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Résumé

De nombreuses recherches ont démontré l'importance de l'environnement social (ex. : parents, pairs, etc.) sur l'évolution de l'image corporelle, sur le développement des préoccupations en lien avec le corps et sur les comportements y étant associés (Lacroix et al., 2022; Quiles Marcos et al., 2013; Ricciardelli & Yager, 2016). Parmi les facteurs d'influence provenant de l'environnement social, le soutien social perçu et les commentaires négatifs émis sur le poids jouent un rôle clé (Eisenberg et al., 2017; Merianos et al., 2012; Morken et al., 2019). Ainsi, le présent essai doctoral s'intéresse à l'influence de l'entourage sur la satisfaction à l'égard de l'apparence des adolescents en explorant davantage le rôle des commentaires reçus et du soutien social.

Cet essai propose deux articles et s'inscrit dans le contexte d'un projet de recherche plus large visant l'évaluation du programme *Bien dans sa tête, bien dans sa peau* ayant pour objectif de promouvoir la santé et le bien-être des jeunes en misant sur l'adoption de saines habitudes de vie et sur le développement d'une image corporelle positive (Blackburn et al., 2019). Lors de cette évaluation, des jeunes en début et en mi-adolescence ont été recrutés dans deux écoles secondaires situées au Québec dont le niveau socio-économique était similaire, soit relativement favorisé. Ils ont complété à trois reprises pendant une période d'un an des questionnaires auto-rapportés portant entre autres sur la satisfaction à l'égard de l'apparence, le soutien social perçu de la part des parents et des amis, la silhouette actuelle perçue et les commentaires négatifs reçus en lien avec le poids.

Dans le premier article, l'objectif était d'explorer les changements dans la satisfaction à l'égard de l'apparence chez les adolescents selon le soutien social perçu sur une période d'un an. Parmi l'ensemble des participants, un échantillon de 337 jeunes (54 % de filles) de 1^{ère} secondaire (moyenne d'âge = 12,05 ans) et de 4^e secondaire (moyenne d'âge = 15,14 ans) a été retenu. Afin que les résultats ne soient pas affectés par l'intervention reçue, ces jeunes appartenaient au groupe contrôle. Des analyses de croissance multiniveaux ont révélé que le soutien social perçu de la part de la mère démontrait l'association la plus forte avec la satisfaction à l'égard de l'apparence, et que cette association se maintenait à travers l'année, représentant donc un facteur de protection. Le soutien social perçu de la part du père, quant à lui, n'était pas associé avec la satisfaction à l'égard de l'apparence. Également, percevoir du soutien social de la part des amis était associé à une amélioration de la satisfaction à l'égard de l'apparence, mais seulement chez les élèves plus âgés.

Le second article comportait deux volets et portait dans un premier temps sur l'étude des liens entre les commentaires négatifs sur le poids émis par l'entourage (mère, père, fratrie, amis, membres de la famille élargie, partenaire amoureux, professeur d'éducation physique ou entraîneur sportif) avec la satisfaction à l'égard de l'apparence et la peur de l'évaluation négative par autrui chez les adolescents. L'échantillon de cette étude était composé de 740 jeunes (51,5 % de filles) de 1^{ère} secondaire (moyenne d'âge = 12,1 ans) et de 4^e secondaire (moyenne d'âge = 15,2 ans). Les questionnaires portaient sur la silhouette actuelle perçue, la satisfaction à l'égard de l'apparence, la peur de l'évaluation

négative de l'apparence par autrui et les commentaires négatifs sur le poids. Les résultats révèlent que près de la moitié des participants ont déjà reçu des commentaires sur leurs poids d'au moins une personne au cours d'une année. Les modèles de régression linéaire multiples ont révélé que d'être une fille, d'être âgé entre 15 et 16 ans ou de percevoir sa silhouette comme étant forte, sont toutes des caractéristiques associées à une plus grande réception de commentaires et représentent donc des facteurs de risque. Les commentaires de la part des amis étaient les plus susceptibles de contribuer à l'insatisfaction à l'égard de l'apparence et à la peur de l'évaluation négative par autrui. Dans un deuxième temps, une exploration du contenu des commentaires négatifs sur le poids émis par l'entourage a été réalisée. L'analyse qualitative a relevé que les thèmes des commentaires négatifs reçus portaient principalement sur la prise de poids, le sous-poids ou des suggestions quant aux habitudes de vie.

Globalement, ces deux études démontrent que l'environnement social, lorsqu'il est sous forme de soutien, est associé positivement à la satisfaction à l'égard de l'apparence, alors qu'il peut y être associé négativement lorsqu'il se présente sous forme de commentaires négatifs sur le poids. Elles permettent également de mieux comprendre les contributions respectives de la mère, du père et des pairs, sur l'évolution de la perception de son image corporelle chez des adolescents. Certains facteurs de risque à l'insatisfaction à l'égard de l'apparence chez cette population ont également pu être identifiés, de même que les thèmes présents dans les commentaires sur le poids reçus en provenance de leur entourage. Les résultats obtenus aident aussi à mieux comprendre le vécu des adolescents,

à enrichir les écrits existants sur les associations entre la satisfaction à l'égard de l'apparence et l'entourage, ainsi qu'à déterminer des cibles de prévention et d'intervention pour l'élaboration de programmes portant sur l'image corporelle des adolescents.

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Liste des abréviations symboles ou sigles

BMI..... Body mass index

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Je suis reconnaissante envers de nombreuses personnes pour leur accompagnement dans la réalisation de cet essai doctoral. Tout d'abord, il importe de remercier mes directrices de recherche, mesdames Jacinthe Dion et Marie-Ève Blackburn, pour leur disponibilité, leur rigueur, leur soutien, leur patience et leur passion pour la recherche. Mes directrices m'ont fourni un encadrement bienveillant qui m'a certainement permis de m'améliorer sur le plan clinique. Je leur suis également très reconnaissante d'avoir suscité en moi un intérêt pour la recherche en psychologie, ainsi que de m'avoir permis d'augmenter mes connaissances et mes compétences grâce à de nombreuses expériences dans des domaines variés en tant qu'assistante de recherche à ÉCOBES, le Centre d'Étude des COnditions de vie et des BESoins de la population, et à la chaire de recherche VISAJ, qui contribue au développement et à la mobilisation des connaissances sur la Vie et la Santé des Jeunes.

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Introduction générale

L'insatisfaction corporelle est une problématique inquiétante chez les adolescents. Ce concept réfère notamment au décalage perçu entre le corps actuel de la personne et son idéal corporel (Thompson, 1990). L'insatisfaction corporelle peut être associée à de nombreuses conséquences chez cette population, tels que des impacts psychologiques négatifs (ex : faible estime de soi, symptômes dépressifs) (Duchesne et al., 2017; Paxton et al., 2006), des comportements problématiques associés au poids (ex : régimes, exercices physiques excessifs) (López-Guimerà et al., 2013; Neumark-Sztainer et al., 2006; Stephen et al., 2014; Fortier et Dion, 2019) et des chirurgies esthétiques (Biolcati et al., 2017; Kalweit & Bengel, 2015; Terry & Braun, 2013). Considérant que ces conséquences peuvent engendrer des impacts à long terme, il importe de se pencher sur les facteurs de protection et de risque associés à l'insatisfaction corporelle.

L'intérêt des chercheurs et des psychologues envers l'image corporelle est devenu très important depuis les années 1990 (Grogan, 2021). Il s'agit d'un concept multidimensionnel défini par les aspects psychologiques du corps, c'est-à-dire les pensées, les sentiments, les attitudes et les comportements que les individus entretiennent envers leur corps (Pruzinsky & Cash, 2002). Parmi les dimensions, on retrouve l'estime corporelle. Il s'agit d'une part importante de la construction multidimensionnelle de l'image corporelle et réfère plus précisément au jugement émotionnel que l'individu a

envers son propre corps (Franzoi & Shields, 1984). L'estime corporelle regroupe trois construits distincts, soit l'attribution d'évaluation positive des autres, la satisfaction du poids et la satisfaction à l'égard de l'apparence (Mendelson et al., 1996). Ce dernier construit réfère plus spécifiquement à l'appréciation du corps et de l'apparence générale. Il s'agit du concept qui sera exploré à travers le présent essai doctoral.

L'adolescence est une période de grands changements, tant aux niveaux physiques que psychologiques, ce qui peut avoir une incidence importante sur le niveau de préoccupation et de satisfaction face à l'apparence. Cette période de vie, survenant dans le contexte de la puberté, est par ailleurs importante pour le développement des habitudes de vie, de la santé physique et psychosociale (Calzo et al., 2012; Harden et al., 2014; Kilpela et al., 2015; Levine & Smolak, 2002). En effet, durant ce moment-clé de la formation d'une image corporelle positive ou négative, les jeunes sont sujets à développer une peur d'être critiqués ou évalués négativement par les autres, ce qui peut les rendre particulièrement vulnérables à souffrir d'une insatisfaction face à leur apparence (Beesdo et al., 2007; Voelker et al., 2015). Les filles comme les garçons sont à risque d'en souffrir en lien avec l'exposition aux pressions socioculturelles des standards provenant d'idéaux corporels véhiculés dans la société occidentale (ex : minceur chez les femmes, silhouette musclée chez les hommes) (Griffiths et al, 2017). Il est à d'ailleurs à considérer qu'à l'adolescence, l'estime de soi est influencée par l'image corporelle, et lorsqu'elle est négative, elle peut être associée à une faible estime corporelle, ainsi qu'à de l'anxiété

sociale, ce qui serait possible de mettre en lien avec la peur de l'évaluation négative par autrui (Abdollahi et al., 2016; O'Dea, 2012).

Parmi ces pressions socioculturelles, des études ont souligné l'importance de la sphère sociale sur l'image corporelle (et par extension, sur la satisfaction à l'égard de l'apparence) des adolescents et les comportements y étant associés (Doiron, 2020; Quiles Marcos et al., 2013; Ricciardelli & Yager, 2016). Un modèle intéressant permettant de mieux comprendre ce mécanisme est celui de Thompson et al. (1999). Selon les auteurs, de percevoir des pressions de beauté physique provenant de l'extérieur de soi (parents, pairs, médias) favoriserait l'internalisation cognitive de ces normes et des processus de comparaison aux autres. La personne serait ensuite sujette à entreprendre des efforts visant à modifier son apparence ou son poids, lesquels pourraient mener au développement de troubles du comportement alimentaire (ex : anorexie, boulimie) (Papp et al., 2013; Rodgers et al., 2020; Thompson et al., 2017).

Les pressions socioculturelles à l'égard de la satisfaction à l'égard de l'apparence pourraient s'exercer de différentes façons. Par exemple, mentionnons l'exposition des idéaux de beauté à travers les réseaux sociaux (Saiphoo & Vahedi, 2019), les comportements du partenaire amoureux (Laus et al., 2018) ou encore les échanges centrés sur l'apparence physique avec les pairs ou la famille (Mills & Fuller-Tyszkiewicz, 2017). De précédentes recherches ont également démontré les possibles effets protecteurs du soutien social sur l'image corporelle des jeunes (Cantin et Stan, 2010; Merianos et al.,

2012). Également, la réception de commentaires négatifs sur le poids en provenance de membres diverses de l'entourage est relativement assez fréquente et est associée à plusieurs conséquences chez les adolescents (Aimée & Maïano, 2014; Berge et al., 2016). Ainsi, le présent essai doctoral se penchera sur l'influence de l'entourage sur la satisfaction à l'égard de l'apparence à travers le niveau de soutien social perçu (Brausch & Decker, 2014; Merianos et al., 2012) et les commentaires négatifs sur le poids (Schaefer & Salafia, 2014; Stamate et al., 2021).

En effet, bien que l'importance de l'environnement social sur l'image corporelle des adolescents soit reconnue dans la littérature, certains liens demeurent imprécis, notamment en ce qui concerne la provenance du soutien social. Effectivement, plusieurs travaux ayant investigué la relation mère-enfant ont montré que la contribution de la mère sur l'image corporelle du jeune était plus forte que celle du père. À l'opposé, peu d'études ont porté sur le rôle distinct du père et leurs conclusions divergent quant à la contribution que ce dernier peut avoir sur son enfant et le type de pression ou de commentaires qu'il a tendance à faire. Du côté des pairs, la même situation s'observe (Back, 2011; Quiles Marcos et al., 2013; Ricciardelli & Yager, 2016; Rodgers & Chabrol, 2009). Également, bien que les commentaires sur le poids en provenance de la mère et de la fratrie aient été plusieurs fois documentés (Berge et al., 2016; Quiles Marcos et al., 2013), peu de travaux ont porté sur ceux en provenance du père, des membres de la famille élargie, du partenaire amoureux et des professeurs d'éducation physique, ni sur le contenu de ces commentaires. Par ailleurs, la peur de l'évaluation négative par autrui en lien avec la satisfaction à l'égard

de l'apparence ne semble pas avoir été investiguée dans la littérature jusqu'à maintenant. De plus, bien que les sentiments entretenus à l'égard de l'apparence puissent engendrer des problématiques préoccupantes à l'adolescence, peu de travaux ont approfondi le construit plus spécifique de la satisfaction à l'égard de l'apparence, ou l'ont étudié de manière longitudinales. L'approfondissement de ces éléments permettrait de mieux orienter les cibles d'intervention et de prévention auprès de cette clientèle à risque. Ainsi, l'objectif général du présent essai doctoral¹ vise à mieux comprendre l'influence que peut avoir l'entourage sur la satisfaction de l'apparence des adolescents québécois. Cet essai propose deux articles et s'inscrit dans le contexte d'un projet de recherche plus large visant l'évaluation d'un programme ayant pour objectif le développement d'une image corporelle positive *Bien dans sa tête, bien dans sa peau* (Blackburn et al., 2019).

Tout d'abord, le premier article, présenté au chapitre 1, explore l'influence du soutien social perçu en provenance de trois sources, soit du père, de la mère et des amis, sur la satisfaction à l'égard de l'apparence chez les adolescents du Québec au cours d'une année. Cet article intitulé *Appearance esteem trajectory according to three different sources of support among adolescents over a school year* (Gagné et al., 2020) a été rédigé en anglais et a été soumis pour publication en mai 2020 à la revue *Journal of Youth and Adolescence*. À la suite d'un processus de révision par les pairs par trois experts externes, l'article a été accepté avec modifications et publié dans le numéro de l'automne 2020.

¹ Une lettre des directrices de recherche de l'étudiante atteste que cette dernière a été l'autrice principale de l'essai (voir appendice A).

Le second article, présenté au chapitre 2, est intitulé *Negative comments about adolescents' body weight: What are they and what is their connection with body image?* Il a été soumis en janvier 2022 à la *European Review of Applied Psychology* et à la suite d'un processus de révision par trois experts externes, a été publié en mars 2023. Ce travail se penche sur un autre type d'influence de l'image corporelle, soit les commentaires. Plus précisément, il comporte deux objectifs qui sont de déterminer les liens entre les commentaires négatifs sur le poids émis par l'entourage et deux facettes liées à l'image corporelle des adolescents, soit la satisfaction à l'égard de l'apparence et la peur de l'évaluation négative par autrui, puis d'explorer qualitativement le contenu des commentaires négatifs sur le poids émis par l'entourage.

Ces deux articles sont présentés dans les pages suivantes et sont suivis d'une conclusion générale.

Chapitre 1

**Appearance Esteem Trajectory According to Three Different Sources of Support
Among Adolescents Over a School Year**

Anne-Sophie Gagné, D.Ps., Marie-Ève Blackburn, Ph.D., Julie Auclair, M.Sc., Mireille Jean, B. Sc. S., Marie-Christine Brault, Ph.D., & Jacinthe Dion Ph.D.,

Abstract

Although social support has been linked to body satisfaction, there has been little research on the effect of differential sources of support on the trajectory of appearance esteem over time. To address this gap, this study explored changes in adolescents' appearance esteem to perceived social support over one year. Data were collected from 339 Canadian adolescents (54.57% females) in Grade 7 ($M_{age} = 12.05$) and Grade 10 ($M_{age} = 15.14$). Multilevel growth modeling revealed that perceived social support from fathers was not associated with appearance esteem, whereas mothers' support had the strongest effect on appearance esteem, consistently over time. Friends' support was also related to an increase in the appearance esteem trajectory, but only for older students. Overall, this prospective study provides a better understanding of the unique contribution of three different sources of social support during adolescence for preventing negative appearance esteem, beyond the effects of other related variables.

Key words: adolescence; body esteem; body image; peer support; parental support; multilevel growth modeling

Introduction

Body image is particularly important during the critical period of adolescence (Bucchianeri et al., 2013), in which concerns about the body tend to increase while lifestyles and physical and psychosocial health are developing (Littleton & Ollendick, 2003). Among adolescents, low levels of body image can lead to various negative psychological outcomes (Duchesne et al., 2017), problematic weight-related behaviors, and maladaptive appearance management behaviors (López-Guimerà et al., 2013). As these consequences can last in the long term, focusing on protective factors of negative body image is crucial (Cash, 2012). Among those factors, concerns about appearance among adolescents have been the object of increased public interests in recent years (Ricciardelli & Yager, 2016). However, few studies have focused specifically on appearance esteem, an important sub-construct of body image that refers to general feelings about appearance (Mendelson et al., 2001). It is well known that social interactions are important protective factors for body image among adolescents (Ata et al., 2007). However, little is known about the respective influence of various sources of support on appearance esteem and its trajectory. Given that interpersonal relationships are critical for helping adolescents cope with psychological distress occurring during this developmental period (Camara et al., 2014), this prospective study extends previous research by assessing the differential impact of three important sources of perceived social support on the trajectory of adolescents' appearance esteem over a 12-month period using a robust statistical approach.

Appearance Esteem

Whereas body image is defined as individuals' beliefs, thoughts, feelings, attitudes, and behaviors toward the body (Pruzinsky & Cash, 2002), appearance esteem is an important part of the multidimensional and complex construct of body image and refers to general feelings about appearance (Mendelson et al., 2001). During adolescence, concerns about appearance become very important because of the numerous physical and psychological changes occurring (Mendelson et al., 2001). Adolescents may be subject to considerable pressure about their appearance from their family, their peers, and the media (Hardit & Hannum, 2012) and they may also be particularly afraid of being criticized or evaluated negatively by others (Beesdo et al., 2007). In fact, in a qualitative study where adolescents were asked to report factors related to the development of body dissatisfaction, many emphasized appearance teasing, appearance pressure, appearance-related conversations, and appearance comparison (Gattario & Frisén, 2019). As appearance esteem is associated with identity development (Wängqvist & Frisén, 2013), it seems paramount to explore its protective factors to help promote better adjustment and mental health during this critical period of life.

Whereas it is known that appearance esteem is lower among girls (Mendelson et al., 2001), the few studies focusing specifically on the appearance esteem trajectory have shown that it tends to exhibit a negative transition with age, from childhood to adolescence for both genders, with a greater decrease among girls and those with a higher body mass index (BMI; Frisén et al., 2015), and then to stabilize in adulthood (Nelson et al., 2018).

This finding is consistent with those on body dissatisfaction where predictors from adolescence to middle adulthood would be gender, age, BMI, and other variables, such as depression, self-esteem, parental communication and caring, peer dieting, and weight-based teasing (Wang et al., 2019).

Given that many individual and environmental factors can influence body dissatisfaction, it may be difficult to specifically identify the role of each variable on its trajectory, as suggested in findings from a longitudinal study (Wang et al., 2019). That study revealed several differences in the evolution of body dissatisfaction over time even if, overall, it remained relatively stable from middle adolescence to adulthood. Their findings suggested that self-image and thus body satisfaction develop at an early age, hence the importance of ensuring positive appearance esteem in adolescence to prevent problems in the short and long term. However, no known studies have focused on the protective factors that specifically influence the trajectory of appearance esteem.

Social Interactions and Social Support

The important role of the social environment in appearance concerns has inspired many sociocultural models, such as the Bowlby attachment model (Bowlby, 1978) and the tripartite influence model of body image and eating disturbance (Thompson et al., 1999). The theoretical model used for this study was the acceptance model (Avalos & Tylka, 2006), according to which a person's body appreciation is strongly influenced by the appreciation that loved ones have of their own body and by the social support that they

provide. This association has repercussions from adolescence to adulthood (Gattario & Frisé, 2019). One way to explore social influences in research is to investigate social support. Feeling accepted and appreciated by others would make people more confident and give them more positive feelings about themselves and their body (Stice & Whitenton, 2002).

Within adolescents' social groups, parents are important to consider in relation to body image. For example, some aspects of parenting, such as attachment style and perceived parental care and control, are associated with body esteem, self-esteem, and eating behaviors among young adult males and females (Sira & White, 2010). Furthermore, in a 15-year study including 1,455 participants, it was found that environmental factors, such as parental caring and communication, can be important predictors of body dissatisfaction from adolescence to adulthood (Wang et al., 2019). Besides verbal communication and active encouragement, even indirect behaviors, such as mothers exhibiting body image concerns, have been found to impact the appearance esteem of offspring (Handford et al., 2018). Parent-adolescent relationships are thus important for the maintenance of a healthy body image and can be conceptualized as a protective factor. However, whereas the mother-child relationship has been examined in many studies and a maternal influence has been consistently found, little is known about the distinct role of fathers. This gap has been highlighted in previous research (Sira & White, 2010), suggesting the need for more investigation of the respective contribution of every dimension of family functioning. Moreover, research is needed to include additional

information in the acceptance model about whether and how support from others plays a role in increasing appearance esteem.

In adolescence, the social environment consists primarily of interactions with school peers, such as classmates and friends (Brown et al., 2008), who play a significant role in appearance esteem among girls and boys. Adolescents are more frequently confronted with peers' appearance cultures and with an integrated focus on appearance, beauty, and thinness (Jones et al., 2004), which are associated with body image concerns and negative behaviors (Carey et al., 2013). Thus, given that relationships with peers substantially influence body appreciation and that friends are very present in adolescents' lives, it is important to gain a deeper understanding of the role of support received more specifically from friends (Kenny et al., 2017).

The respective influence of peers and of friends on appearance esteem in adolescence varies. The results of a meta-analysis of 25 studies conducted between 1995 and 2010 among adolescents and young adults revealed a stronger relationship between body dissatisfaction and the influence of peers than of family (Quiles Marcos et al., 2013). However, this meta-analysis grouped studies pertaining to parental and peer/friend support, and few focused on both types at the same time. Nonetheless, the greater importance of friends could be explained by the notion that adolescence is the developmental period in which emancipation from parents occurs alongside individualization, leading the person to become a full-fledged autonomous adult (De

Goede et al., 2009). In preadolescence, boys and girls spend more time socializing with family than in later adolescence, when they tend to spend more social time with same-sex peers (Graber et al., 1999). In early adolescence, boys and girls both perceive more support from their mother and their father than in late adolescence (De Goede et al., 2009). Thus, regarding body image, it may be expected that, in later adolescence, parental influence on appearance esteem would be less strong than peer influence. However, previous studies have produced conflicting results. For example, among young university students, body esteem would be greater for students who felt loved by, in order of importance, their mother, another family member, their friends, and, lastly, their father (Merianos et al., 2012). Another longitudinal study conducted among adolescents, which was not included in the previous meta-analysis (Quiles Marcos et al., 2013), revealed that peer support deficits exhibited only a marginal negative relationship with body esteem whereas parental support deficits were negatively associated with body esteem for both boys and girls (Bearman et al., 2006). Moreover, a previous longitudinal study conducted among Canadian adolescents revealed that social support from both family and friends had a similar effect on appearance satisfaction (Cantin & Stan, 2010). As most studies included in the previous meta-analysis (Quiles Marcos et al., 2013) were cross-sectional and did not consider the mother and father separately, these findings highlight the importance of conducting further studies to better understand whose influence on appearance esteem is stronger during the critical developmental period of adolescence.

Regarding mothers' and fathers' differential roles, mothers can be expected to have more influence on their adolescents' appearance esteem because mothers' body dissatisfaction problems and eating disorders are often associated with those of their children (Handford et al., 2018). Moreover, it appears that in adults, women are more likely than men to fall prey to these problems (Fallon et al., 2014). Previous research has also suggested that adolescents are more influenced by their mothers' comments and body concerns than those of their fathers, and that daughters have more negative outcomes than sons (Kluck, 2010).

Parents' comments are not the only ones related to appearance esteem. Peer groups' behaviors, such as negative comments or teasing, which are common during adolescence, can have harmful effects (Eisenberg et al., 2017). These actions are associated with higher levels of negative outcomes, such as increased risks for negative emotional well-being and unhealthy behaviors (Eisenberg et al., 2003), and can lead to body dissatisfaction (Wang et al., 2019). Family and peers were both found to make negative weight-related comments, which can lead to a detrimental cumulative risk (Eisenberg et al., 2003). For example, having friends who make disparaging remarks about their own appearance or that of others has been reported to increase the risk of body dissatisfaction and unhealthy weight-control behaviors (Cantin & Stan, 2010). Indeed, negative weight-related comments can be expected to have detrimental effects on appearance esteem among adolescents. Thus, to provide a better understanding of the effect of social support on

appearance esteem, it is important to control for the possible influence of negative weight-related comments.

Current Study

Although previous research has highlighted the importance of social influences in the body image field, there is a need to investigate the respective effects of parents' and friends' support on adolescents' appearance esteem trajectory over time, an important construct of body image for adolescents that has been less studied. This article sought to address this gap in the literature by focusing on the role of three sources of social support in appearance esteem among Grade 7 and Grade 10 students over a one-year period. It also extended previous research by clarifying the fathers' contribution to their offspring's body image. The results could help improve preventative programs based on positive body image and protective factors. The current study had two main objectives. The first was to investigate the relationship between social support from the mother, father, and friends and appearance esteem. In line with the acceptance model (Avalos & Tylka, 2006) and with prior research (Quiles Marcos et al., 2013), it was expected that social support from the mother, father, and friends would be related to the participants' appearance esteem for both grades. More specifically, it was hypothesized that mothers' influence would be stronger than that of fathers, and that relationships between social support and appearance esteem would be stronger among older adolescents when social support was derived from friends rather than from parents, while the opposite pattern was expected among younger adolescents. The second objective was to explore the contribution of demographics on the

progression of appearance esteem over one year. Based on previous work on the effect of age (Frisén et al., 2015) and of gender (Mendelson et al., 2001) and it was hypothesized that appearance esteem would be higher among Grade 7 students (early adolescence) than among Grade 10 students (middle adolescence) and that there would be a gender-based effect, in which females were expected to report lower appearance esteem than males.

Methods

Participants

Data used in this study were selected from a project, involving 740 respondents, in which the Healthy Mind, Healthy Body (HMHB) program was evaluated. For that project, participants came from two high schools of similar socioeconomic backgrounds and were randomly assigned either to the experimental condition consisting of health-related interventions or to the control group. To achieve the aim of the current study, only the subsample of students from the control group (who did not receive any intervention and who had no contact with the experimental group; $N = 427$) was selected. To ensure complete anonymity of the participants' answers and to match their questionnaires at each follow-up (from T1 to T3), students answered the same questions about their identity at each wave, so they did not have to remember their code (the two first letters of their first name, their birthdate, etc.), generating an eight-character identification code (Yurek et al., 2008). All students who were present during each of the data-collection visits and who consented to participate in the study were included in the current sample. Participants in Grade 7 were required to submit a parental consent letter to complete the survey, but this

was not required for those in Grade 10, because Quebecers can provide informed consent at 14 years of age. Overall, the research sample was composed of 339 students at baseline. The phenomenon of attrition is almost inevitable in longitudinal studies, and the current data are no exception. At T2, 260 participants were still enrolled in the study and completed the survey, a loss of 23%, and at T3, 240 completed it, a loss of 30%. The logistic regression showed that dropout variation was not related to any of the variables included in the current study. These findings indicate that the missingness was random.

Approximately half of the participants at baseline ($N = 167$, 49.3%) were Grade 7 students in early adolescence ($M_{age} = 12.05$ years, $SD = 0.24$) and the other half ($N = 172$, 50.7%) were Grade 10 students in middle adolescence ($M_{age} = 15.14$ years, $SD = 0.36$). There were 154 males (45.4%) and 185 females (54.6%). As for their ethnicity, 95.3% were Caucasian, 3.8% were from First Nations, 5.6% were from Western Europe, 2.1% were from North Africa/Middle East, and 5.9% indicated another ethnic/racial background. A quarter (25.1%) of the participants reported experiencing food insecurity (e.g., their families could not afford to eat balanced meals), an indicator of low socioeconomic status (Daveluy et al., 2001). Baseline sociodemographic data of the study population are shown in Table 1.

Procedure

There were three waves of data collection. Time 1 took place at the start of the school year (T1: October 2016), Time 2 at the end of the school year (T2: May 2017), and

Time 3 at the beginning of the next school year (T3: October 2017). Parents and students received a letter describing the study. They answered a custom-designed questionnaire with different scales at baseline (T1) and at the 8- and 12-month follow-ups (T2 and T3). The questionnaire was administered in computer rooms during regular class hours. This study received the institutional review board's (IRB) approval from the Cégep de Jonquière and the Université du Québec à Chicoutimi.

Measures

Appearance esteem. The Body-Esteem-Appearance subscale of the Body-Esteem Scale (Mendelson et al., 2001) was used. It consists of 10 Likert-scale items assessing general feelings about appearance. Participants were instructed to report how much they generally appreciated their body (e.g., "I like what I see when I look in the mirror") by giving a score from 0 (never) to 4 (always), where a higher score indicated positive appearance esteem. Standardized Cronbach's alpha values in the sample were 0.933 at T1, 0.932 at T2, and 0.934 at T3.

Perceived parental support. Parental support was measured at T1 through the Parental Emotional Support Questionnaire (Deschesnes et al., 1997) based on previous questionnaires (Schaefer, 1965; Siegelman, 1965; Parker et al., 1979). The adolescents were required to complete one questionnaire concerning their mother and another one concerning their father (it was the same questionnaire apart from the instruction: Answer the following questions while thinking of your father/while thinking of your mother).

Support was assessed according to a four-item Likert-type scale ranging from 0 (never) to 5 (often), for example: Is he affectionate with you (e.g., takes you in her arms, smiles at you, kisses you or talks to you kindly). The scores were added together for a maximum total of 15. Higher scores indicated greater social support. In cases where the students had little or no contact with one or both biological parents, they completed a questionnaire referring to the female and male adults whom they considered to play these roles (stepparent, adoptive parent, grandparent, etc.). The adolescents were not asked who the person was; however, a sociodemographic question on family composition provided the information needed to make this determination. According to this question, 85.1% of the participants in the sample lived with their biological father and mother, 10.0% with their mother and her partner, 2.5% with their father and his partner, and 2.4% in other situations (guardian, foster family). Standardized Cronbach's alpha values for maternal and paternal support in the current study were 0.739 and 0.788, respectively, and the correlation between those two variables was 0.519 ($p = 0.000$).

Perceived friends' support. Friends' support was measured at T1 using four items of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) on a 7-point Likert-type scale ranging from strongly disagree (0) to strongly agree (6). Examples of these items are "I can count on my friends when things go wrong" and "I can talk about my problems with my friends." Higher scores indicated greater support from friends. The standardized Cronbach's alpha was 0.876 in the current sample.

Perceived current figure. Perceived current figure was evaluated with the Figure Rating Scale (Collins, 1991), generally used to determine participants' desire to change their figure by calculating the gap between the perceived and ideal figures. Participants were instructed to assess which figures were closest to their own from a selection of seven silhouettes, ranging from smallest to largest. In accordance with the aim of the present study, the analyses included the perceived figure responses only as a measure of perceived body size in replacement of BMI, as the two are strongly correlated (Gardner & Brown, 2010). BMI was calculated in this study but could not be included because of the high level of missing data (35.54%) for either weight or height. Because the correlation between the BMI and perceived figure was significant ($r = 0.580$, $p < 0.001$) among the respondents, perceived figure was deemed appropriate for use as a control variable.

Weight-related teasing. The degree and source of the weight-related negative comments received by the participants were assessed at baseline using an adapted version of the nine items questionnaire (Bellerose, 2002). Participants answered the question, "Do the following people (e.g., mother, father, boyfriend/girlfriend, siblings, friends, extended family, sport teacher or coach, ex-boyfriend/ex-girlfriend, or other) ever make negative comments about your weight?" A score (from 0 to 9) indicating the number of sources of negative comments received at some point in their lives was calculated. In the present sample, 47.5% of respondents reported having previously received negative comments about their weight, and 1.5% had received negative comments from between six and nine different sources ($M_{Sources\ of\ teasing} = 1.16$, $SD = 1.62$).

Sociodemographic characteristics. Participants were asked to provide sociodemographic information including gender, grade level, ethnicity, and food insecurity.

Statistical Analyses

Before the main analysis was conducted, demographics and descriptive statistics were computed. Longitudinal multilevel growth modeling (Grimm et al., 2017) was then conducted to investigate the association between social support and the appearance esteem trajectory. This type of analysis has been proven to allow the examination of individual differences in within-person variations and co-variations over time (Hoffman, 2007). Given the three measurement waves (Burchinal et al., 2006) and the small amount of missing data (Enders, 2011), the sample size provided sufficient statistical power to detect slope differences between groups even for small effect sizes (Coertjens et al., 2017). Moreover, according to previous work (Arend & Schäfer 2019), the power estimation of this two-level model study is considering as sufficient. First, the mean trajectory of appearance esteem across the three time points was modeled (to determine if it increased, decreased, or remained the same over time). Second, the effects of predictors measured at T1 on appearance esteem were examined. Gender, students' grade level, current perceived figure, and negative weight-related comments were included as control variables in the current model. Food insecurity was not significant and thus not included in the final model

for the sake of parsimony. A widely used software program for studying data with hierarchical or nested structures, SAS (version 9.4), was used (Bell et al., 2013).

The three social support variables were centered-reduced, which made their coefficients comparable. Full maximum likelihood (FIML) was used to handle missing data and to estimate parameters (Johnson & Young, 2011). It is comparable to multiple imputation and is considered to produce stable, more efficient, and less biased estimates of the parameters of interest (Johnson & Young, 2011).

Singer and Willett's (2003) multiple-step procedure, described below, was used to test hypotheses. First, an unconditional model was computed (with no predictors). Second, a series of nested multilevel models was fitted. The effect of each predictor, added sequentially, was tested on the intercept (baseline) and on the rate of change (time). Then, alternate models including the interactions between the variables, or with time, were tested. To select the best final model, fit indices, such as the Akaike information criterion (AIC), the Bayesian information criterion (BIC), and the log-likelihood (deviance) statistics, were used (Grimm et al., 2017). Lower values indicated a better representation of the data by the model (Singer & Willet, 2003). The difference in deviance between the unconditional model and the final conditional model, which is a measure of goodness of fit, was $\Delta \chi^2 = 235.1$, $\Delta dl = 23$, $p < 0.001$. This justified the decision to retain this model to represent the rate of change in appearance esteem. Finally, the examination of

conditional residues indicated no major violation of the postulates of normality and homoscedasticity.

Results

Descriptive Statistics

Descriptive statistics and correlations among the variables are presented in Table 1.

All the correlations appeared to be in the hypothesized directions.

Tables

Table 1. Means and Standard Deviations and Correlations Among Key Variables at Waves 1, 2 and 3.

	\bar{X} (SD)	1	2	3	4	5	6	7	8
Wave 1									
1. Sex	0.55 (0.50)	-							
2. School level	0.51 (0.50)	.07	-						
3. Current perceived silhouette	3.35 (1.00)	-.02	.1	-					
4. Provenances of weight-related teasing	1.16 (1.62)	.18**	.33***	.32***	-				
5. PSS from friends	5.73 (1.19)	.24***	-.09	-.12*	-.09	-			
6. PSS from mother	3.32 (2.66)	.07	-.27***	-.21***	-.25***	.36***	-		
7. PSS from father	4.84 (3.28)	-.02	-.34***	-.19**	-.30***	.20***	.54***	-	
8. Appearance esteem	2.55 (0.90)	-.35***	-.37***	-.30***	-.36***	.14*	.30***	.34***	-
Wave 2									
9. Appearance esteem	2.58 (0.89)	-.37***	-.25***	-.24***	-.29***	.14*	.29***	.28***	-
Wave 3									
10. Appearance esteem	2.49 (0.88)	-.31***	-.23***	-.18**	-.30***	.10	.21***	.24***	-

Note. Range for gender (0 = female and 1 = male); range for school level (0 = Grade 7 and 1 = Grade 10);

PSS = perceived social support.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Appearance Esteem and its Trajectory

Appearance esteem trajectory. Results of the unconditional growth model revealed that the intraclass correlation was 0.77, justifying the use of conditional

multilevel analyses. This finding indicated that students' appearance esteem score variance was attributable mostly to differences between, rather than within, participants over the 12-month period.

Predicting appearance esteem at baseline. The parameter estimates for each of the predictors in the final model are listed in Table 2. In order of importance, mothers' and friends' support had unique and significant effects on the appearance esteem subscale at baseline ($\beta = 0.194, p = 0.015$ and $\beta = 0.141, p = 0.024$, respectively), while fathers' support appeared to be non-significant ($\beta = 0.119, p = 0.142$). This meant that higher levels of social support from the mother and friends were associated with higher levels of appearance esteem at T1. Because the estimate for social support from mothers was higher than for social support from friends ($\beta = 0.194$ and $\beta = 0.141$), these results also suggested that the effect of social support from the mother was more important than that of social support from friends. These effects were significant above and beyond the effect of the control variables, which were also all related to appearance esteem. However, the appearance esteem association with social support from the father was not significant. As for the control variables, gender and grade were associated with more positive appearance esteem ($\beta = 0.658$ and $\beta = -0.383$, respectively, $p < 0.001$), in the sense that being a boy and being in Grade 7 was associated with better appearance esteem. Moreover, lower appearance esteem was associated with larger self-perceived figure ($\beta = -0.137, p < 0.001$), and a higher number of sources of negative weight-related comments ($\beta = -0.070, p < 0.05$).

Table 2. Effect of perceived social support on the appearance esteem trajectory

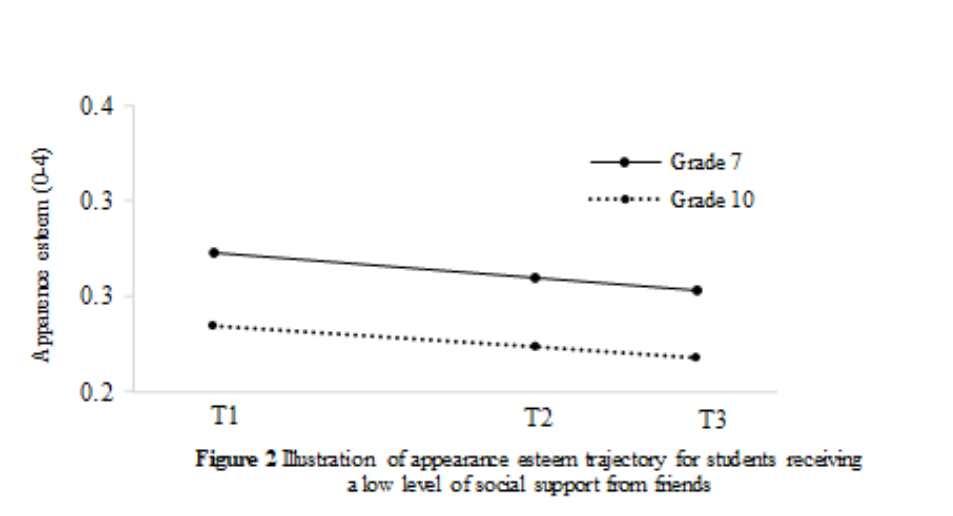
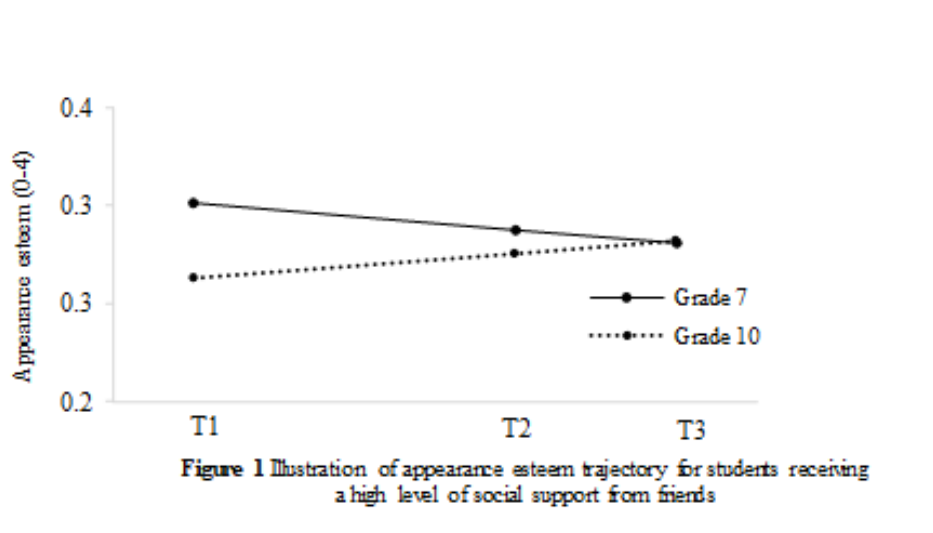
	Estimate	ASE
Initial status		
Intercept	2.54***	0.07
Gender (male)	0.66***	0.08
Grade level (Grade 10)	-0.38***	0.08
Current perceived figure	-0.14***	0.03
Sources of teasing	-0.07***	0.02
PSS from friends	0.14*	0.06
PSS from mother	0.19*	0.08
PSS from father	0.12	0.08
Grade level*PSS from friends	-0.11	0.08
Grade level*PSS from mother	-0.17	0.10
Grade level*PSS from father	-0.06	0.10
Linear rate of change		
Time	-0.02*	0.01
Gender (male)	0.00	0.01
Grade level (Grade 10)	0.02*	0.01
Current perceived figure	0.00	0.00
Sources of teasing	0.00	0.00
PSS from friends	-0.01	0.01
PSS from mother	0.00	0.01
PSS from father	0.00	0.01
Grade level*PSS from friends	0.01*	0.01
Grade level*PSS from mother	0.00	0.01
Grade level*PSS from father	0.00	0.01
Goodness of fit		
Deviance	1471.2	
AIC	1523.2	
BIC	1622.60	
Variance Components		
Within-person	0.12***	0.01
In intercept	0.37***	0.04
In rate of change	0.00***	0.00
Covariance	0.00	0.00

Note. PSS = perceived social support.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Predicting appearance esteem rate of change over one year. The results also revealed interactions with time, indicating that some predictors had an effect on the appearance esteem trajectory that differed over time. First, the results indicated a significant general decline in the appearance esteem trajectory over time ($\beta = -0.017, p = 0.013$). Second, an interaction was detected between time and grade levels, which revealed that appearance esteem declined only for Grade 7 students ($\beta = 0.017, p = 0.016$). Finally, no significant association was found between mother or father support and change over time in reported appearance esteem, which meant that the effect of mother support and the non-effect of father support on baseline levels of appearance esteem stayed the same at all time points. Nonetheless, the triple interaction was observed between grade levels, social support from friends, and time. Figures 1 and 2 provide a graphical illustration of this interaction for Grade 7 students compared with Grade 10 students receiving high levels (Figure 1) and low levels (Figure 2) of social support from friends. Overall, these results indicate that the grade level modulated the effect of social support from friends on the appearance esteem trajectory. These findings suggest that, among Grade 7 students, even though there was a positive effect of social support from friends on appearance esteem at baseline, it had no effect on the declining appearance esteem trajectory over time. Among Grade 10 students, in addition to its positive effect on appearance esteem at baseline, social support from friends also had a positive effect on the appearance esteem trajectory. This means that receiving a higher level of social support from friends prevented a decline in the appearance esteem trajectory over time. Graphically, even if older students'

appearance esteem increased when they had higher levels of social support from friends, their levels of appearance esteem remained below those of younger students over time.



Finally, there were no time interactions with gender, perceived figure, or weight-related teasing, suggesting that their effect on appearance esteem remained the same over time. Taken together, these results indicate that the appearance esteem trajectory changed

for both boys and girls as well as for participants with different perceived shapes, regardless of the number of negative comments received.

Sensitivity Analyses

Because the data used for this study were from a single-source and self-administered questionnaire, common method variance was possible and therefore examined. Although common method variance is more likely to emerge in simple models (Chang et al., 2010) and therefore less likely in the current study given the complex model used, the Harman's one-factor test was also conducted. The results showed no indication of common method variance. Finally, a multiple regression was conducted with the three social support measures using the Durbin–Watson statistic. This test is used as a diagnostic check for bias resulting from autocorrelation in the data when the residuals are not independent from each other and not linearly auto-correlated (Cohen et al., 2013). The results indicated that the Durbin-Watson statistic was in the recommended range, that is, between 1.5 and 2.5 (Durbin & Watson, 1971).

Discussion

Although predictors of body dissatisfaction among adolescents have been examined in several studies, for example, psychological factors (Duchesne et al., 2017) or social influences (Quiles Marcos et al., 2013), less is known about the evolution of appearance esteem and its association with social support from significant sources and with other factors. The present study addressed these gaps by examining the impact of three sources

of social support (mother, father, and friends) on the trajectory of adolescents' appearance esteem over a 12-month period above and beyond the effect of personal factors (gender, age, perceived figure, weight-related teasing). The data collection included three waves, making it possible to perform a robust linear analysis of the appearance esteem trajectory. The results confirmed most of the hypotheses regarding the positive effects of social support above and beyond the effects of weight-related comments, perceived current figure, and gender. This work contributes to the application of the tripartite model of influence on adolescents' body image and may help to elucidate social and individual factors that can improve adolescents' well-being and mental health.

Appearance Esteem and Social Support

The findings indicated that only two of the three sources of social support were associated with the appearance esteem trajectory, that is, mother and friends, but not father, which is consistent with previous studies on body satisfaction, for example, among college students (Merianos et al., 2012) or adolescents with disordered eating behaviors (Back, 2011). These findings support the notion that perceived emotional and behavioral support from significant sources is a protective factor for own body appreciation (Stice & Whitenton, 2002), and as early as possible in youth's lives, as suggested in studies among high school students (Duru et al., 2019) or children exposed to multiple risks (Thomann Mitchell, 2014).

Social support from fathers was also expected to be associated (although less strongly) with appearance esteem over time; however, this was not the case. One explanation that should be tested in future study may be because fathers make fewer comments than mothers about their child's weight (Berge et al., 2016). These differences between mother-child and father-child relationships regarding body image may also be explained by the difference in attachment with parents (Szalai et al., 2017) and in type of influence, where children would be more influenced by modeling than by other types of influence (Quiles Marcos et al., 2013).

Moreover, social support from the mother appeared to be more important than that from friends at the initial measurement time, as found in among college students (Merianos et al., 2012) and in a previous longitudinal study reporting that deficits in parental social support, but not in peers' social support, predicted growth in body dissatisfaction for both boys and girls (Bearman et al., 2006). Nonetheless, for Grade 10 students, the impact of friends' support on appearance esteem appeared to change over time. Indeed, friends' support prevented a decline in the appearance esteem trajectory during the school year for Grade 10 students, supporting the notion that friends can be an important source of influence on adolescents' appearance esteem (Carey et al., 2013). This finding may support the notion that this transition occurs in the period of middle to late adolescence, not from early to middle adolescence (De Goede et al., 2009). Further studies should be conducted to better identify this transition.

Participants reporting high levels of social support from friends also reported high levels of social support from parents. This is consistent with a previous study who proposed that relationship skills would likely be generalized from parent-child relationships to friendships during adolescence (Schneider et al., 2001). These results may be explained by adolescents' need for support and reassurance in a positive and secure family environment, despite their need to gain more physical, social, and psychological independence. Thus, even if adolescents spend less time overall with their family during adolescence, the time that they do spend with their mothers and fathers is important for their development and entertainment (Coleman, 2011). These findings together support the hypothesis that social support is related to appearance esteem over time, suggesting that social support plays a key role in appearance esteem during adolescence. Even though the study was not intended to examine the mechanism underlying the link between potential mediators and appearance esteem, those findings may be explained by the fact that social support contributes to a more positive self-esteem and self-image, which, in turn, may positively influence how adolescents feel about their appearance, as previously suggested (Sira & White, 2010).

Appearance Esteem Trajectory

Another goal of the current study was to investigate the appearance esteem trajectory over one school year. The analyses revealed that, over time, appearance esteem decreased only among participants in Grade 7. This finding suggests that entry into adolescence may have unfavorable effects on appearance esteem, which is consistent with

findings on the negative impact of puberty on body image (Ackard & Peterson, 2001; Tremblay & Lariviere, 2009). Appearance esteem also decreased in Grade 10 participants who reported low social support from friends, which suggests a protective role of friends at this age (Kirsch et al., 2016).

Regarding associations with other control variables, as hypothesized, female adolescents reported being less satisfied with their appearance than male adolescents, and this difference remained over the one-year study period. This finding is consistent with those from a previous one-year study (Abbott et al., 2012) as well as from a previous 10-year study (Bucchianeri et al., 2013). Moreover, a previous 11-year longitudinal study indicated that appearance esteem declined during the transition to adulthood for people of both genders, but that this trend was more pronounced among girls (Frisén et al., 2015). In another study where appearance esteem was compared among young people between the ages of 15 and 20, the results revealed that boys had higher appearance esteem than girls, but that the gap decreased with age (Nanu et al., 2013). In the current study, while the period was only 12 months, no significant interaction was found between time and gender, supporting the notion that people continue to be dissatisfied in the same manner, independently of gender, as proposed in a previous study (Juli, 2017).

Consistent with the third hypothesis, adolescents' appearance esteem was found to be significantly related to every control variable at baseline, and these effects remained the same over time, except for grade level. A larger perceived figure was associated with poorer appearance esteem. As expected, considering that perceived figure is a proxy

variable for BMI, these findings are consistent with a previous study also indicating that higher BMI is linked with poorer appearance esteem (Bucchianeri et al., 2013). In addition, weight-related teasing, as expected, was negatively associated with appearance esteem, which supports the importance of the influence of significant others' values on body image (Ata et al., 2007). This finding is also consistent with previous suggestions that this type of comment in adolescence is associated with objectified body consciousness and eating disorders over time (Olvera et al., 2016).

As the use of multilevel growth modeling analysis is relatively recent in the field, there are few studies available for comparison. However, it is important to consider that other social factors may also influence appearance esteem. For example, a previous study showed that individual adolescents' characteristics, such as gender, BMI, and general self-esteem, moderated the prediction associations between weight-related comments and social comparison, and body dissatisfaction over time (Cantin & Stan, 2010). Moreover, personal factors, such as anxiety, comparison tendencies, and internalization of social ideals, can moderate parental influence (Rodgers & Chabrol, 2009).

Study Strengths and Limitations

Nevertheless, this study had some limitations that should be considered. Although the sample size was sufficient to test the hypotheses of this study (Coertjens et al., 2017), it was not large enough to provide statistical power to test other moderation hypotheses. For example, a previous study found that gender did not moderate the relationship between

social support from family and from peers and body dissatisfaction (Kirsch et al., 2016). Even if a previous study suggested that body satisfaction of offspring is more influenced by parents of the same sex as them (Kluck, 2010), having a larger sample would have allowed parent-adolescent differential gender analyses (i.e., mother-daughter, mother-son, father-daughter, and father-son) to be conducted. Another limitation is that the current data were based on self-reports provided by a single source (the students themselves), creating the possibility of common method variance. In addition, the social support questions precluded knowing exactly to whom the adolescents were referring. However, given that a large majority still lived with their two parents, it was supposed that it was their mother or father. Future research should collect data from multiple respondents (mother, father, and friends) regarding the social support they perceived to be offering. Finally, it may be helpful to examine negative behaviors of adolescents' social groups in future studies, considering that appearance esteem and eating concerns are reported to be negatively influenced by having social support from parents, friends, or significant others who regularly make negative comments about their body or follow diets (Quiles Marcos et al., 2013).

Beyond these measurement issues and sample biases, an important strength of this research is the longitudinal design used, combined with a robust and appropriate statistical technique, multilevel growth modeling (Hedeker, 2004), which overcome the limitations of other statistical methods (Burchinal et al., 2006). Overall, current knowledge suggests that this is the first longitudinal study where a multivariable model was used to predict the

trajectory of appearance esteem according to social support, allowing the assessment of longitudinal observations of adolescents' life realities. Furthermore, this study addressed gaps in the literature by examining the effects of various sources simultaneously (i.e., mother, father, and friends) and by adding information about fathers' influence on their offspring's body image. Despite the difficulty of collecting anonymous data in several waves and merging them together using a self-generated code, a low rate of attrition was achieved, even if code inconsistencies caused the loss of a small number of participants at T2 and T3. Nonetheless, the risk of bias was greatly diminished given that attrition analyses indicated that no variable predicted dropout as well as by the use of FIML, which can accurately estimate coefficients of participants with missing data points (Johnson & Young, 2011). As well, for growth models, the bias is less pronounced for the mean slope compared to the variance or covariances, which is often more relevant for the research practitioner (Coertjens et al., 2017). Moreover, the findings from this study add to the acceptance model by providing more information on whether and how support from others can be associated with appearance esteem.

These results have practical implications and support the idea that schools and families can help promote healthy body image through education and by reducing weight-related teasing. For example, prevention programs should target parents to make them more aware of the impact that their support may have, even indirectly, on their adolescents' appearance esteem. School programs should also highlight the importance of friends' support for older adolescents and how it can become a positive agent for a healthy

and positive body image. The mediators of appearance esteem during adolescence should be examined in future studies to better understand the process of improving appearance esteem through social support. Identifying protective factors and highlighting the importance of adolescents' social groups for the promotion of a healthy body image may help clarify the influence processes of appearance esteem.

Conclusion

Several authors have investigated protective and risk factors of body satisfaction among adolescents, but none had yet explored the influence of social support on appearance esteem, let alone on its evolution over a one-year period. The present study addresses this gap by providing longitudinal data regarding three important sources of social support (mother, father and friends) on appearance esteem within an adolescent population over one year, and by exploring individual characteristics that may influence its trajectory. Overall, the results indicated that mothers' and friends' support are significantly associated with adolescents' appearance esteem over one year. Being female, being in middle adolescence, having a larger self-perceived figure, and receiving negative weight-related comments from a higher number of sources were associated with poorer appearance esteem. Thus, the findings revealed that perceiving high levels of social support from significant sources can be a protective factor for appearance esteem in adolescence and may thus be key in adolescents' adjustment and mental health. Further studies should also be conducted to better understand the fathers' role in this equation.

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Chapitre 2

Negative comments about adolescents' body weight: What are they and what is their connection with body image?

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Introduction. Weight comments can have an impact on the body image of those who receive them. Adolescents are particularly vulnerable since they are developing their identity.

Objective. The first goal of this study was to determine the associations between weight comments made by the entourage, according to the source (father, mother, friends, romantic partner, etc.), the adolescents' satisfaction with appearance and sensitivity to negative evaluation by other adolescents. The second goal was to explore the contents of the negative weight comments from the entourage.

Method. A study was conducted among 740 adolescent participants from Quebec, Canada, who were asked to complete questionnaires while in class. Multiple linear regression models, as well as qualitative analysis, were conducted.

Results. Nearly half of the adolescents reported having already received comments about their weight from at least one person. Being a girl, between 15 and 16 years old (as compared to younger), and perceiving their body as large, were associated with perceiving more comments. Comments from friends were most strongly related to appearance

dissatisfaction and sensitivity to negative evaluation by others. The themes of the negative comments received were mainly related to weight gain, being underweight or suggestions for lifestyle habits.

Conclusion. The results provide a better understanding of the relationships among negative comments weight-related comments among young Quebecers and body image outcomes, as well as the importance of increasing awareness among adolescents and their entourage of the consequences of weight commentary.

Key words (5): adolescence; appearance satisfaction; body image; weight comments; entourage

Introduction. Les commentaires sur le poids peuvent entraîner des répercussions sur l'image corporelle de ceux qui les reçoivent. Les adolescents n'en font pas exception et ils constituent une clientèle particulièrement vulnérable étant donné leur développement identitaire.

Objectif. La présente étude vise d'abord à déterminer les liens entre les commentaires négatifs sur le poids émis par l'entourage (père, mère, amis, partenaire amoureux, etc.) avec la satisfaction à l'égard de l'apparence et la peur de l'évaluation négative par autrui chez des adolescents. Ensuite, le contenu des commentaires négatifs sur le poids émis par l'entourage a été exploré. **Méthode.** Une étude a été réalisée avec 740 participants adolescents du Québec, au Canada, qui devaient compléter des questionnaires en classe. Des modèles de régression linéaire multiple, ainsi qu'une analyse qualitative, ont été réalisés.

Résultats. Près de la moitié des jeunes ont rapporté avoir déjà reçu d'au moins une personne des commentaires sur leur poids. D'être une fille, d'être âgé entre 15 et 16 ans ou de percevoir sa silhouette comme étant forte, est associé à une plus grande réception de commentaires. Les commentaires de la part des amis sont ceux les plus fortement associés à l'insatisfaction à l'égard de l'apparence et à la peur de l'évaluation négative par autrui. Les thèmes des commentaires négatifs reçus portaient principalement sur la prise de poids, le sous-poids ou des suggestions quant aux habitudes de vie. Conclusion. Les résultats permettent de mieux comprendre les relations entre l'entourage et les commentaires négatifs sur le poids chez les jeunes Québécois (Canada), de même que l'importance de sensibiliser les jeunes et leurs proches à leurs répercussions.

Mots clés : Adolescence; satisfaction à l'égard de l'apparence; image corporelle; commentaires sur le poids; entourage

Introduction

Body image, weight and appearance are themes frequently present in popular discourse and the media (e.g., Ricciardelli and Yager (2016), Cash and Smolak (2011)). Furthermore, youth are exposed to the media and images of beauty being presented via television, magazines and social networks from a very young age (Grabe, Ward, & Hyde, 2008; Harriger, Serier, Luedke, Robertson, & Bojorquez, 2018). These aesthetic and cultural models tend to promote women being slim and men being muscular (Cash, 2012). Moreover, being exposed to these ideals of beauty has been shown to be associated with increased importance placed on body image, in both women and men (Barlett, Vowels, & Saucier, 2008; Rodgers & Chabrol, 2009a; Tantleff-Dunn, Barnes, & Larose, 2011). In addition, ideals of beauty are often present in everyday discussions in the form of comments regarding appearance and weight (Eisenberg, Franz, Berge, Loth, & Neumark-Sztainer, 2017; Équilibre, 2014; La Roque, 2017). Adolescents are particularly faced with these comments, the prevalence of feedback received varies from 11% to 64% depending on the definitions used, the questionnaires used and the methodology of the studies (Lampard, MacLehose, Eisenberg, Neumark-Sztainer, & Davison, 2014; Puhl, Peterson, & Luedicke, 2013). The various comment types, no matter if they're positive, neutral or negative, are related to several negative consequences for youth who receive them, such as body dissatisfaction and low self-esteem (Blackburn, Dion, & Ross, 2008; Keery, Boutelle, van den Berg, & Thompson, 2005; Maïano, Morin, Monthuy-Blanc, & Garbarino, 2010), or adopting behaviours and lifestyle habits with the goal of modifying one's body and appearance (Quiles Marcos, Quiles Sebastian, Pamies Aubalat, Botella

Ausina, & Treasure, 2013). Moreover, people who make these comments and those who witness them may also experience negative body image feelings (Ricard, 2021). Adolescents are particularly vulnerable due to ongoing identity and physical development (Ricciardelli & Yager, 2016). However, few studies have explored the connection between the source of weight-related comments and body image, as well as the content of the comments. In this context, it is important to better understand the types of weight comments that adolescents receive and their source (i.e., who said them), as well as their correlates.

The tripartite influence model of body image and eating disturbance to explain the impact of comments on weight for adolescents.

Several theoretical models can assist in understanding the influence of weight- and appearance-related comments in youth, specifically the model from Thompson, Heinberg, Altabe, and Tantleff-Dunn (1999) seem particularly relevant. Indeed, according to this model, body image development and related factors are influenced by three main sources: parents, friends and the media. Their influences are direct, but other factors may come into play, such as the tendency to compare one's appearance with that of others (Van den Berg, Thompson, Obremski-Brandon, & Covert, 2002). During adolescence, youth are building and searching for their identity and they may be increasingly concerned about their appearance, with the fear of negative evaluation from others (Beesdo et al., 2007; Jones, 2004; Ricciardelli & Yager, 2016). Moreover, body dissatisfaction is a major problem among young people all over the world (Shagar, Harris, Boddy, & Donovan, 2017). For example, in Quebec (Canada), more than half of high school students say they

are dissatisfied with their appearance (Camirand, 2018). Social comparison to external standards of body ideals is ubiquitous in conversations about appearance and weight (Ata, Ludden, & Lally, 2007; Jones, Vigfusdottir, & Lee, 2004) and may serve to reduce uncertainties and discomfort regarding the changes in a person's body (Corning & Gondoli, 2012; White, Langer, Yariv, & Welch, 2006). Even if no criticism is directly expressed, discussions about body image, as well as weight-related comments, can be associated with repercussions, especially when coming from parents or friends (Schaefer & Blodgett Salafia, 2014). Seeing friends and family attach a great deal of importance to body image can have a modelling effect, i.e., the acquisition of behaviours and attitudes following the observation of those in others. In addition, discussing weight and appearance would maintain a collective concern about these topics (Millets & Fuller-Tyszkiewicz, 2016). As body image involves the subjective evaluation of one's body (Cash, 2011), it can also involve the fear of being judged by others because of one's appearance (Thomas, Keery, Williams, & Thompson, 1998). Although girls are more sensitive to it than boys (Maïano and al, 2010), this fear has been poorly assessed in adolescents. Nevertheless, receiving comments about weight can increase attention towards weight and the importance given to it, encourage social comparison based on physical attributes and therefore, can increase concerns about appearance and weight (Jones, 2004; La Roque, 2017; Schaefer & Blodgett Salafia, 2014; Voelker, Voelker, Reel, & Greenleaf, 2015). Therefore, according to the tripartite influence model of body image and eating disturbance (Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999), one would also expect that the comments made by other members of the youth's entourage, for example teachers

and extended family, are associated with dissatisfaction of appearance and sensitivity to negative evaluation by others.

Sources of negative weight comments

Negative weight comments can stem from many different people, both close and distant. Indeed, the father and mother have been identified as important sources of transmission of bodily concerns through their verbal messages and encouragement of their children to control their weight (Rodgers & Chabrol, 2009b). Also, peers may play both a protective role or constitute a risk factor for poor body image since they may play an important role in the consolidation of beliefs about body ideals which are, among others, conveyed by the media (Sharpe, Schober, Treasure, & Schmidt, 2014; Voelker et al., 2015). These pathways are supported by the empirical data, as 60% of children aged 9-12, report having received negative comments about their weight, with siblings emerging as the greatest source (Berge, Hanson-Bradley, Tate, & Neumark-Sztainer, 2016). Indeed, 59% of youth said they had received them from their brothers or sisters and 43% from their parents, more specifically, mothers made almost twice as many negative comments as fathers. It also appears that having received negative comments related to one's appearance from a parent increases the risk of receiving comments from a sibling, suggesting a family modelling effect (Keery et al., 2005). This phenomenon may lead to an accumulation of risk factors, i.e., possible consequences of receiving negative comments about weight (Eisenberg, Neumark-Sztainer, & Story, 2003). Furthermore, in Quebec (Canada), data from a study conducted in 2002 showed that among 1,840

adolescents aged 12 to 18, nearly a third of them reported having received negative comments about their body weight from at least one person. The people in their entourage who made these comments were, in descending order of frequency, a friend of theirs (16.9%), their brother or sister (16.1%), their mother or the female adult living with them (8.4%), their father or the male adult living with them (7.0%), the physical education teacher (2.2%) or another person (15.2%) such as another student or extended family members (Gaudreault, Veillette, & Perron, 2002). A more recent study among Quebec adolescents indicates that, among youth who reported having received negative comments about weight, peers were also the biggest source, but some also reported having received comments from adults in school, more specifically physical education and health teachers (15.6%), other teachers (10.9%), the director (9.1%) or the school nurse (7.3%) (Aimé & Maïano, 2014). Peers were also the main sources of bullying comments about weight in a U.S. study of 148 adolescents, followed by friends, family members and teachers where these different sources were associated with the presence of negative emotions, avoidance behaviours and eating for distraction (Himmelstein & Puhl, 2019). In a romantic context, intimidation is also present (Offenhauer, 2015), as revealed by a study in which 30% of youth in a relationship had experienced intimidation from their partner, either psychological, physical or sexual (Pica et al., 2013). However, gaps remain in our understand of the weight-related comments received by adolescents and their content. It would therefore be relevant to explore this subject further, especially knowing that in young adults, comments about weight are also present and associated with negative outcomes, such as increasing concerns, causing a feeling of devaluation in the face of

one's body and affecting the conjugal relationship (Côté, 2019; Goldsmith & Byers, 2016; Sheets & Ajmere, 2005).

Types of weight comments and associations

Comments on weight can appear in various forms. For example, *body talk* has been identified among adolescents, in conversations between people about their own perceptions, emotions and attitudes towards their body (Rudiger & Winstead, 2013), or even *fat talk*, that is making derogatory remarks between peers about the appearance and weight of one or more people, often with a view of reducing the person's own concerns about their body image (Mills & Fuller-Tyszkiewicz, 2017; Nichter & Vuckovic, 1994). Another form of commentary involves positive observations or comments about one's body, or that of others that can also, even though the intent is positive, lead to bodily dissatisfaction, in particular by increasing the emphasis on the body (Herbozo, Stevens, Moldovan, & Morrell, 2017; Slater & Tiggemann, 2015). Comments may also consist of suggestions for losing, controlling or gaining weight, or modifying eating and exercise habits (Quiles Marcos et al., 2013; Yeatts, Martin, Petrie, & Greenleaf, 2016). Lastly, they can take the form of intimidation, mockery and teasing with the aim of causing harm and can be directed at the entire body, appearance or weight in general, or even aimed at personal characteristics (Menzel, 2012). According to *Éducaloi* (2022), bullying or intimidation refers to words, gestures and behaviours aimed at harming, humiliating, socially excluding a person or lowering self-esteem. It occurs when a balance of power is present between the aggressor and the victim. Negative weight comments can therefore

be a form of intimidation, depending on the intent of the sender. However, studies on comment types of are mainly quantitative and it seems relevant to qualitatively know the contents of the comments received in relation to weight, as to better understand the experience of adolescents and better identify the intervention targets.

Some youth are more predisposed to receiving comments related to their weight or their appearance than others. Youth with a low or high body mass index (BMI) are more frequently exposed to negative comments, suggestions to control their weight or bullying (Berge et al., 2018; Helfert & Warschburger, 2011, 2013; Neumark-Sztainer et al., 2002). Boys tend to receive more pressure to increase their muscle mass (and therefore to gain weight – by extension), while girls tend to experience more pressure to lose weight, they would also be more likely to compare their bodies with those of others and to internalize the ideals of beauty conveyed in society (Petrie et al., 2010).

These comments are not without consequence. In fact, among the few studies surveyed dealing specifically with negative comments about weight, it appears that receiving this type of comment would be a risk factor over time for self-esteem, and more so for girls than for boys (Blackburn et al., 2008). It would also be associated with greater body dissatisfaction resulting in the desire to have a slimmer figure for girls and a stronger, or more muscular figure for boys (Dion et al., 2014), as well as the development of unhealthy weight control behaviours and psychological distress (Balantekin, Birch, & Savage, 2018; Neumark-Sztainer et al., 2018; Schmidt & Martin, 2019). Many of these

repercussions persist even until adulthood. These results highlight the importance of examining weight-related comments as early as possible in young people's lives.

Objectives of this study

While several studies have investigated bullying in relation to weight and appearance, few studies have specifically looked at associations between differences in sources of comment and their associations with body image and sensitivity to negative evaluation by others. Similarly, few studies have explored the content of comments made by family and friends. Thus, given the many changes occurring during adolescence, it seems important to evaluate these elements by taking into account two periods of adolescence (at the beginning of adolescence, about 12-13 years old) and mid-adolescence (about 15-16 years old). Knowing more about weight-related commentary will make it possible to better identify the ages at risk and better intervene with youth. The general objective of this article is to better understand the nature and the connections between weight comments made by those around them and body image in adolescents in their 7th and 10th year. The specific objectives are to 1) describe the source (father, mother, friends, romantic partner, etc.) and frequency of comments according to age, gender and BMI; 2) determine the associations between the different sources of negative comments and weight and body satisfaction and sensitivity to negative evaluation by others; and 3) explore the content of weight comments made by those around them. Based on literature, the hypotheses state that 1) girls, adolescents in their 10th year and those with a lower BMI will have reported having received more comments than the boys, adolescents in their 7th

year and those having a lower BMI (Berge et al., 2018; Petrie, Greenleaf, & Martin, 2010); 2) adolescents will have more frequently reported having received comments from their friends, followed by siblings, then by their mother (Aimé & Maïano, 2014; Berge et al., 2016; Gaudreault et al., 2002); and 3) body satisfaction, as well as sensitivity to negative evaluation by others, will be more strongly associated with comments from friends, followed by those of siblings, then of the mother, than those of other people (Eisenberg et al., 2003; Maïano et al., 2010; Thompson et al., 1999). Finally, qualitative data were collected to examine the content of weight-related comments made by adolescents' entourage.

Methodology

Procedure

This study was part of an intervention program project evaluation with the goal of promoting a positive body image and healthy lifestyles among youth. The participants were recruited from two secondary schools in Quebec (Canada) whose socio-economic level was similar (i.e., middle- and high-class socioeconomic settings) according to their deprivation index from the Quebec Ministry of Education and Higher Education. The data used to respond to the quantitative component of this study were derived from the first collection period carried out in October 2016. This collection took place before the intervention program was implemented in one of the schools². Following the analysis of

² However, additional analysis was carried out to ensure that both schools were equivalent in terms of this study's primary variables. No significant differences were observed in the frequency of negative comments

this dataset, those responsible for the research wondered about the high prevalence of negative weight comments received by youth. Thus, an open question was added during the last collection period carried out in May 2017 to better understand the content of the comments received corresponding to the qualitative aspect of this article.

Students completed questionnaires individually in computer labs under the presence of research professionals during regular class hours. For their data to be considered in the study, the youth had to have answered at least 50% of the questionnaire, be present in class during the data collection periods and have consented to participate in the study. In addition, parental consent was required for 7th year students given the minimum age of consent is 14 in Quebec. This study received ethics committee approval from the Cégep de Jonquière and the Université du Québec à Chicoutimi.

Participants

The initial sample consisted of 740 participants (51.5% were girls and 39.6% were 7th year adolescents). Students in their 7th year were 12.1 years old on average (SD=0.37) while those in their 10th year were 15.2 years old on average (SD=0.41). The two age groups were selected to validate whether the effects of an intervention program were distinct according to age, considering that differences may emerge according to the developmental period and considering that the highest rates of body dissatisfaction are

reported being received about weight ($t = -0.27, p = n.s.$), satisfaction with appearance ($t = -0.37, p = n.s.$) and sensitivity to negative evaluation by others ($t = 0.61, p = n.s.$).

found in older adolescents, when compared to those who are younger (Yager, Diedrichs, Ricciardelli, & Halliwell, 2013). Of the respondents, 96.8% indicated being of Quebec ethnic cultural origin, 3.2% being of Western European origin, 2.6% being First Nations and 5.3% being other ethnic origins. It should be noted that the youth could indicate several ethnic origins. At the last time of data collection when the open-ended question to answer the third objective was added, 550 adolescents participated and completed the questionnaire, i.e., 54.0% girls and 39.1% adolescents in their 7th year. Of these participants, 229 (41.6%) said they had received at least one negative comment from at least one person they knew. It was these 229 participants who were then asked to answer the open-ended question, of which 99 (43.2% of youth to whom the question was asked) reported examples of negative comments they received about their weight.

Measures

Socio-demographics. Participants were asked standard questions about their gender (girl or boy), age (birth date), grade (7th to 11th) and ethnicity (Quebec or Canadian; First Nations, Inuit, Métis, Aboriginals, etc.; Latin American; Afro American; Asiatic; Western European; Eastern European; Caribbean; North Africa or Middle East; others).

Currently perceived silhouette. Participants' perceived body shape and size was evaluated with the *Figure Rating Scale* (Collins, 1991). This indicator was used as a proxy variable for BMI due to the elevated number of missing responses to questions about the participants' height and weight, which did not allow for BMI to be calculated for each

person (35.5% of non-responses or outliers to any of the weight and height questions). Participants were asked to indicate which figure, from among seven figures ranging from the smallest to the largest, corresponded the most to theirs. This type of measurement has been shown to be strongly associated with BMI (Gardner & Brown, 2010; Park, 2011). This was also the case in our sample where the correlation between these two variables was significant ($r = 0.63, p < 0.000$). This measure has shown good psychometric qualities in girls and boys (test-retest reliability of .87 for the perceived silhouette as well as a concurrent validity of .61 to .75) (Gardner & Brown, 2010). The currently perceived silhouette among participants in the current study averaged 3.38 among the seven figures (SD=1.01).

Satisfaction of appearance. In line with the objectives of this study, the *BE-Appearance* subscale of the *Body-Esteem Scale* (BES) (Mendelson, Mendelson, & White, 2001) was used to assess overall satisfaction with appearance. Participants were asked to indicate how they felt about their appearance in general by choosing a score from 0 (never) to 4 (always) out of ten Likert-type statements. An example statement is "I like what I see when I look in the mirror." Positive satisfaction with one's appearance is indicated by a high value. In the validation study, this subscale revealed high internal consistency (Cronbach's alpha of .92) as well as good test-retest reliability in adolescents and adults (Mendelson et al., 2001). The French version has been validated in a population of male adults (Valls, Rousseau, & Chabrol, 2011) and with adolescents (Rousseau, Valls, &

Chabrol, 2015). In the current sample, Cronbach's alpha was .92 and the average was 2.53 (SD=0.85).

Sensitivity to negative evaluation of appearance by others. This dimension was assessed using the five items of the *Fear of Negative Appearance Evaluation Scale* (Thomas et al., 1998). The statements are constructed according to a 5-point Likert-type scale (1=Never to 5=Always) where a high score indicates a high sensitivity to negative evaluation by others. An example statement is "I worry that people will find fault with the way I look." The version translated into French was used and has been validated with adolescents and shown satisfactory psychometric qualities (Maïano et al., 2010), its internal consistency being .83 and its test-retest validity .77. Cronbach's alpha for the present study is .91 and the average is 12.44 (SD=5.74).

Negative comments about weight. The frequency and source from which each participant report having received negative weight comments were assessed at the baseline with nine items developed by Bellerose, Beaudry, and Bélanger (2002) and adapted to the adolescent's entourage. Participants were invited to answer the question, "Do the following people ever make negative comments about your weight?" and indicate the frequency using a 5-point Likert-type scale (1=never and 5=very often) for each source (mother, father, romantic partner, sibling, friend, extended family members, physical education teacher or athletic trainer). A high score means the participant reported

receiving negative comments about their weight from several different people, from a maximum of eight sources.

Contents of the comments received. Types of comments about weight were explored with an additional open-ended question, "If you answered that you had received negative comments about your weight at least once, can you name examples of what this person or people said about your weight?" Only participants who had indicated having received at least one weight comment from their entourage (father, mother, friends, romantic partner, etc.) were asked to answer this question.

Analysis

Quantitative analysis. For objective 1, descriptive and correlational analysis, including the Pearson and Spearman correlational analysis and the average difference test (T-Test), were conducted. The goals of these analyses were to describe the sample and to examine associations between all the variables using the SPSS Statistics software (version 20) (Wagner III, 2019). The data met regression analysis assumptions. Then, for objective 2, standard linear regression models were performed using SAS software (version 9.4) (SAS Institute, 2015) as to explore the relationships between the independent variables (the different sources of negative comments on weight) and the dependent variables (satisfaction with appearance, sensitivity to negative evaluation by others) by controlling for gender, perceived silhouette and academic level. Their interactions with gender were also explored to assess whether there were differences in the associations in boys and girls.

Qualitative analysis. For the third objective, an inductive analysis was conducted given that few studies have focused on the thematic content of the negative comments received. This approach involves reasoning aimed at making a generalization from specific reported or observed elements, the main objective was to develop key categories from raw data in order to interpret them in a model (Blais & Martineau, 2006). This method is best suited to capture the subjective experience of the participants and to highlight the complexity of a phenomenon (Denis, Guillemette, & Luckerhoff, 2019). This approach requires that a coding scheme be developed from participants' responses in an inductive and not a deductive way, i.e., preconceived (Neuendorf, 2016). Thus, the examples of weight-related comments made by the entourage were qualitatively classified into several categories by three people (by the first author of this article and two research assistants, each being informed of this study's objectives) independently. The first author of the article fully validated the codifications to ensure that the categories identified made it possible to properly reflect the subjective experience of the participants regarding the comments received concerning their weight. Then, a research assistant coded all the answers obtained from these categories. An inter-judge agreement of 95.6% was obtained. Disagreements were then discussed by the research team in order to reach a consensus. In addition, to meet the criteria of scientific rigour for the data analysis (Fortin & Gagnon, 2010), the article also presents, in addition to this analysis, a detailed description of the study's methodology and offers explanations to better understand this data, which helps to contextualize these results. Then, after discussing and agreeing on the most representative

category titles, the first author then validated the codifications. Given that participants in all conditions responded to this question, variations in responses based on condition allocation were also explored.

Results

Presence and correlates of negative weight comments

Nearly half of the youth reported having received at least one negative comment about their weight ($n=359$, 49.1%), as well as reported having received comments from an average of 1.18 different people ($SD = 1.64$). In addition, 17.7% of youth reported having received comments from three or more different people, while more than a quarter (31.4%) have also report having received comments from one to two separate people. Girls ($M = 1.40$, $SD = 1.718$) report having received significantly more comments than boys ($M = 0.95$, $SD = 1.518$; $p < 0.001$). Regarding differences by age, while there was no difference for boys, girls in their 10th year reported having received significantly more comments ($M = 1.84$, $SD = 1.820$) than those in their 7th year ($M = 0.74$, $SD = 1.303$; $p < 0,001$). Lastly, youth who perceived their figure as larger mentioned having received significantly more comments than their peers who perceived their figure as slimmer ($R = 0.280$, $p < 0.001$). Table 1 illustrates the frequency of comments received by source, while Table 2 presents these differences by gender and grade level. Overall, youth mentioned having received more comments from their brother or sister, their friends, their mother, their father, a member of their extended family, when compared to their romantic partner. Furthermore, girls, compared to boys, reported receiving significantly more

comments from their fathers, siblings and extended family members. Also, youth in their 10th year report having received significantly more comments from their mothers, fathers, siblings and friends than those in early adolescence. Correlations between study variables for all participants are shown in Table 3.

Table 1. *Frequency of negative weight comments according to sources*

Sources	Never	Rarely	Sometimes	Often	Very often
	n (%)	n (%)	n (%)	n (%)	n (%)
Brother(s) /sister(s)	541 (73.21)	109 (14.75)	53 (7.17)	27 (3.65)	9 (1.22)
Friend(s)	565 (76.45)	122 (16.51)	39 (5.28)	8 (1.08)	5 (0.68)
Mother	612 (84.03)	64 (8.66)	38 (5.14)	9 (1.22)	7 (0.95)
Father	631 (85.39)	68 (9.20)	28 (3.79)	9 (1.22)	3 (0.41)
Extended family member(s)	631 (85.50)	69 (9.35)	25 (3.39)	9 (1.22)	4 (0.54)
Romantic partner	714 (96.62)	16 (2.17)	7 (0.95)	2 (0.27)	0 (0)

Table 2. Average frequency of negative comments about weight by source, gender and academic level

Sources	Boys	Girls	T-test significance <i>P</i>	7 th year	10 th year	T-test significance <i>P</i>
	\bar{x} (SD)	\bar{x} (SD)		\bar{x} (SD)	\bar{x} (SD)	
Brother(s) /sister(s)	1.52 (1.15)	1.81 (1.37)	0.002**	1.49 (1.11)	1.79 (1.36)	0.002**
Friend(s)	1.39 (0.84)	1.39 (0.88)	0.96	1.29 (0.82)	1.46 (0.88)	0.008*
Mother	1.27 (0.83)	1.38 (0.9)	0.097	1.20 (0.74)	1.40 (0.94)	0.002**
Father	1.34 (1.24)	1.54 (1.2)	0.015*	1.30 (1.01)	1.54 (1.3)	0.006**
Extended family member(s)	1.21 (0.77)	1.41 (0.99)	0.002**	1.24 (0.82)	1.36 (0.94)	0.085
Romantic partner	2.57 (2.30)	2.72 (2.33)	0.369	2.75 (2.38)	2.57 (2.28)	0.306

* $p < .05$, ** $p < .01$, *** $p < .001$.

The transmission frequency is from 0=Never to 5=Very often.

Table 3. Correlations among variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Currently perceived silhouette	-								
2. Comment from mother	.25***	-							
3. Comment from father	.18***	.54***	-						
4. Comment from romantic partner	-.01	.19***	.15***	-					
5. Comment from brother(s) or sister(s)	.20***	.34***	.30***	.10**	-				
6. Comment from friend(s)	.11**	.30***	.26**	.21***	.34***	-			
7. Comment from extended family member(s)	.17***	.36***	.38***	.19***	.30***	.33***	-		
8. SA	-.20***	-.28***	-.22***	-.08*	-.23***	-.23***	-.21***	-	
9. SNEAO	.15***	.17***	.19***	.12**	.19***	.22***	.20***	-.71***	-

* $p < .05$, ** $p < .01$, *** $p < .001$.

Note: SA=Satisfaction of appearance. SNEAO= Sensitivity to negative evaluation of appearance by others.

Factors associated with satisfaction of appearance and negative evaluation by others

Two multiple regression models were performed to evaluate if the different sources of negative comments on weight were associated with satisfaction with appearance and with sensitivity to negative evaluation by others, while controlling for gender, perceived silhouette and the academic level. The differences between genders, academic levels and the current perceived silhouette were adjusted with the Bonferroni correction. The interactions between gender and feedback source in each of the regression analysis were not significant and were therefore withdrawn from the analyses for parsimony. Because of their low frequency, the comments from the romantic partner and those from the physical education teacher were not included in the models. Thus, as shown in Table 4, results suggested that only negative weight comments from friends appeared to be associated with lower appearance satisfaction ($\beta = -0.17$) and higher sensitivity to negative evaluation by others ($\beta = 0.19$). Girls, youth in their 10th year and those describing their figure as larger were significantly less satisfied with their appearance and more sensitive to negative evaluation by others. These two models, including all variables, explain the observed variance of 30.45% and 22.50% respectively (R^2).

Table 4. Multiple linear regression analysis to assess variables associated with appearance satisfaction and sensitivity to negative evaluation by others

	Model for appearance satisfaction				Model for sensitivity to negative evaluation of appearance by others			
	B	Beta (β)	ET (β)	Sig	B	Beta (β)	ET (β)	Sig
Intercept	3.12	0	0.12	<.0001	9.61	0	0.83	<.0001
Gender (boy)	0.52	0.31	0.05	<.0001	-3.56	-0.31	0.39	<.0001
Academic level (7 th year)	0.45	0.26	0.06	<.0001	-2.20	-0.19	0.39	<.0001
Currently perceived silhouette	-0.17	-0.20	0.03	<.0001	0.71	0.13	0.20	<.001
Comments from the mother	-0.07	-0.06	0.05	0.15	-0.11	-0,01	0.34	0.74
Comments from the father	-0.03	-0.02	0.05	0.63	0.34	0.04	0.39	0.37
Comments from siblings	-0.06	-0.06	0.03	0.06	0.08	0.01	0.24	0.73
Comments from friends	-0.17	-0.17	0.04	<.0001	1.60	0.19	0.30	<.0001
Comment from extended family member(s)	-0.01	-0.01	0.05	0.79	-0.37	0.04	0.35	0.30

Qualitative exploration of the comments' content made by family and friends

With regard to the third objective, 99 adolescents from the 229 who reported receiving a negative comment on their weight from their entourage (i.e., 41.6% of the sample) agreed to answer the open-ended question about the examples of comments they reported having received. The qualitative analysis of their responses revealed a total of 114 clauses categorized into 10 distinct themes. An example of categorization is *"I had gained weight or my thighs were fat,"* was categorized as comments related to weight gain or being overweight. Responses with multiple themes (e.g., *"You're too skinny for your height. You should gain weight"*) were split into multiple comments (e.g., *"You're too skinny for your height."* *"You should gain weight"*) to avoid clauses ending up in multiple categories at the same time. Table 5 illustrates the proposed categorization for reported

negative weight comments, the frequency of them and examples of corresponding excerpts. Comments related to being overweight or underweight were the most common themes among the examples given by youth. Also, some examples given may be perceived as bullying (e.g., *“You're a skeleton, you're too thin”* and *“ fat, pig, cow, sow”*).

Table 5. *Categorization of negative comments on weight, frequency and examples.*

Comment categories	Frequencies	Comment examples
Comments relating to weight gain or being overweight	27	<i>“Your thighs are too big, you should lose weight”</i> ; <i>“We both know you’re a bit overweight.”</i>
Comments relating to weight loss or being underweight	20	<i>“Too skinny”</i> ; <i>“You’ve lost weight.”</i>
Remarks on behaviors – Diet	11	<i>“I’m overweight because I eat too much junk food; “You should eat better.”</i>
Suggestions to lose weight	11	<i>“You should lose that belly fat.”</i> ; <i>“You should lose weight.”</i>
Physical appearance and aesthetics – negative	10	<i>“They say that I should have larger legs, that it would be better if my eyes were such and such a colour...”</i> ; <i>“I’m not attractive.”</i>
Remarks on behaviors – Physical exercise	8	<i>“You should be more active”</i> ; <i>“You should buy yourself a gym membership instead of more clothes [...]”</i>
Jokes	8	<i>“Well yes you’re fat it’s crazy (sarcastic)”</i> ; <i>“my brother who “silly” me by calling me “obese-anorexic” (it’s contradictory, that’s the goal)”</i> .
Suggestions to gain weight	5	<i>“My father says that I should work out and mother says I should gain more weight”</i> ; <i>“You should try to gain weight.”</i>
Physical appearance and aesthetics – positive	3	<i>“Drop dead gorgeous”</i> ; <i>“You’re so handsome.”</i>
Unclassified	11	<i>“Nothing at all”</i> ; <i>“They say nothing because they don’t care”</i>

The analysis of these comment examples also revealed differences in the patterns of responses. Indeed, girls (n=60) were more willing or able to provide examples compared to boys (n=39). Youth in mid-adolescence (n=76) also reported more examples than those in early adolescence (n=23). Also, whereas the number of youth from school exposed to the intervention program and from the control school was equal among youth in early

adolescence (n=10), a difference was observed among those who are older where youth in the school exposed to the program reported more (51 vs 31).

Discussion

The general objective of this article was to explore weight comments expressed by the entourage in adolescents aged 12 and 15 years and their relationship to body image. The youth in the sample were relatively numerous to mention they report having received comments on weight from different people, which has also been observed in other studies (Aimé & Maïano, 2014; Berge et al., 2016; Gaudreault et al., 2002; Keery et al., 2005). The results generally support the expected relationships and are in line with the tripartite influence model of body image and eating disturbance, revealing that girls and youth reporting having a larger figure are those who reported having received the most comments about their weight. Siblings were also the most frequent source of comments. Moreover, age differences emerged only among girls, with those in their 10th year reporting having received more comments than those in the 7th year. Reporting receiving comments from friends were related to lower satisfaction with appearance and higher sensitivity to negative evaluation by others in both boys and girls. Lastly, different themes of comments were identified.

Presence of negative weight comments

The first objective was to document the presence and sources of negative comments, in addition to their connection with body satisfaction and sensitivity to negative evaluation

by others in adolescents. As predicted by the first hypothesis, gender and age differences in the perception of weight-related comments did emerge, although age effects were only present among girls. Quiles Marcos et al. (2013) suggest that girls discuss images of beauty and eating behaviours more frequently than boys, which may explain the higher frequency observed of receiving comments about weight among them. With respect to the age difference, although no previous explorations of the differences between youth in early and mid-adolescence exist to our knowledge, the results of this study support studies that have shown that as they grow older, youth are increasingly aware of and exposed to images of beauty and body image criticism (Jones et al., 2004; Ricciardelli & Yager, 2016). This could therefore make youth more likely to receive or be more aware of negative comments on this subject. Moreover, the results revealed an association selecting a larger current body size and perceiving more weight-related comments, which is consistent with studies that have examined the connection between comments and BMI. (Berge et al., 2018; Helfert & Warschburger, 2011, 2013; Neumark-Sztainer et al., 2002). The current results also support that larger self-reported body size was associated with greater appearance dissatisfaction appearance, again consistent with other work (Berge et al., 2018; Helfert & Warschburger, 2011, 2013; Neumark-Sztainer et al., 2002). Lastly, in relation to sensitivity to negative evaluation by others, the present study was the first to our knowledge to document its association with more negative comments reported being received by adolescents. The present results support the theory of the tripartite influence model of body image and eating disturbance, in which parents, friends and the media are the main influential sources, although obviously further studies are required to better

understand this form of sensitivity (Ata et al., 2007; Thompson et al., 1999; Thompson et al., 2017). Therefore, the comments received could cause adolescents to be more sensitive to negative evaluation by others, in a desire to conform to the advocated images of beauty.

The second hypothesis posited that adolescents would report having received comments more frequently from their friends, followed by their sibling, then by their mother. However, in our sample siblings were in fact the most frequent source, and identified almost twice as often as compared to other individuals. Friends and relatives were also more often identified as compared to other individuals and romantic partners. This differs slightly from previous work (Aimé & Maïano, 2014; Keery et al., 2005), but corresponds to the findings of Berge et al. (2016), where the siblings and the mother were also the most frequent sources. In comparison with the study by Gaudreault et al. (2002), which is closest to the current study in terms of the participants' age and their nationality, the number of youth reporting having received a negative weight comment from at least one person almost doubled. Also, the primary sources of these comments, namely friends, siblings and the mother, are similar, although siblings were more frequently identified than friends in the current study. Lastly, few youth reported having received comments from their extended family (uncles, aunts and grandparents), or from their romantic partner. On this subject, it should be taken into account that very few participants mentioned being in a relationship in their 7th year (11.3%), and about a third (33.1%) in their 10th year. Regarding the frequencies of these comments from different sources, it is possible that the emotional closeness with the family or peers might facilitate greater

comfort in discussing appearance and thus more frequent comments on weight. On the other hand, the results showed that the sources of negative weight comments in the youth's entourage were strongly interconnected. Furthermore, some youth could actually have a weight that surpasses the social norm of beauty conveyed and therefore, be increasingly targeted by comments made by several people, leading to an accumulation of risk factors (Eisenberg et al., 2003; Voelker et al., 2015). Another explanation would be that the youth's attitudes and beliefs reflect those of their interpersonal environment, which may either promote and support appearance diversity by not engaging in appearance commentary or conversely, make comments that may be harmful (Carrard, Della Torre, & Levine, 2019; Helfert & Warschburger, 2013).

Regarding the third hypothesis, the results obtained did not allow us to conclude that appearance satisfaction and sensitivity to negative evaluation by others would be most related to comments from friends, followed by those from their sibling, then from the mother, than those from other people. Indeed, although the frequency of comments from all sources were intercorrelated and with the dependent variables, only comments made by friends proved to be significantly associated with body image outcomes in the regression models. These results diverge from what has been observed in the literature, or what could be expected according to the theory of the tripartite influence model of body image and eating disturbance. For example, the meta-analyses by Quiles Marcos et al. (2013) indicated that modelling of and encouragement to diet by parents and friends were associated with adolescent body image. It is possible that parental influence diminishes in

favour of that of friends as they become adolescents, as suggested in the writings of Graber, Archibald, and Brooks-Gunn (1999). However, our results are consistent with those of Helfert and Warschburger (2013) in which teenage girls were associated with more pressure to improve their appearance from peers than from their parents. On this subject, authors have mentioned that during adolescence, friends take up an increasingly important place in the social environment due to the physical and identity development that occurs during this period of life. Whereas friendship may be a protective factor for body satisfaction, peers may also be associated with negative experiences related to pressures to conform to body image ideals (De Goede, Branje, Delsing, & Meeus, 2009; Kenny, O'Malley-Keighran, Molcho, & Kelly, 2017; Sharpe et al., 2014). Other factors associated with receiving weight comments were not examined in the present study, but may prove relevant to consider in future studies, such as the process of internalizing the sociocultural pressures of youth. (Himmelstein & Puhl, 2019; Thompson et al., 1999), their emotional reaction (Puhl & Luedicke, 2012), their *coping* mechanisms (Japil, Mustapha, & Ee, 2018), their behavioural response type (Mills, Mort, & Trawley, 2019), the quality of their relationship with the person who said the comment (Sharpe et al., 2014; Walter & Shenaar-Golan, 2017) in addition to the presence of parental diets and family functioning (Balantekin et al., 2018).

Lastly, despite the differences observed in the literature regarding gender differences (Berge et al., 2018; Eisenberg et al., 2003; Ricciardelli & Yager, 2016), the investigation of interaction effects by gender was not significant in the current study. This

therefore suggests that although girls report more body dissatisfaction and sensitivity to the evaluation of others than boys, the connections between weight comments of friends and these dimensions of body image are equally present for both boys and girls, similar to other studies (Eisenberg, Neumark-Sztainer, Haines, & Wall, 2006; Petrie et al., 2010; Quiles Marcos et al., 2013).

Contents of the comments received relative to weight

Regarding the third objective, primarily to explore the types of negative comments on the weight expressed by the entourage, the qualitative analysis distinguished several categories. Many youth reported having received comments related to being overweight, which can be linked to the stigmatization of obesity and the associate consequences (Gravel, 2011). However, several comments received referred rather to what could be described as negative comments on slimness, which could reflect a fear of friends regarding the physical health of youth, thinness possibly being associated to diseases (Drosopoulou et al., 2020), but which also seems to be contrary to the models of slimness advocated by Western society as being typical of beauty. However, let us recall that these models also emphasize the presence of a certain level of roundness (e.g., in the breasts and hips) and muscle mass, which is not necessarily the case for adolescents when their body is changing (Jones, 2001, 2004; Wertheim & Paxton, 2011). In addition, several youth in our study may not have hit puberty yet and they may therefore have been more targeted by this type of criticism. Also, cultural norms may begin to change among youth, thinness may be viewed more negatively than slimness, or the importance of being slim

may diminish, when compared to other populations. Nevertheless, more work is needed to promote the acceptance of a healthy and diverse body image (Bégin, 2019; Gattario & Frisé, 2019; Piran, 2019). Indeed, weight criticism can increase a young person's investment in body shape and thus lead to body dissatisfaction. (Équilibre, 2014; Voelker et al., 2015). Also, Western society further encourages the presence of muscularity in boys and thinness in girls (Cash, 2012), which may also explain the presence of comments to this effect in this study. No question in the questionnaire referred to the desire to increase one's muscularity, which would have been relevant to explore. In addition, many have suggested youth change their lifestyle, both in terms of diet and physical exercise. These suggestions may have been made to encourage a change in the weight of the youth in relation to bodily aesthetics, or even in connection with the importance of healthy lifestyle habits to have a healthy body (National Academies of Sciences & Medicine, 2020). It would have been interesting to further explore the intentions of those making the comments and the manner in which the comments were said (e.g., intonation, context, alone, in the presence of others or while on social networks). Several answers received did not relate specifically to weight, but they were related to it (e.g., appearance), which may indicate a poor understanding of the question or even that for the adolescents surveyed, weight is connected with other physical aspects. It is noteworthy that none of the example comments suggested the use of extreme and unhealthy means (e.g., laxatives, diets, vomiting) in order to modify their bodily appearance. However, several comments related to appearance and aesthetics were also mentioned. In addition, some comments reported by youth referred to bullying, of which weight comments are the primary theme

among adolescents in Quebec (St-Pierre & Granger, 2014). Regarding the analysis of youth who agreed to provide comment examples, the differences present according to gender and age seem representative of the characteristics of the youth who received comments. In addition, only the youth who received the body image intervention program reported more examples than those who did not, which may suggest an increase in awareness of the presence of this phenomenon in their entourage.

Limitations and strengths

This study includes limitations. First the transversal nature of this study precludes from causal associations. Additionally, the metric used to explore examples of negative weight comments was limited and it would have been interesting to also distinguish positive and negative appearance-related comments, as their correlates may differ (Eisenberg et al., 2017). Also, it would have been relevant to clarify and define the concept of weight comments, since it could be interpreted in different ways, plus a notion of time or context added, as to outline the receipt of comments over time. Lastly, it could be interesting to study the contents, the source and the repercussions of weight comments among youth using a longitudinal design to better determine the connections between these variables.

Furthermore, the current study also has several strengths that are worthy of mentioning. Foremost, according to current knowledge, this is the first study that specifically analyzes the presence of negative weight comments among adolescents and

differences in sources, distinguishing their presence according to gender, age and body type perceived by adolescents, as well as their connections to satisfaction with appearance and sensitivity to negative evaluation by others. It is also the first study to qualitatively explore the types of weight comments received among youth, in addition to the most reported themes according to gender and age, while the majority of the studies reviewed focused specifically on intimidation. Also, the sample size made it possible for powerful analysis and the ability to consider several variables simultaneously. This work provides a better understanding of the reality and pressures experienced by youth in early and mid-adolescence, while emphasizing the importance of making youth, their peers and their families aware of the presence of negative weight comments and their connection with the different dimensions of body image.

Conclusion

Goal of this study was to document the presence of negative weight comments in this age group depending on their sources and certain individual characteristics, as well as their associations with satisfaction of appearance and sensitivity to negative evaluation by others. The results obtained provide additional support for the presence of weight-related comments in youth and their associations with body image. These findings have implications for better identifying which youth are most likely to perceive comments and who in their entourage are the most likely to comment on their weight. These elements are relevant to consider for the prevention, awareness and intervention programs for a positive body image and healthy lifestyles among youth (Bégin, 2019; Carrard et al., 2019;

Poretti & Van Beek, 2017). Although it appears that friends may be primary prevention targets, it is important to make everyone in the youth's entourage aware of the repercussions of comments and discussions related to weight, even if they are intended to be positive or neutral. In closing, these results support the tripartite influence model of body image and eating disturbance, by illustrating that the comments made by youth's are related to their body satisfaction and associated behaviours and emotions.

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Conclusion de l'essai

Le présent essai doctoral s'est intéressé à l'influence de l'entourage sur la satisfaction à l'égard de l'apparence des adolescents âgés de 12 et 15 ans. Les analyses réalisées et présentées à l'aide des deux articles démontrent qu'effectivement, l'entourage joue un rôle important sur cette dimension de l'image corporelle qui a été jusqu'alors peu documentée dans la littérature scientifique. Toutefois, les associations sont différentes selon les caractéristiques des adolescents, ce qui permet d'apporter certaines nuances. Plus précisément, il en ressort que le fait d'être une fille, d'être en mi-adolescence (15 ans), de percevoir avoir une forte silhouette et de recevoir des commentaires négatifs sur son poids, peuvent être des facteurs associés à l'insatisfaction à l'égard de son apparence. Le soutien maternel et le soutien des amis apparaissent comme des facteurs de protection pour la satisfaction à l'égard de l'apparence, mais pas celui du père. Également, parmi plusieurs personnes de l'entourage (mère, père, fratrie, amis, membres de la famille élargie, partenaire amoureux, professeur d'éducation physique ou entraîneur sportif), uniquement les commentaires émis par les amis contribuent significativement de manière négative à la satisfaction à l'égard de l'apparence et à la peur de l'évaluation négative par autrui sur une période d'un an, et ce, tant chez les garçons que chez les filles. Enfin, les thèmes les plus fréquents des commentaires négatifs sur le poids émis par l'entourage sont reliés au surpoids, au sous-poids et aux suggestions concernant les habitudes de vie.

Ainsi, les résultats des deux études réalisées dans le cadre de cet essai doctoral permettent d'appuyer certains liens précédemment documentés dans la littérature, ainsi que d'apporter un éclairage nouveau sur certains concepts reliés à l'image corporelle. Les présents résultats ont mis en lumière l'association positive entre le soutien social de la mère et des amis et la satisfaction à l'égard de l'apparence des adolescents. Il est possible que dans la majorité des foyers québécois, le rôle du père se définisse autrement que celui de la mère. Ainsi, tel que souligné par différents auteurs, d'autres dimensions présentes dans la relation avec le père pourraient également représenter des facteurs de protection (Luijten et al., 2021; Tissot et al., 2015), ce qui pourraient être élucidées dans de prochains travaux. Les résultats concernant l'évolution de la satisfaction à l'égard de l'apparence entre le début et la mi-adolescence, ainsi que l'influence du soutien social des amis, permettent d'appuyer les recherches portant sur les retentissements possibles de la puberté sur l'image corporelle et les transitions entre l'importance sociale des parents vers celle des amis en vieillissant (De Goede et al. 2009; Ullsperger & Nikolas, 2017).

En lien avec les thématiques présentes dans les commentaires négatifs sur le poids émis par l'entourage, l'analyse suggère que l'intériorisation des normes de beauté physique prônées par les médias dans la société occidentale semble être ancrée chez beaucoup d'adolescents. Cette intériorisation peut engendrer des préjugés face au poids, telle qu'une mauvaise connaissance des facteurs menant au surpoids, et que ces préjugés peuvent mener à certains commentaires négatifs sur le poids (Puhl et al, 2020). Cette analyse suggère également que, pour plusieurs personnes, les habitudes de vie sont

fortement reliées à la silhouette corporelle. Il est également possible que l'intériorisation de cette peur puisse s'expliquer selon des facteurs individuels tels que le type de personnalité, la tendance aux interprétations erronées, les expériences traumatisantes vécues, ainsi que les stratégies de *coping* et les mécanismes de régulation émotionnelle, bien que le présent essai ne considère pas ces variables (Arabaci et al., 2021; Jail et al., 2018).

Les résultats obtenus appuient en partie la théorie du modèle tripartite de l'image corporelle et des troubles alimentaires, en lien avec l'importance que peut occuper la famille et les pairs sur la satisfaction de son image corporelle (Ata et al., 2007; Kenny et al., 2017; Thompson et al., 2017). En effet, ils concordent avec les influences documentées des critiques reçues par les personnes significatives de l'entourage, de la peur de ces critiques, ainsi que des effets protecteurs possibles du sentiment d'être soutenu par ces personnes, sur l'image corporelle. Il est toutefois à noter que le présent essai doctoral ne visait ni ne permettait pas de se pencher sur les mécanismes sous-jacents de la théorie tripartite de l'image corporelle et des troubles alimentaires que sont la comparaison à l'apparence d'autrui et l'intériorisation des normes de beauté physique, ainsi que l'exposition à des commentaires par le biais des médias sociaux (Rodgers et al, 2020). Néanmoins, les résultats obtenus permettent de mieux comprendre qui peuvent être les jeunes québécois vulnérables à l'insatisfaction à l'égard de l'apparence, de même que d'identifier quelles personnes parmi l'entourage peuvent jouer un rôle important sur cette problématique et par extension, sur possiblement leur santé mentale et physique

(Duchesne et al., 2017; López-Guimerà et al., 2013; Thomas & Warren-Findlow, 2020). Ils permettent également de souligner l'importance de la place occupée socialement par la famille et par les amis dans le développement de l'image corporelle des adolescents, ainsi que les mécanismes par lesquels le soutien social et les commentaires négatifs sur le poids émis par l'entourage peuvent influencer la satisfaction à l'égard de l'apparence. Par ailleurs, comme peu d'écrits scientifiques portent à ce jour sur ces éléments et que la majorité des études se concentrent sur la mère et les amis, les résultats obtenus permettront d'accroître la littérature existante portant sur la satisfaction à l'égard de l'apparence, sur le rôle du père, sur les liens entre la peur de l'évaluation négative par autrui et les commentaires négatifs sur le poids, ainsi que sur les associations entre l'entourage et l'image corporelle.

À la lumière des analyses réalisées, des pistes d'intervention peuvent être identifiées. Dans un premier temps, il importe donc de miser sur la qualité du soutien social reçu par les jeunes en provenance de leur entourage, surtout de leur mère et des amis. En effet, les résultats obtenus soulignent l'importance que les adolescents bénéficient d'un environnement sécurisant et positif pour leur bon développement psychologique, physique et social, tout comme le rappelle également la théorie de l'attachement (Atger et al., 2017; Bowlby et al., 1989; Coleman, 2011). Également, il serait pertinent de considérer les approches de types familiales et systémiques dans le traitement psychologique de l'insatisfaction corporelle (Cook-Darzens, 2014; Smith & Cook-Cottone, 2011). Dans un deuxième temps, considérant que la satisfaction à l'égard

de l'apparence diminue sur une période d'un an pour les étudiants de 1^{ère} secondaire (7^e année), mais pas pour ceux de 4^e secondaire (10^e année), il est primordial d'intervenir auprès des jeunes débutant la puberté, cette période pouvant être éprouvante pour l'estime de soi et l'image corporelle (Kilpela et al., 2015; Voelker et al., 2015). Par ailleurs, parmi les thématiques des commentaires, aucun adolescent n'a fait mention de l'aspect génétique et biologique inhérente à la silhouette, ce qui laisse suggérer qu'il serait pertinent que des programmes de sensibilisation chez les jeunes ciblent cette composante afin d'améliorer leur compréhension de la diversité corporelle (Orthofer et al., 2020). En effet, l'obésité, par exemple, n'est pas nécessairement engendrée par un manque d'activité physique et une mauvaise alimentation. Il s'agit d'une maladie chronique complexe qui peut également être associée à plusieurs facteurs génétiques et métaboliques (Wharton et al., 2020). Par ailleurs, l'intention des commentaires (p. ex., positive, négative, neutre) n'a pas été étudiée dans le présent essai, mais il appert important de sensibiliser l'entourage au fait que les commentaires taquins ou se voulant être positifs peuvent tout de même avoir un impact négatif sur l'image corporelle, considérant qu'ils peuvent aussi augmenter l'importance que la personne accorde à son physique (Herbozo et al., 2017; Tiggeman et Barbato, 2018). D'autres études seront nécessaires afin d'explorer les répercussions que peuvent avoir les commentaires sur le poids sur la satisfaction à l'égard de l'apparence à plus long terme, soit vers la fin de l'adolescence et au début de l'âge adulte. Il serait également pertinent de mieux comprendre la contribution des commentaires positifs sur le poids sur la satisfaction à l'égard de l'apparence, ou encore si les thématiques des commentaires reçus sur le poids changent en vieillissant chez les adolescents. De

prochains travaux pourraient également se pencher sur les associations avec la satisfaction liée au poids plutôt que la satisfaction à l'égard de l'apparence. Enfin, il pourrait être intéressant d'approfondir si le nouveau mouvement *Body Positive* sur les réseaux sociaux, qui prône l'acceptation et l'appréciation de la diversité corporelle, est un facteur de protection ou de risque pour la satisfaction à l'égard de l'apparence chez les adolescents (Cohen et al., 2021; Nelson et al., 2022).

Pour conclure, les résultats présentés soulignent l'importance de continuer à identifier les facteurs de protection, de risque et de maintien de cette problématique préoccupante qu'est l'insatisfaction corporelle chez les adolescents, de même que de poursuivre l'investissement dans la mise en place de programmes de prévention et de sensibilisation dans les écoles (Carrard et al., 2019; Tylka & Wood-Barcalow, 2015). L'identification de ces facteurs et l'investissement dans ces programmes permettront de mieux comprendre les réalités que vivent les jeunes, d'améliorer leur compréhension et leur vision de leur corps et par extension, leur santé physique comme mentale, de limiter leur exposition à des sources d'insatisfaction et finalement, d'adapter et de leur fournir de manière accessible l'aide pertinente à leur apporter afin qu'ils puissent se développer de manière optimale.

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Appendice A
Certification éthique

Cet essai doctoral a fait l'objet d'une certification éthique. Le numéro du certificat est 2021-497.

Appendice B

Attestation d'authorship et de responsabilité pour l'ensemble de l'essai

