chapters 2,3,4 and 5) attempt to fill a void in the existing evidence base relating to the experience of body image dissatisfaction and body image distortion among immigrant children and adolescents in Canada and the US. Each of the included studies addresses a limitation of the existing literature and provides empirically based recommendations for advancing the epidemiological and clinical domains of body image research, prevention and intervention. The present chapter summarizes the primary results and implications of each of the aforementioned studies, discusses the broader strengths and limitations of the present body of work and provides recommendations for future inquiry.

Important Findings and Implications

Results from Study 1 characterize the dismal degree of attention that has been paid to the body image experiences of immigrant children and adolescents in Canada and the US. The study's scoping review methods identified only twelve studies which have investigated body image dissatisfaction among this population; and all of these studies were published between 1991 and 2010. Notably, no studies had been conducted in Canada during the review time period—which spanned more than six decades (January 1946 to November 2012). This is a particularly poignant finding given that during this time period, both Canada and the US experienced a near tripling of children and adolescents living in an immigrant family (Mather 2009; Statistics Canada 2006).

The limited evidence found in Study 1 indicates that the body of work has disproportionately used quantitative research methods ($n = 10$), primarily focused on females ($n = 7$) and almost exclusively focused on children and adolescents of Latino/Hispanic/Mexican-American origins ($n = 11$; hereafter referred to as Latino). In addition, only three of the included studies had an explicit objective of examining the body image experiences of immigrant children and adolescents. While the over-representation of Latino children and adolescents in the existing literature aligns with the large proportion of annual immigration coming from Latin America to the US, it fails to represent the experiences of children and adolescents who differ from this group with respect to their cultural or ethnic origins. Specifically, 4.8%, 4.6% and 4.2% of children and adolescents living in

immigrant family in the US have origins in India, the Philippines and China, respectively (Oabrera and The SRCD Ethnic and Racial Issues Committee 2013). In Canada, a large proportion of immigrant children and adolescents have family origins in South-Eastern Asia (15%), Southern Asia (14%) Eastern Asia (11%) and the Middle East (10%) (Statistics Canada 2014). Given this information, the primary implications of Study 1 are threefold. First, large scale, representative studies in Canada and the US are needed in order to adequately characterize the extent of body image dissatisfaction among immigrant children and adolescents in both nations and the extent to which being an immigrant, living in an immigrant family or being a multi-generation Canadian or American significantly influences the experience of body image dissatisfaction. Second, qualitative studies are needed to describe the lived experience of body image dissatisfaction among immigrant children and adolescents. The only qualitative study included in the review suggests that the body image experiences of Latino immigrants are different than those of multi-generation Americans (Gonzalez 2007). However, without confirmation of these findings across adolescents belonging to various cultural or ethnic groups, we risk erroneously assuming that body image is a static phenomenon that can continue to be assessed with the same measures and methods that have been historically applied in the body image field. Finally, only five of reviewed studies included males and each of these studies indicate that body image dissatisfaction is a significant concern among this group. The implication of this finding is that compared to females, we know even less about

the body image experiences of male immigrant children and adolescents and a concerted effort must be made to investigate body image experiences among this segment of the population in Canada and the US.

Given that a large proportion of immigrant children and adolescents in Canada and the US also belong to an ethnic minority group (Statistics Canada 2014; Oabrera and The SRCDC Ethnic and Racial Issues Committee 2013), Study 2 used similar methods as Study 1 to systematically synthesize the qualitative and quantitative literature focusing on the body image experiences of ethnic minority children and adolescents. A slightly larger body of literature was found ($n = 33$). However, again, none of the sources originated from Canada. Similar limitations of the evidence base were found in Study 2 that relate to those reported for Study 1. These include the disproportionate focus of research on females, Latino populations and the use of quantitative research methods. Novel results from Study 2 suggest *consistent inconsistencies* within and across studies investigating body image dissatisfaction among various ethnic minority groups. That is, compared to non-ethnic minority children and adolescents, those who are an ethnic minority have found to be at greater and lower risk for body image dissatisfaction. The one exception was for literature focusing on body image dissatisfaction among Black/African American children and adolescents. Review of this work indicates that generally speaking, Black children and adolescents tend to experience less body image dissatisfaction compared to their White/Caucasian peers. An additional and critical finding is that authors of

previous studies tend to conflate adolescents' immigrant status with their race or ethnicity. This is particularly concerning given that epidemiological research has shown that one's immigrant generational status, ethnicity and race are distinct aspects of identity upon which varying domains of social, physical and psychological health have been independently linked (Acevedo-Garcia et al. 2012; Adler and Rehkopf 2008). Informed by the theory of intersectionality (see Bowleg 2012), future work should consider the independent and combined contribution of immigrant, racial and ethnic identity on the experiences of body image dissatisfaction among children and adolescents in Canada and the US.

Results of Study 3 add to the limited knowledge about the experience of body image dissatisfaction among immigrant adolescents by demonstrating that the emphasis on body weight and shape ideals in the field of body image is too limited. Specifically, this study indicated that greater attention must be paid to adolescents' dissatisfaction with aspects of appearance that fall outside of one's weight and body shape—such as one's teeth, bone structure, eyes, hair, and skin. Only by doing so, can the field gain a comprehensive understanding of the extent of body image dissatisfaction plaguing adolescents in the North American context. In addition, male and female immigrant adolescents with and without eating disorders described a paradoxical slim-and-curvy ideal body shape for females. Although the notion of 'curves' has been investigated and described elsewhere in the literature (e.g. see Schooler and Daniels 2014), the persistent emphasis on 'slim' AND 'curvy' amongst adolescents un-diagnosed AND

diagnosed with eating disorders, is novel. There has yet to be any empirical investigation into the appropriate measurement of this appearance ideal and the extent to which this ideal is associated with any greater or less body image distress than what has previously been found in the literature. Study 3 also found a consistent and troubling alignment between appearance and social status amongst eating disordered and non-eating disordered adolescents; meaning that adolescents perceived that their appearance status was directly related to their social status. Specifically, adolescents reported that typically, individuals who resemble male and female body image ideals are more successful and more liked than individuals who do not resemble the ‘socially accepted or promoted’ ideal body weight, shape and appearance. These findings suggest that challenging cognitive distortions that equate appearance and social status may play an important role in reducing the internalization of problematic body weight, shape and appearance ideals. For example, it would be prudent for interventions to provide adolescents’ exposure to individuals who fall outside of the typical appearance ideals, but who also have positive health, social and employment experiences. Doing so presents the opportunity—particularly amongst immigrant adolescents—to challenge the equating of appearance status with social status; and therefore, reduce the problematic notion that only by looking a certain way can one be successful in the Canadian or US context.

In the absence of nationally representative studies examining the experience of body image dissatisfaction and body image distortion among immigrant adolescents, Study 4's secondary data analysis of the Add Health survey showed that a significant proportion of our 1st, 2nd and 3rd generation (or later) adolescents experienced body image dissatisfaction (1st Gen = 53.2%, 2nd Gen = 52.8%, 3rd Gen = 49.1%). In addition, body image dissatisfaction was found to be robustly associated with underweight and overweight body image distortion. Most notably, compared to 3rd generation-or-later adolescents, 1st generation immigrant females and 1st generation immigrants with body image dissatisfaction were at significantly greater odds for experiencing underweight body image distortion. In addition, none of our socioeconomic disadvantage indicators at the neighbourhood or individual-level were associated with underweight or overweight distortion risk. The contribution of these findings to the field of epidemiological research on body image is the importance of explicitly considering immigrant generational status as an important indicator of risk for body image dissatisfaction and body image distortion. Secondly, mitigating individual and neighbourhood-level socioeconomic disadvantage does not independently reduce the risk of body image distortion; which is contrary to other forms of mental health problems among children and adolescents (Rudolph et al. 2014; Kling et al. 2007; McLaughlin et al. 2011). Rather, it appears that the individual-level factors considered in this study (e.g. age, sex, immigrant status, and ethnicity) appear to account for a higher proportion of underweight and

overweight distortion risk. Thus, results from Study 4 suggest that interventions to reduce body image distortion will likely be more optimal if delivered at the individual versus the community or neighbourhood-level.

Strengths and Limitations of this Body of Work

Strengths

This thesis presents a number of novel findings through the use of rigorous methodological and analytical approaches. First, Study 1 and Study 2 use evidence-based scoping review methodology to collate and synthesize the literature focusing on body image experiences among immigrant and ethnic minority children and adolescents. Previous reviews in the body image field are limited given their emphasis on females, quantitative research designs and peer-reviewed publications. Study 1 and 2 overcome these shortfalls by allowing for the inclusion of qualitative and quantitative publications, unpublished manuscripts (e.g. masters and doctoral theses) and grey literature reports; thereby limiting the extent of publication bias that may have influenced the synthesis of study findings. Notably, Study 1 was the first review—ever—to consolidate the research focusing on immigrant children and adolescents experiences of body image dissatisfaction within the Canadian and US context.

Study 3 was the first qualitative study to focus on the subjective experience of body image and body image dissatisfaction among immigrant adolescents in Canada. It was also the first study to investigate these experiences among immigrant adolescents with and without an eating disorder diagnosis.

While it was not the intent of the study to compare and contrast the body image experiences of immigrant adolescents with and without an eating disorder, the inclusion of a population and clinical sample provides greater confidence that the experiences described span the spectrum of body image dissatisfaction. In addition, Study 3 did not limit its recruitment to immigrants of a particular ethnic or racial group and therefore, the findings consist of body image and appearance perceptions that were consistent across various ethnic and cultural groups and 1st and 2nd immigrant generational status. We would argue that these findings provide an excellent platform from which to pose additional research questions with high clinical and epidemiological salience.

Study 4 was the first study to use a representative sample of adolescents to examine body image distortion across immigrant generational status in North America. Previous work examining the predictors and correlates of body image distortion among non-immigrant adolescents is limited by its exclusion of the construct of body image dissatisfaction (Blashill and Wilhelm 2014; Liechty 2010). Study 4 does consider the association between adolescent body image dissatisfaction and body image distortion and the extent to which immigrant generational status modifies this relationship. This study provides clear and compelling evidence for the argument that adolescent body image dissatisfaction is an important point of intervention to mitigate body image distortion risk among immigrant and non-immigrant adolescents.

Limitations

Although the findings of this thesis significantly contribute to the body image literature, they need to be considered in light of various limitations. First, non-English publications and reports were excluded from Study 1 and Study 2. However, this is believed to have minimal implications on the selection of literature given that the majority of empirical reports in Canada and the US are published in English or are available in English. However, this is a systematic source of bias that must be acknowledged. Relatedly, very few of the sources included in Studies 1 and 2 provided clear information with respect to whether or not their own study metrics and procedures could be completed by non-English speaking children or adolescents. This has important implications for immigrant children and adolescents, as a large proportion of this group in Canada and the US speak a language other than English inside their home (Grieco et al. 2012; Georgiades et al. 2011); thereby increasing the possibility of the systematic exclusion of immigrants who are not yet able to fluently speak English. Second, as per the recommendations of scoping review methodology, the rigor of the reviewed literature in Study 1 and Study 2 were not assessed using evidence-based metrics. However, both studies could not avoid methodological criticism as the synthesis of previous research revealed many shortcomings.

As with all qualitative studies incorporating purposeful sampling methods, this thesis cannot proclaim that the results from Study 3 are representative of the adolescent immigrant population, nor immigrant adolescents with or without

eating disorders (Creswell 2013). This is especially the case for immigrant adolescents in the US, as all of the adolescents sampled for Study 3 were currently living in Canada. Similarly, adolescents recruited for Study 3 were required to speak English. It would be prudent for future studies in Canada and the US to confirm Study 3's findings with an investigative research team trained in qualitative research methods and capable of speaking languages other than English.

In Study 4, Wave I and Wave II data from the National Longitudinal Study of Adolescent Health were combined to make a comprehensive cross-sectional data set capable of addressing the author's research questions. This cross-sectional design makes it impossible to make causal inferences about the variables of interest. In addition—and as with all secondary data analyses where the objective of the research differs from that which the data were originally collected—proxy variables were used for some constructs of interest. For example, a proxy variable regarding adolescents' current weight changing practices was used to denote their presence or absence of body image dissatisfaction. Although previous epidemiological and clinical work has used this 'proxy assessment' as an indicator of body image dissatisfaction (see work in Smolak and Thompson 2009), future work should aim to confirm Study 4's findings while incorporating the use of a more 'direct' and validated assessment of body image dissatisfaction; such as the Body Dissatisfaction Subscale of the Eating Disorder Inventory-3 (Garner 2004). Finally, Study 3 and Study 4

primarily focused on immigrant adolescents. Thus, researchers and clinicians must use caution when interpreting or attempting to apply the findings to the experiences of immigrant children under 12 (Study 4) and under 16 (Study 3) years of age.

Recommendations

The findings from this thesis suggest a number of avenues for future research, including:

1. The disaggregation of the influence of immigrant generational status, race and ethnicity on body image dissatisfaction and body image distortion. In doing so, researchers will be able to adequately understand the influence and contribution of each these aspects of identity on the prevalence and variation of body image dissatisfaction and body image distortion among children and adolescents.
2. Prospective longitudinal research that follows immigrants and non-immigrants over time to adequately determine the extent to which aspects of the ‘immigrant experience’ prospectively increase or decrease risk for psychological ill health; including body image dissatisfaction, body image distortion and their related sequelae. Notably, recent and compelling work by Garcia and colleagues (2001; 2012) is critical of the focus of epidemiological research on the ‘potentially negative’ impact of migration and acculturation on the health of immigrant children and adolescents. Their work argues that

researchers have made this implicit assumption because immigrant children and adolescents experience factors related to migration—for example relocation and change in financial status—that are uncommon to non-immigrants. And for this reason, some form of maladjustment is *expected* among the immigrant group and any findings to the contrary are conceptualized as an ‘immigrant paradox’. They argue further that this implicit assumption is largely driven by the propensity for immigrant research to rely on the experiences of multi-generation Canadians or Americans as the ‘reference group.’ They suggest that this may be misguided—as multi-generation Canadians and Americans have been repeatedly shown to be distinct in their sociocultural practices and behaviours from those characterizing the child and adolescent immigrant population. For these reasons, they suggest that it would be prudent for future work to examine similarities and differences in socio-and-psychological health between 1st and 2nd generation immigrants; as these individuals have greater similarity with respect to cultural and ethnic identity. In doing so, one can continue to explore the potential negative *or* positive influence of relocation, settlement and acculturation across 1st and 2nd generation immigrants. Thus, the longitudinal approach recommended herein, should incorporate adequate sample sizes of 1st, 2nd and 3rd generation-or-later children and adolescents to prospectively and comprehensively

investigate the influence of the ‘immigrant experience’ on the body image phenomenon.

3. Estimating the measurement equivalence of commonly used metrics of body image dissatisfaction. Study’s 1 and 2 found that previous literature has neglected to empirically justify their use of popular body image dissatisfaction measures within and across immigrant groups. This is particularly concerning given that a significant proportion of the measures employed in the reviewed studies were developed and normed with North American samples. In addition, the estimation and reporting of internal consistency reliability estimates for a given sample does not empirically confirm that the measure is conceptually understood across population groups (Gregorich 2006). Thus, tenable conclusions rely on the empirical demonstration of measurement equivalence. Future work should follow the guidelines provided by the measurement equivalence literature (see Byrne 2012; Gregorich 2006; Millsap and Yun-Tein 2004) to produce empirical evidence for the justification for the use of a measure with immigrant children and adolescents in the Canadian and US context.
4. Understanding the mediating and moderating mechanisms that underlie the developmental onset of body image dissatisfaction, body image distortion and their associated morbidities; including eating disorders, anxiety, depression, and obesity. Given the established link

between body image dissatisfaction, body image distortion, sex and the moderating effect of 1st generation immigrant status, more studies are needed to characterize the mechanisms underlying these relationships within and across males and females.

5. Development or adaptation and evaluation of targeted interventions to prevent or treat body image dissatisfaction and body image distortion among immigrant and non-immigrant children and adolescents. Study 3 provided important information regarding the experience of body image dissatisfaction among immigrant adolescents and the context in which their body image ideals and body image dissatisfaction is experienced and reinforced. It would be prudent to examine the extent to which the incorporation of these findings into evidence based interventions to prevent and treat these issues can enhance intervention efficacy. For example, schools represent optimal contexts for the prevention of body image dissatisfaction and body image distortion. First, all children and adolescents in Canada and the US are required to attend school until a certain age, which provides the opportunity for intense and prolonged exposure to prevention strategies. Second, schools have an intrinsic emphasis on a developmentally appropriate learning environment and are staffed with professionals having the education and capability to deliver standardized psychoeducational materials. Future work should evaluate the extent to which the

efficacious school-based prevention programs identified by Yager and colleagues (2013) can maintain their efficacy if adapted to incorporate the findings of the present thesis. In addition work should be done to examine the extent to which this thesis' findings can be incorporated into evidence-based interventions for eating disorders (e.g. Family-Based Treatment; le Grange and Lock 2007; Lock et al. 2001); of which, body image dissatisfaction and body image distortion plays a central role (American Psychiatric Association 2013).

6. The investigation of the subjective experience of body image and body image dissatisfaction among immigrant children is needed. Given that childhood is recognized as a distinct developmental period from adolescence and Study 3 was only able to include those 16 years of age or older, qualitative inquiry using semi-structured interviews or focus groups with children and adolescents under age 16 years may provide important insight into the developmental context of body image and body image dissatisfaction among immigrants in Canada or the US.
7. Contextual level influences on body image dissatisfaction and body image distortion. Study 4's null findings regarding the influence of neighbourhood-level socio-economic disadvantage on adolescent body image distortion does not preclude future research from considering contextual effects. Specifically, it would be important to extend the examination of contextual effects to the school setting, as Study 3

highlighted the importance of interactions with peers—in school and on social media—on adolescents’ perception and experience of their body image and body image dissatisfaction. In addition, previous work has shown significant within and between school differences on other aspects of child and adolescent mental health, including child and adolescent general well-being and emotional and behavioural problems. Future work may want to consider similar approaches to those employed by Georgiades et al. (2013), Konu et al. (2002), and Bond et al. (2004) to examine the extent to which characteristics and processes within and across schools may account for variance in body image dissatisfaction and body image distortion among immigrant and non-immigrant children and adolescents.

Conclusions

The contribution of this thesis to the field of epidemiological and clinical research on body image is the importance of considering immigrant generational status in the experience of body image dissatisfaction and body image distortion. Despite the vast amount of literature investigating the body image experiences of children and adolescents, our understanding about the onset, prevalence and correlates of body image dissatisfaction and body image distortion among immigrant children and adolescents in Canada and the US is limited. Results showed that an intersectional consideration of adolescents’ immigrant, racial and ethnic identity will assist in disaggregating the extent to which of each of these

aspects of identity are most influential in children and adolescents risk—or lack thereof—for body image dissatisfaction and body image distortion.

Taken together, these findings suggest that reducing body image dissatisfaction will assist in reducing the onset and prevalence of underweight and overweight body image distortion. In addition, a methodological and conceptual shift is needed with respect to epidemiological and clinical research and approaches to prevention and intervention for poor body image. Specifically, researchers, clinicians and public health professionals must think beyond the duality of body weight and shape to more comprehensively develop, adapt and evaluate body image prevention and intervention approaches that address all aspects of appearance-related concerns. Strategies that challenge ideals equating appearance and social status will help to disrupt the internalization of problematic cognitions that can contribute to children and adolescents' body image dissatisfaction and body image distortion.

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