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**Une analyse motivationnelle de la régularisation
du comportement alimentaire**

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**Thèse soumise à la Faculté des études supérieures et postdoctorales
de l'Université d'Ottawa dans le cadre des exigences
du programme de doctorat en philosophie**

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Cette thèse est dédiée à mes parents, Daniel et Anne-Marie,
ainsi qu'à ma soeur jumelle, Maryse
pour leur soutien continu et tant apprécié
tout au long de ce projet.

Plus particulièrement...

Merci papa pour le vif intérêt que tu démontres face à tous ce que j'entreprends,

Merci maman pour m'avoir si bien enseigné l'une de tes plus belles qualités soit, la persévérance et

Merci "soeurette" pour tes nombreux mots d'encouragement comme pour tes silences qui m'en
disaient tout autant, sinon plus....

REMERCIEMENTS

J'aimerais tout spécialement remercier mon directeur de thèse, Dr. Luc G. Pelletier, pour son enthousiasme envers ce projet, son encadrement, ses encouragements et ses commentaires constructifs. Plus important encore, je tiens à le remercier pour la si grande confiance qu'il a témoignée envers mes capacités de chercheuse tout au long de ce projet. Il a su me fournir les outils nécessaires tout en m'accordant la souplesse pour en faire un projet qui est mien.

Mes remerciements vont également aux membres du comité de cette thèse, Dr. Richard Clément, Dre. Gail Crombie, et Dre. Catherine Lee qui, chacun(e) à leur façon, ont contribué au raffinement de ce projet.

Je tiens à souligner les contributions tant appréciées de plusieurs de mes amies et collègues de travail, Isabelle Green-Demers, Najwa Haddad, Louise Legault et Chantal Lévesque. A special thank goes to you Marylin, for your generous support, helpful comments and words of encouragement throughout this project. Your friendship provided me tremendous comfort during the most difficult times of this journey.

Je tiens à exprimer ma sincère reconnaissance à Céline Blanchard pour la générosité dont elle a fait preuve en lisant et commentant de façon soignée et attentive certaines portions de cette thèse.

Merci aux nombreux étudiant(e)s de l'Université d'Ottawa qui ont accepté si généreusement de fournir des efforts et de leur temps pour participer aux études de cette thèse.

RÉSUMÉ

Le but de cette thèse était d'examiner, à l'aide d'une approche motivationnelle, pourquoi certaines femmes, bien qu'insatisfaites de leur image corporelle présentent un comportement alimentaire sain alors que d'autres manifestent un comportement alimentaire dysfonctionnel. La motivation a été évaluée à deux niveaux: un niveau global et un niveau spécifique. Le niveau global correspondait à la motivation des femmes à régulariser les différentes activités de leur vie en général, alors que le niveau spécifique correspondait à la motivation des femmes à régulariser leur comportement alimentaire. Au total, quatre études ont été effectuées auprès d'étudiantes à l'Université d'Ottawa. Les résultats de la première étude ($N=299$) ont révélé que l'ajout du niveau d'autodétermination global contribuait significativement à l'explication de pourquoi certaines femmes, bien qu'exposées aux divers messages socioculturels concernant l'image corporelle, sont moins influencées par ceux-ci et moins susceptibles de présenter des symptômes de boulimie. Lors des deuxième ($N=335$) et troisième ($N=339$) études, nous avons procédé au développement d'une version expérimentale de l'Échelle de Régularisation des Comportements Alimentaires (ERCA) qui permet la mesure des six styles de régularisation comportementale proposés par Deci et Ryan (1985, 1991) dans leur théorie de l'autodétermination. Un modèle portant sur les relations entre deux formes globales de régularisation alimentaire (autonome et contrôlée), deux types de comportement alimentaire (sain vs. dysfonctionnel), et l'ajustement psychologique a été évalué par le biais d'analyses par équations structurelles. Globalement, les résultats ont révélé qu'une forme de régularisation alimentaire autonome était associée positivement à un comportement alimentaire sain, lequel était positivement associé à l'ajustement psychologique. Par ailleurs, une forme de régularisation alimentaire contrôlée était associée positivement à un comportement alimentaire dysfonctionnel, lequel était négativement associé à l'ajustement psychologique. Lors de la quatrième et dernière étude ($N=442$), un modèle intégratif de la régularisation du comportement alimentaire a été proposé et testé. Entre autres, dans ce modèle, les deux formes globales de régularisation alimentaire (autonome vs. contrôlée) ont été proposées comme mécanismes motivationnels permettant de mieux comprendre la nature des relations entre l'insatisfaction

corporelle et deux types de comportement alimentaire (sain vs. dysfonctionnel). Globalement, les résultats d'analyses par équations structurelles ont suggéré que le niveau d'autodétermination global est associé à la façon dont les femmes régularisent leur comportement alimentaire, ce qui est relié à des comportements alimentaires qualitativement différents. Ces comportements alimentaires, à leur tour, sont reliés à l'ajustement psychologique de la personne. Finalement, le niveau global d'autodétermination est négativement associé aux influences socioculturelles concernant l'image corporelle. Les résultats sont discutés en termes de leurs implications théoriques et pratiques. Des pistes de recherches futures sont également proposées.

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NOTE SUR LA STRUCTURE DE LA THÈSE

La présente thèse débute par une brève introduction dont le but est d'introduire la séquence des études qui suivront. Ces études sont présentées sous formes d'articles scientifiques. Au total, 4 études ont été complétées. Le premier article présente les études 1 et 2, alors que les deuxième et troisième articles présentent les études 3 et 4 respectivement. Les trois articles sont présentés sous leur forme originale, c'est-à-dire selon les règles stipulées par les revues scientifiques auxquelles ils ont été soumis. Le premier article a été soumis à la revue *Journal of Social and Clinical Psychology*, le deuxième à la revue *Health Psychology* et finalement, le troisième à la revue *Journal of Consulting and Clinical Psychology*. Une discussion générale clôture les trois articles. La feuille d'instructions fournie aux participants, les mesures utilisées dans les études et les matrices de covariance relatives aux données analysées pour chacune des études sont présentées en annexes A, B & C respectivement.

INTRODUCTION

L'ingestion de nourriture est une activité fondamentale pour tout être humain. Nous avons tous besoin d'un apport nutritif minimal pour survivre. Bien qu'à première vue la régularisation de cette activité puisse paraître simple, c'est-à-dire que l'on mange lorsqu'on ressent la faim et que l'on cesse lorsque nous sommes rassasiés, plusieurs d'entre nous avons de la difficulté à contrôler la quantité et/ou la qualité des aliments que l'on ingère (Heatherton, Baumeister, & Tice, 1994). Aux Etats-Unis, 5 des 10 principales causes de décès (maladies cardiovasculaires, certains types de cancer, accidents cérébro-vasculaires, diabète type II, et athérosclérose) sont liées au moins en partie, à une régularisation inadéquate de ses comportements alimentaires (Beneke & Vander Tuig, 1996). Egalement, les statistiques révèlent qu'un peu plus du tiers des gens font de l'embonpoint (Kuczmarski, Flegal, Campbell, & Johnson, 1994). Afin de remédier à cet excès de poids, plusieurs entreprennent un régime alimentaire. En fait, de 40 à 70% de la population essaie de perdre du poids à un moment ou l'autre de leur vie (CDC, 1991). Ceci se traduit par des dépenses annuelles de quelques 35 milliards de dollars en produits et programmes de diètes de toutes sortes (Brownell, 1991). Malheureusement, parmi les gens qui suivent un régime alimentaire, près de 95% reprendront le poids perdu et dans certains cas, plus de poids que ce qu'ils avaient initialement perdu (Garner & Wooley, 1991).

La boulimie représente un exemple d'une psychopathologie où les personnes atteintes éprouvent des difficultés à régulariser leur alimentation. Plus spécifiquement, cette psychopathologie se caractérise par des épisodes incontrôlables de gavage d'aliments qui sont suivis de comportements dits compensatoires (ex., vomissements, laxatifs, restriction alimentaire) dans le but d'éviter tout gain de poids (American Psychiatric Association, 1994). Les conséquences de cette psychopathologie peuvent être importantes. Par exemple, les épisodes de gavage sont habituellement accompagnés de sentiments intenses de culpabilité et d'un affect dépressif. Pour leur part, les comportements compensatoires peuvent entraîner un déséquilibre important des électrolytes (potassium) pouvant causer des arythmies cardiaques et dans certains cas sévères, la mort (Foreyt & Mikhail, 1997).

Plusieurs perspectives (ex., familiale, biologique, socioculturelle) ont été invoquées pour tenter de mieux comprendre l'étiologie de cette maladie. Parmi celles-ci, l'approche socioculturelle est certes l'une de celles qui a reçu le plus d'attention au cours des dernières décennies. Selon cette approche, les pressions socioculturelles actuelles à propos de l'image corporelle favoriseraient un endossement chez les femmes, de l'idéal de minceur. Etant donné que cet idéal correspond à un poids corporel extrêmement faible, plusieurs femmes, lorsqu'elles comparent leur poids actuel à cet idéal, développent une insatisfaction corporelle. En réponse à cette insatisfaction, certaines auraient recours à des moyens excessifs afin de restreindre leur alimentation. Selon Polivy et Herman (1985), cette restriction alimentaire favoriserait des comportements de gavage qui peuvent évoluer vers le syndrome de boulimie.

Bien que les parents, les amis et le partenaire aient été identifiés comme des sources potentielles de pressions concernant l'idéal de la minceur (Stice, 1994), plusieurs auteurs suggèrent que les médias (i.e., télévision, journaux, revues de mode) constituent la principale source de transmission de messages concernant l'image corporelle idéale (e.g., Heinberg, 1996; Mazur, 1986). Par exemple, une étude de Nichter et Nitcher (1991) a révélé que les jeunes adolescentes avaient pour idéal de minceur les modèles qui leurs étaient présentés dans des revues de mode pour adolescentes. Ces modèles étaient décrits comme des blondes aux yeux bleus, mesurant 5'7'', pesant 100 lbs et de taille 5. Cependant, selon les normes de santé, l'atteinte d'un tel standard de minceur correspond à un indice de masse corporelle (IMC) beaucoup trop faible, ce qui peut entraîner des conséquences négatives pour la santé telles l'anorexie et l'aménorrhée (i.e, absence de menstruation).

Mais la plupart des femmes ou adolescentes étant à un certain niveau exposées aux pressions socioculturelles au sujet de l'image corporelle, comment expliquer que certaines personnes endossent davantage que d'autres les croyances de minceur et d'obésité véhiculées dans la société? Y-a-t-il des différences individuelles qui puissent expliquer le fait que certaines personnes résistent davantage à l'influence des pressions au sujet de l'image corporelle ce qui par conséquent, pourrait les rendre moins susceptibles à des symptômes boulimiques?

La théorie de l'autodétermination de Deci et Ryan (1985, 1991) apparaît comme une approche intéressante pour tenter de répondre à ces questions puisqu'elle permet de différencier les gens selon le niveau d'autonomie (motivation autodéterminée) qui sous-tend leurs comportements. Plus spécifiquement selon cette théorie, il existe diverses raisons pour lesquelles les gens s'engagent dans les différentes activités de leur vie. Ces raisons reflètent des motivations distinctes qui se caractérisent par différents niveaux d'autodétermination. Selon Deci et Ryan (1985, 1991), plus une personne est motivée de façon autodéterminée, plus elle perçoit qu'elle est à l'origine de ses actions c'est-à-dire que celles-ci sont choisies. À l'opposé, lorsqu'une personne est motivée de façon non autodéterminée, elle a tendance à agir parce qu'elle se sent contrôlée, soit par des pressions internes (ex., ressent culpabilité ou honte) ou encore, par des pressions externes (ex., société, parents).

L'objectif principal de cette thèse est d'utiliser le cadre théorique motivationnel proposé par la théorie de l'autodétermination (SDT; Deci & Ryan, 1985, 1991) pour tenter de mieux comprendre pourquoi certaines femmes, bien qu'insatisfaites de leur image corporelle, présentent des comportements alimentaires sains alors que d'autres manifestent des symptômes de boulimie.

Dans cette thèse, l'influence de la motivation est évaluée à deux niveaux: un niveau global et un niveau spécifique. Le niveau global correspond à la motivation globale des femmes à s'engager dans les différentes activités de leur vie en général alors que le niveau spécifique correspond à la motivation des femmes à régulariser une activité en particulier, soit l'alimentation.

Au total, quatre études regroupées en trois articles seront présentées. Les trois premières études ont pour but de tester des portions spécifiques du modèle final, lequel est présenté dans la quatrième et dernière étude de cette thèse. Plus spécifiquement, dans le cadre du premier article (première étude), nous examinons l'influence du niveau d'autodétermination globale sur la perception des pressions socioculturelles à l'égard de l'image corporelle, l'endossement des croyances de minceur et d'obésité véhiculées dans la société et les comportements alimentaires dysfonctionnels (symptomatologie boulimique). Parce que la motivation autodéterminée reflète une tendance générale à se percevoir comme étant à l'origine de son comportement et libre de

prendre ses propres décisions, il est postulé que plus les femmes sont globalement motivées de façon autodéterminée, moins elles devraient percevoir de pressions socioculturelles concernant l'image corporelle et moins elles devraient endosser les croyances de minceur et d'obésité véhiculées par la société. Pour ces femmes, l'évaluation de leur image corporelle devrait se faire en fonction de leurs propres critères plutôt que ceux qui leur sont présentés dans la société. De plus, parce que selon la théorie de l'autodétermination (Deci & Ryan, 1985, 1991) un niveau élevé de motivation autodéterminée est associé à un fonctionnement général positif, il est proposé que les femmes qui ont un niveau élevé de motivation autodéterminée devraient être moins susceptibles de présenter des comportements alimentaires dysfonctionnels (symptômes de boulimie).

Contrairement au premier article où la motivation est examinée à un niveau global c'est-à-dire au niveau d'une disposition de la personnalité, dans le cadre du deuxième article nous nous intéressons à la motivation à un niveau spécifique, soit la motivation à régulariser ses comportements alimentaires. D'après Vallerand (1997), une des façons d'évaluer la motivation indépendamment de ses déterminants et conséquences consiste à isoler la nature même de la motivation soit le "pourquoi" du comportement. Etant donné qu'aucune échelle portant sur les raisons pour lesquelles les gens régularisent leur comportement alimentaire n'existe dans les écrits, dans une deuxième étude, nous procédons au développement et à la validation d'une telle échelle (première étude du deuxième article). Cette échelle est basée sur les différents styles de régularisation du comportement proposés par Deci et Ryan (1985, 1991) dans leur théorie de l'autodétermination. Dans la troisième étude (deuxième étude du deuxième article), la vérification de la structure de l'échelle de régularisation des comportements alimentaires auprès d'un échantillon indépendant ainsi que les propriétés psychométriques de cette échelle sont évaluées. Egaleme nt, nous tentons de répondre à la question suivante: "les diverses raisons (styles de régularisation alimentaire) pour lesquelles les femmes régularisent leur comportement alimentaire mènent-elles à des conséquences différentes?"

En accord avec la théorie de l'autodétermination, parce que les styles de régularisation varient en terme du niveau de motivation autodéterminée qui leur est sous-jacent et que la

motivation autodéterminée est associée à un meilleur fonctionnement global, il est postulé que les styles de régularisation les plus autodéterminés mèneront aux conséquences les plus positives. Plusieurs études effectuées dans différents domaines de vie par exemple, l'éducation (Deci , Vallerand, Pelletier, & Ryan, 1991), les relations interpersonnelles (Blais, Vallerand, Pelletier, & Brière, 1994), l'environnement (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998), la santé (Williams, Grow, Freedman, Ryan, & Deci, 1996), le sport (Vallerand, Deci, & Ryan, 1987) et les loisirs (Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996) ont supporté cette hypothèse (ex. meilleur apprentissage, plus grand intérêt, plus grand déploiement d'efforts, meilleur santé etc.). Ainsi, dans la troisième étude de cette thèse, nous tentons de vérifier si les relations postulées par la théorie de l'autodétermination entre les styles de régularisation et les conséquences s'étendent au domaine de l'alimentation.

Finalement, dans le cadre du troisième article (quatrième étude) nous mettons à l'épreuve un modèle intégratif de la régularisation alimentaire qui tient compte à la fois du profil motivationnel global (disposition de la personnalité) des femmes et de leur motivation spécifique à régulariser leur comportement alimentaire. Dans ce modèle, des mécanismes motivationnels sont proposés dans le but de mieux comprendre pourquoi dans certains cas, l'insatisfaction corporelle est associée à des comportements alimentaires dysfonctionnels (symptomatologie boulimique) alors que dans d'autres, elle est associée à des comportements alimentaires sains.

Plusieurs études ont établi une relation importante entre l'insatisfaction corporelle et les comportements alimentaires dysfonctionnels. Par exemple, Leon, Fulkerson, Perry et Cudeck (1993) ont noté que l'insatisfaction corporelle constituait un prédicteur significatif du niveau de dysfonctions alimentaires deux ans plus tard alors que plusieurs autres variables (psychopathologie générale, relations familiales et degré de maturation physique) ne constituaient pas de prédicteurs significatifs. Des études plus récentes ayant utilisées des modèles d'équations structurelles supportent également la relation entre l'insatisfaction corporelle et les comportements alimentaires dysfonctionnels (e.g., Thompson, Coover, Richards, Johnson, & Cattarin, 1995; Stice, Shaw, & Nemeroff, 1998).

Bien que l'insatisfaction corporelle soit fortement reconnue chez les personnes ayant un comportement alimentaire dysfonctionnel, sa prévalence ne semble pas se limiter à cette population. En fait, Rodin, Silberstein et Striegle-Moore (1985) ont observé que l'insatisfaction corporelle se retrouve également à différents degrés dans la population générale. Ces auteurs ont utilisé l'expression "mécontentement normatif" pour décrire l'étendue du phénomène. C'est donc dire que l'insatisfaction corporelle en elle seule ne constitue pas une condition suffisante pour le développement de comportements alimentaires dysfonctionnels. Ainsi, comment peut-on expliquer que certaines personnes, malgré le fait qu'elles présentent une insatisfaction corporelle ne démontrent pas un comportement alimentaire dysfonctionnel tel la boulimie?

De l'ensemble des études portant sur l'insatisfaction corporelle, aucune ne permet de répondre à cette question puisqu'aucun chercheur n'a examiné à l'intérieur du même modèle, les relations entre l'insatisfaction corporelle, les comportements alimentaires sains et les comportements alimentaires dysfonctionnels. La quatrième étude de cette thèse tente donc de remédier à cette lacune en proposant et testant un modèle intégratif de la régularisation alimentaire.

Plus spécifiquement, dans ce modèle, les styles de régularisation alimentaire identifiés dans l'étude 2 et 3 sont proposés comme des mécanismes permettant de mieux comprendre la nature de la relation entre l'insatisfaction corporelle et les comportements alimentaires. Le modèle comprend également certains déterminants de l'insatisfaction corporelle (i.e., pressions socioculturelles à l'égard l'image corporelle, endossement des croyances de la société concernant la minceur et l'obésité) de même que certains indicateurs de l'ajustement psychologique représentant des conséquences possibles des comportements alimentaires (i.e., symptomatologie dépressive, estime de soi, satisfaction envers la vie). De plus, l'influence de la motivation globale des femmes (niveau d'autodétermination) sur les pressions socioculturelles, l'endossement des croyances de la société, et leur motivation contextuelle à régulariser leur comportement alimentaire est évaluée.

Les hypothèses spécifiques à chaque étude sont mentionnées dans les articles. Les données propres à chaque étude seront d'abord soumises à des analyses préliminaires afin de s'assurer que celles-ci rencontrent les postulats de base spécifiques aux principales analyses multivariées à être

effectuées subséquemment. Finalement, une discussion globale clôture la présente thèse. Cette discussion a pour but de faire l'intégration des résultats obtenues dans chacune des quatre études et de présenter les principales limites de la thèse. Les implications théoriques et pratiques sont également discutées et certaines pistes de recherche future sont abordées.

**Can Self-Determination Reduce Sociocultural Influences
About Body Image and Reduce the Risk of Experiencing Bulimic Symptoms ?**

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January 15, 2001

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Abstract

According to the sociocultural approach of eating pathology, the more women perceive sociocultural pressures about body image, the more they endorse society's beliefs related to thinness and obesity which in turn is associated with greater body dissatisfaction. Also, the more dissatisfied women are about their body image, the more they report bulimic symptoms. In the present study, the same sequence of variables was tested with the addition of a global self-determination variable to examine why sociocultural pressures are associated with bulimic symptomatology in only a subset of women. Participants ($N=299$) consisted of university female students. Analyses revealed that the more women were globally self-determined towards the different aspects of their life, the less they perceived sociocultural pressures about body image, the less they endorsed society's beliefs related to thinness and obesity, and the less they experienced bulimic symptoms. These findings suggest that a global self-determined motivational profile in life could possibly act as a buffer against sociocultural influences about body image and decrease women's risk of experiencing bulimic symptoms.

Can Self-Determination Reduce Sociocultural Influences

About Body Image and Reduce the Risk of Experiencing Bulimic Symptoms ?

It is now well recognized that many young women engage in a variety of disordered eating patterns and unhealthy weight control strategies associated with eating pathology (Leon, Carroll, Chernyck, & Finn, 1985; Leon, Fulkerson, Perry, & Cudeck, 1993; Leon, Perry, Mangelsdorf, & Tell, 1989). For instance, a study by Crowther, Post, and Zaynor (1985) revealed that 11% of the adolescent girls in their sample engaged in self-induced vomiting, 5% took laxatives, and 46% reported binge eating. Similarly, a study by Williams, Schaefer, Shisslack, Gronwaldt and Comerici (1986) revealed that 25% of the sample of adolescents were dieting, 22% were binge eaters, 8% vomited after eating, and 4% took drugs to lose weight. Although many women only exhibit some symptoms or subclinical forms of eating pathology, U.S prevalence rates for Bulimia Nervosa range from 1.2% to over 16% in female college populations (for a review of U.S studies, see Gross & Rosen, 1988; Stein & Buriza, 1989; Whitetaker et al., 1989). Variation in prevalence rates can be explained by the discrepancies in diagnostic criteria and sampling (for a review, see Connors & Johnson, 1987). Nevertheless, when the most conservative estimates¹ of prevalence are considered, Bulimia Nervosa still represents one of the most prevalent forms of psychopathology among adolescent and young women. It is characterized by episodes of uncontrollable eating binges typically followed by compensatory behaviors (e.g., self-induced vomiting, laxatives use, severe restrictive dieting) aimed at avoiding weight gain (Weltzin & Bolton, 1998).

Over the years, different models have been proposed to explain etiological or perpetuating factors of eating pathology. Among these models, the sociocultural approach has received considerable attention and empirical support from researchers. According to this approach, eating disorders are largely a sociocultural phenomenon (Bordo, 1993; Gordon, 1990; Wolf, 1991). They are considered a product of increasing pressures for women to achieve the ultra-slender body image promoted by society (Striegel-Moore, Silberstein, & Rodin, 1986; Wilson & Eldredge, 1992).

Based on this approach, Stice (1994) proposed a theoretical model that specifies the mechanisms by which sociocultural pressures are linked to eating pathology. Simply stated, this model posits that sociocultural pressures to be thin lead women to endorse the ubiquitous thin-ideal stereotype as the standard for feminine beauty. Because the ideal-body weight portrayed in society is extremely low, many women are dissatisfied with their body image. Body dissatisfaction in turn is thought to promote the use of unhealthy weight control strategies (e.g., dietary restraint) and/or to produce negative affect. Both, dietary restraint and negative affect are hypothesized to increase the likelihood of binge eating and hence the onset of bulimia nervosa. Stice's theoretical model of Bulimia, the Dual Pathway Model of Bulimia², has been empirically supported using structural equation modeling in both, cross-sectional (Stice, Nemeroff, & Shaw, 1996) and longitudinal studies (Stice et al., 1998).

Although, Stice's Dual Pathway Model of Bulimia provides a good explanation of the mechanisms that link sociocultural pressures to actual eating disorders, it does not explain why sociocultural pressures lead to eating disorders in only a subset of women³. Almost every woman is to some extent exposed to the thin-ideal portrayed in society but only a minority develop eating disorders (Stice, 1994). This would suggest that some women have the ability to resist external pressures and to act more in accordance with their own self-congruent values. But how can we explain that some women, although exposed to sociocultural pressures about body image, may not, or at least to a lesser degree, endorse the thin-ideal and consequently, be less at risk to experience symptoms of disordered eating?

With the exception of one recent study (Twamley & Davis, 1999), little empirical work has examined women's characteristics that may protect them from sociocultural influences related to the thin-ideal. Twamley and Davis (1999) found that nonconformity that is, the propensity to disregard norms or convention (Marlowe & Gergen, 1986), could increase women's resiliency against sociocultural pressures about the thin-ideal. More specifically, multiple regression analyses revealed that nonconformity moderated the relationship between exposure to thinness norms and endorsement of the thin-ideal. At higher levels of nonconformity, awareness of thinness norms

had a smaller effect on thin-endorsement than at lower levels of nonconformity. In other words, among women who were more nonconforming, awareness of thinness norms was less likely to be associated with endorsement of the thin-ideal. In turn, endorsement of the thin-ideal was found to be associated with body dissatisfaction, which was related to eating pathology.

Although it is clear that nonconformity can make a woman more resistant to sociocultural pressures about thinness, it seems that the process by which nonconformity leads to a greater resistance is not clear. The issue that needs to be addressed is whether nonconformity is adopted as a way to rebel against external pressures (i.e., not truly chosen) or as a personal choice in agreement with one's inner self (i.e., commitment). In other words, why does one decide to conform or not to what society emphasizes?

According to Deci and Ryan (1985), behaviors that are autonomously motivated that is, behaviors for which the regulation is experienced as chosen and as emanating from the self are integrated with one's self and therefore, should be maintained over time. For instance, individuals can show nonconformity as a true expression of themselves because they personally choose to disregard society's values and to follow what they, themselves, believe to be true. Their behavior is not a way to rebel against external forces. Rather, it is an extension of what they personally feel and value. For them, sociocultural messages about thinness are not perceived as controlling events but rather, as information provided by the environment that they can evaluate in relation to their own experiences, goals, and values. This information is used to choose the best course of action that will lead them to attain their own integrated goals or to continue to uphold their own integrated values.

Other behaviors such as automatic defiance, which may be adopted as a form of rebellion, are said to be controlled because the regulation of these behaviors is not self-initiated but rather, it is initiated by sources located outside the self^d (i.e., internal rebellious feelings). For example, because adolescence represents a period of quest for autonomy and self-identity, it is not unusual for adolescents to adopt nonconformist behaviors as a way to rebel against overprotective parents, authority, or society in general. As Deci and Ryan (1985) suggested: "people respond to

controlling events either by complying with what is demanded of them or by rebelling against the demand (p.69)". Thus, adolescents may do the opposite of what is demanded simply because they feel controlled. In this case, the nonconformist behavior is intentional but not truly chosen. It is a reactance against a loss of freedom that is, an attempt to regain a sense of autonomy to compensate for the thwarted need to be agentic. According to Deci and Ryan (1985), this nonconformist behavior is unlikely to persist over time because its regulation is characterized by rigidity and tension (inner conflict) rather than by flexibility and cohesion. Research (e.g., Greenstein & Koestner, 1996; Williams, Schaefer, Shisslack, Gronwaldt, & Comerchi, 1996) has repeatedly shown that goals enacted through controlling rather than autonomous regulation are likely to suffer from "weakness of will". In other words, individuals who adopt controlling regulated goals eventually lack the strength necessary to carry out the behavior in the face of competing demands.

In sum, it appears that nonconformity, although reflecting an intentional action, may not always be self-initiated and autonomously regulated, and therefore, is likely to be transient. In that case, women's ability to resist sociocultural influences related to body image is likely to be impaired at some point in time. Accordingly, to better understand why some women, in comparison to others, may be less influenced by sociocultural pressures related to body image and consequently be at lesser risk of bulimic symptoms, we propose to examine global self-determination, a variable that takes into account one's general level of autonomy in life. The Self-Determination Theory proposed by Deci and Ryan (1985, 1991) has proven to be a useful theoretical framework for distinguishing intentional actions that represent human agency from those that do not. This theory is interesting for the following reasons: First, it postulates the existence of different behavioral styles that differ according to their level of self-determination, that is, the degree of freedom and choice underlying the regulation of behavior. Second, it provides an explanation as to how individuals become self-determined toward the different activities of their lives by addressing the issue of internalization, a process by which behaviors initially regulated by sources outside the self are transformed into behaviors regulated by the self. And third, it outlines

various consequences (cognitive, affective, and behavioral) that are associated with the different types of motivation.

Accordingly, the purpose of this paper is to expand upon the existing literature on the risk factors of eating pathology by examining the role of global self-determination, a motivational variable reflecting choice and freedom. More specifically, this paper is aimed at examining how global self-determination could contribute to the understanding of why some women, although exposed to sociocultural pressures related to body image, may be less influenced by them and also be less at risk to experience an eating disturbance characterized by bulimic symptoms.

In the next section, we present an overview of the variables that have traditionally been investigated within the sociocultural approach of eating pathology. This section will then be followed by the description of Self-Determination Theory. Finally, the specific hypotheses of the present study will be presented subsequently.

Evidence Supporting the Sociocultural Approach of Eating Pathology

Sociocultural Pressures About Body Image

Several authors have argued that families, friends, dating partners, and media may all play a role in the development of eating disorders by the generation and transmission of different messages about the thin-ideal (Stice, 1994). For example, Pike and Rodin (1991) found that families of eating-disordered adolescents were extremely preoccupied with weight and appearance. The mothers of these adolescent girls encouraged their daughters to lose more weight than did mothers of adolescents with no eating disturbance. Similarly, Mitchell, Hatsukami, Pyle, and Eckert (1986) found that 53% of the participants with bulimic symptomatology had initiated bulimic behavior following pressure from their family to lose weight.

Media may also play a role in the development of eating disorders because of its impact on the values, norms and aesthetic standards embraced by society (Garner & Garfinkel, 1980; Gordon, 1988; Harrison & Cantor, 1997). For instance, evidence suggests that the rise in eating pathology over the last several decades has been concomitant with a decrease in the weight of the ideal-body for women portrayed in society (Szmukler, McCance, McCrone, & Hunter, 1986;

Pyle, Halvorson, Neuman, & Mitchell, 1986). Moreover, the increase in eating pathology has coincided with an increase in the number of articles promoting methods of weight-loss in women's magazines (Garner, Garfinkel, Swartz, & Thompson, 1980; Wiseman, Gray, Mosiman, & Ahrens, 1992). Finally, in a study examining the mechanisms mediating the relationship between media exposure and eating pathology, Stice, Schupak-Neuberg, Shaw, and Stein (1994) found that media consumption was related to increased gender-role stereotype endorsement and heightened subscription to the thin-ideal.

A history of being teased about weight during childhood or adolescence represents another source of external pressure that might reinforce the glorification of slenderness. Because adolescence represents a period where young females are often seeking outside information to form a self-identity (Asbach, 1994; Freedman, 1984; Strasburger, 1995), they are particularly vulnerable to teasing messages that convey the importance of thinness. The adolescent girl who is repeatedly teased or criticized about her body weight tends to become overly self-conscious and preoccupied with it. According to Control Theory of Carver and Scheier (CT; 1981, 1990, 1998, 1999), an increased awareness of body image may lead one to assess her appearance (actual self) relative to society's standard (ideal self). Considering the excessively thin appearance promoted by society, the comparison process often leads to body dissatisfaction.

Many studies have provided empirical support for the relationship between recollection of teasing experiences and body dissatisfaction (e.g., Cattarin & Thompson, 1994; Fabian & Thompson, 1989; Thompson, Fabian, Moulton, Dunn, & Altabe, 1991; Thompson & Psaltis, 1988). For example, two large-scale surveys found that adult women who had been teased as adolescents about their appearance had higher level of body dissatisfaction than did women who had not been teased (Berscheid, Walster, & Bohrstedt, 1973, Cash, Winstead, & Janda, 1986). Similarly, Thompson, Cattarin, Fowler, and Fischer (1995) found a significant relationship between a history of being teased about weight/size and a negative body image. As for any other sources of pressure, repeated teasing is thought to lead to endorsement of the thin-ideal which in turn, can lead to body dissatisfaction. Many women who are dissatisfied with their body attempt

to reduce their dissatisfaction using risky weight-control strategies such as dietary restraint or purging (Gross & Rosen, 1988; Stice et al., 1996a; Striegel-Moore et al., 1986).

In sum, the most recent integrative models that have examined the role of sociocultural pressures on eating pathology have suggested that these sources of pressure play a role in the development of eating pathology by emphasizing the importance of thinness for women. Over time, repeated exposure to such message is likely to lead women to endorse the thin-ideal as a criterion for feminine beauty (Stice, 1994). Because the thin-ideal portrayed by society is extremely thin, the comparison process often results in body dissatisfaction. Body dissatisfaction in turn can lead to eating pathology when women resort to unhealthy weight-control methods (Stice et al., 1998; Stice, Ziemba, Margolis, & Flick, 1996).

Endorsement of Society's Beliefs Related to Thinness and Obesity

Several authors (e.g., Garner et al., 1980; Silverstein, Perdue, Peterson, Vogel, & Fantini, 1986) have argued that society encourages and rewards women who strive for the thin-ideal. In fact, in our society the thin-ideal is not only falsely associated with female attractiveness but it is also associated with different characteristics such as being interesting, strong, poised, kind, socially outgoing, and sexually warm (Rodin, Silberstein, & Striegel-Moore, 1985). Conversely, obesity is perceived as socially undesirable and is highly stigmatized (Rand & Kulda, 1990). Several studies indicate that obese people are rated more negatively than are nonobese people on characteristics such as intelligence, success, and desirability as an employee (Harris, Harris, & Bochner, 1982; Larkin & Pines, 1982; Maddox & Liederman, 1969).

Endorsement of these beliefs is likely to lead women to develop an ideal body image (standard) to which they will compare their actual self. Again, because this standard is often too extreme, many women feel dissatisfied with their body image. Studies from Heinberg, Thompson and Stormer (1995) and Stice and colleagues (1996a, 1998) supported the relationship between endorsement of the thin-ideal and body dissatisfaction. Moreover, using structural equation modeling, Boyer (1991) found that the greater female students' endorsement of society's beliefs

about thinness and obesity, the greater was the disparity between their current and ideal body image which in turn, was associated with greater body dissatisfaction.

Body Dissatisfaction

Several studies, using both cross-sectional and longitudinal designs, have documented an important link between body dissatisfaction and eating pathology. For instance, Fabian and Thompson (1989) found that body dissatisfaction was highly correlated with eating disturbance. In the same line, Leon and colleagues (1993) found that body dissatisfaction was one of the strongest predictors of risk factors associated with eating pathology. Striegel-Moore, Silberstein, Frensch and Rodin (1989), who evaluated college students at the beginning and at the end of their freshman year, found an increased in disordered eating was associated with increased weight dissatisfaction. Attie and Brooks-Gunn (1989), in a 2-year longitudinal study of female adolescents found that body dissatisfaction was a significant predictor of increased eating disturbance a year later. Thompson and colleagues (1995), using covariance structure modeling, found a positive association between body dissatisfaction and eating pathology. Finally, Stice and colleagues (1996a,b, 1998) found that body dissatisfaction could lead to bulimia through restrained eating and negative affect. Dietary restraint is thought to promote binge eating because of the intense feelings of hunger that accompany dietary restraint. Several laboratory studies indicated that caloric deprivation results in disinhibited eating (e.g., Lowe, 1994; Telch & Agras, 1996; Wardle & Beales, 1988). Negative affect is also thought to promote binge eating and/or purging behaviors (e.g., Stice & Agras, 1998; Stice et al., 1998) as these behaviors enable individuals to escape from the aversive emotions they experience towards their body (Heatherton & Baumeister, 1991). For example, bingeing provides them comfort and distracts them from their aversive state through disconnection with their whole self. Purging is also associated with a numbing of affect.

In sum, according to the sociocultural approach, sociocultural pressures about body image are thought to play a central role in the promotion and maintenance of eating pathology by emphasizing thinness as an essential component of feminine beauty. As an attempt to conform to the unrealistic ideal body image, some women may adopt unhealthy weight-control strategies such

as self-induced vomiting or overuse of laxatives. However, the fact that most women are exposed to sociocultural pressures related to body image but that only a minority develop eating pathology suggest that individual differences might reduce the negative effect of sociocultural pressures. In the next section, we will examine the concept of self-determination, how it develops within the individual and how it could help understand why some women, although exposed to sociocultural pressures about body image may be less influenced by them, and be at lesser risk of experiencing bulimic symptoms.

Self-Determination Theory

According to Deci and Ryan (1985), individuals have a general tendency to be motivated to initiate and regulate behaviors through choice as an expression of themselves or to be generally moved to act as a result of feeling pressured or coerced by intrapsychic and environmental forces. In the former case, individuals are motivated to pursue their own interests and not what others dictate them to do. The regulation of behaviors is said to be autonomously initiated and is characterized as self-determined. In the latter case, individuals are not behaving from a sense of personal commitment and choice. Individuals' actions are a result of sources outside the self that are defined as controlling. These sources may not be limited to forces outside the person. For example, an inner impulse or drive (e.g., guilt, shame, rebellious feelings) represents forces that are inner to the person but external to one's self. Indeed, the fact that one feels compelled to follow a drive suggests that it is not something that emanates from the self (not personally chosen). In that case, the regulation of behaviors is said to be characterized by an heteronomous initiation and is referred to as non self-determined (Deci & Ryan, 1987).

The self-determination perspective proposed by Deci and Ryan (1985) offers an interesting framework to understand how individuals can move from a general tendency to be non self-determined to a general tendency to be highly self-determined towards the regulation of the different activities in their lives. According to this theory, the regulation of behavior could take many forms which can be differentiated along a continuum of self-determination. This self-determination continuum is thought to reflect a gradation in the degree of choicefulness and

freedom implied in each behavior. The different forms of regulation can be grouped in three broad categories: intrinsic motivation, extrinsic motivation and amotivation.

Intrinsic Motivation

Intrinsically motivated behaviors represent the natural manifestation of one's innate propensity to explore, integrate and master the environment in absence of rewards or extrinsic contingency to perform an activity (Deci, 1975). Deci and Ryan (1985, 1991) posited that intrinsic motivation stems from the innate psychological needs of competence and self-determination (or autonomy). When intrinsically motivated, individuals voluntarily engage in activities for the pleasure and the satisfaction inherent to participation itself, along with the experience of competence and self-determination derived while experiencing stimulating sensations, conquering challenges, and relating to others in the social environment (Deci & Ryan, 1985). Behaviors emanate from the self independently and in the absence of any reward, pressure, or constraint.

Extrinsic Motivation

Contrary to intrinsic motivation, extrinsic motivation pertains to a variety of behaviors that are engaged in as a means to an end and not for their own sake (Deci, 1975). When extrinsically motivated, individuals are not interested in the activity *per se* but rather, they engage in it in order to experience pleasant consequences or to avoid unpleasant ones. It was originally thought that extrinsic motivation referred to non self-determined behaviors, that is behaviors that could only be prompted by sources of control residing outside the person (e.g., rewards). More recently however, Deci and Ryan (1985, 1991), along with their colleagues (e.g., Ryan, Connell, & Grolnick, 1990), have proposed that extrinsic motivation does not always preclude personal freedom. Some extrinsically motivated behaviors can be reluctantly performed out of external pressure whereas others may be freely undertaken out of personal choice. According to Deci and Ryan (1985), there are different forms of extrinsic motivation that can be ordered along a self-determination continuum. From lower to higher levels of self-determination, they are: external regulation, introjected regulation, identified regulation and integrated regulation.

External regulation corresponds to the traditional definition of extrinsic motivation. When motivated by external regulation, individuals perform behaviors not for the satisfaction derived from doing the activity itself, but rather to obtain a desired outcome following completion of the activity or to avoid an undesired one. The motivation is extrinsic because the reason for behaving lies outside the activity itself. Individual's attention is solely focused on the external incentive for performing the activity. Finally, the behavior is not chosen (i.e, self-determined) because the individual feels controlled by external sources and experiences pressures to behave in a certain way (Deci & Ryan, 1985).

With introjected regulation, the formerly external source of control (external regulatory process) has been internalized such that its actual presence is no longer needed to initiate behavior. Instead, the control stems from within the person in the form of self-imposed pressure or emotions such as guilt or anxiety (Ryan & Connell, 1989). Although introjected regulation represents the first attempt at internalization, the internalization is only partial as the external regulatory process is taken in but not accepted as one's own (Williams & Deci, 1996). One is still "being regulated" rather than operating from an integrated sense of volition (not internal to the self). The individual experiences a sense of pressure and conflict, a lack of integration with the self. For these reasons, introjected regulation is defined as non self-determined and internally controlled.

In contrast, with identified regulation, external regulatory processes have been internalized into one's sense of self. The behavior is valued and is perceived as being chosen by oneself. One personally decides to perform the behavior because it is congruent with one's values and goals. Although, the behavior is still performed for extrinsic reasons (e.g., to achieve personal goals), it is internally regulated and self-determined. In contrast to introjected regulation, in this case, the activity has been accepted as one's own and it is perceived as beneficial and important. Individuals experience a sense of direction and purpose in performing the activity. This form of regulation represents a successful internalization (Koestner, Losier, Vallerand, & Carducci, 1996; Ryan, 1995).

With integrated regulation, the identification with one's motives has reached a high level of generality within the self-system. The instrumental behavior has been valued to an extent such that it has become part of the person's self-definition. The regulation of behavior is fully integrated and assimilated with one's sense of self. It is consistent with and reflects one's self-identity. There is no conflict between the different self-regulatory processes that are part of the person's self-system.

Amotivation

In addition to the two categories of motivation presented above (intrinsic motivation and extrinsic motivation), Deci and Ryan (1985) also proposed that it was necessary to consider a third category in order to fully understand the nature of human behaviors, that is, amotivation.

Amotivation refers to a state where individuals do not perceive contingencies between their actions and the outcomes of their actions. Therefore, individuals are unable to foresee the consequences of their behavior. When amotivated, individuals have a pervasive sense that their behaviors are caused by forces beyond their control. They experience feelings of incompetence, lack of control and alienation. Regulation of amotivated behaviors is mechanical and meaningless.

The Self-Determination Continuum

As briefly mentioned earlier, Deci and Ryan (1985) postulated that the different regulatory styles can be differentiated along a continuum of relative autonomy. This continuum contains identifiable gradations of reasons for performing a behavior or an activity that go from non self-determined regulatory styles (i.e., amotivation, external regulation and introjected regulation) to self-determined ones (i.e., identified regulation, integrated regulation and intrinsic motivation). Because amotivation involves feelings of lack of control and the absence of agency, it represents the least self-determined regulatory style. Conversely, because it underlies regulation of behaviors that are freely initiated and performed for the pleasure inherent to the behavior itself, intrinsic motivation represents the highest level of self-determination.

The gradation in the level of self-determination is a reflection of a natural inclination for individuals to internalize external contingencies (social rules, values and behaviors) and to transform their external regulation into internal regulation. Behaviors which were initially

regulated by external sources are taken in to be governed by the self (Ryan, 1993). In other words, what began as an imposition on the self, becomes assimilated, accepted and integrated by the self so that the external source no longer originates the behavior. According to Deci and Ryan (1985, 1991), the internalization process takes place because individuals are inherently motivated to assimilate and fully integrate within themselves the regulation of activities that are useful to effective functioning in the social world even though they may not be inherently interesting (e.g., social rules, values, and demands) (Deci, Eghari, Patrick, & Leone, 1994). However, as suggested by Grolnick, Deci, and Ryan (1997), internalization of socially promulgated values and goals may not always be associated with well-being. Studies conducted by Kasser and Ryan (1993; 1996) revealed that when people place a strong emphasis on values related to wealth (i.e., financial success), image (i.e., physical attraction), and fame (i.e., social recognition), they are more likely to experience various difficulties, including symptoms of depression and anxiety, narcissism, negative affect, and physical symptoms. In contrast, when people place a strong emphasis on social values such as self-acceptance (i.e., personal growth), affiliation (i.e., meaningful relationships), community contribution (i.e., social responsibility), and health (i.e., physical fitness), they are more likely to experience well-being. According to Kasser and Ryan (1993, 1996), internalization of the second set of values is associated with positive consequences because these values are more congruent with the intrinsic nature of human beings, that is to move towards a more complex and unified self (Deci & Ryan, 1991). Moreover, these values are closely related to the three fundamental psychological needs (i.e., competence, autonomy, and relatedness) postulated by Deci and Ryan (1985, 1991).

The existence and validity of the self-determination continuum has been supported by the results of several studies in which a distinct correlational pattern was obtained between the different styles of regulation forming the continuum. This correlational structure is called "simplex pattern" (Guttman, 1954). Specifically, in that particular structure, each regulatory style displays positive correlations with the adjacent regulatory style on the continuum. The magnitude of the correlations between a particular construct and the others is expected to decrease progressively and, eventually,

to grow negative as a function of the distance separating the constructs on the continuum. This simplex pattern has been identified in several different life domains such as education (Vallerand et al., 1993; Vallerand & Bissonnette, 1992), work (Blais, Brière, Lachance, Riddle, & Vallerand, 1993), leisure (Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1995; Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996), sports (Brière, Vallerand, Blais, & Pelletier, 1995; Pelletier et al., 1995); interpersonal relationships (Blais, Vallerand, Pelletier, & Brière, 1994), couple relationships (Blais, Sabourin, Boucher, & Vallerand, 1990), religious beliefs (O'Conner & Vallerand, 1990), pro-environmental action (Pelletier, Green-Demers, Béland, 1997; Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998), and sexuality (Séguin, Green-Demers, Chantal, Ladouceur, & Pelletier, 1997; Séguin, Green-Demers, & Pelletier, 1994).

In sum, Self-Determination Theory suggests that individuals display one of two general tendencies when they interact with their environment: self-determination or non self-determination. In the first case, they feel autonomous and free to make their own decisions. In the latter case, individuals experience themselves as a pawn governed by pressures. They feel controlled by their environment and subdue to its demands. These two tendencies can be represented on a continuum that goes from non self-determination to high self-determination.

Consequences of Self-Determination

Numerous studies have investigated the relationship among the six regulatory styles previously identified (i.e., intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation) and different consequences. Because self-determination has been hypothesized to be associated with enhanced psychological functioning (Deci, 1980; Deci & Ryan, 1985), one would expect self-determined regulatory styles (intrinsic motivation, integrated and identified regulations) to be associated with positive outcomes whereas the least self-determined regulatory styles (external regulation, introjected regulation and amotivation) would be associated with negative outcomes. This pattern of results has been established in many field studies conducted in a number of domains including education (Fortier, Vallerand, & Guay, 1995), interpersonal relationships (Blais et al., 1990), leisure (Pelletier et al.,

1995), health (Williams et al., 1996), politics (Koestner et al., 1996) religion (Ryan, Rigby, & King, 1993), environmental activism (Green-Demers, Pelletier, & Ménard, 1997) and physical activity (Pelletier, Fortier, Vallerand, & Brière, 1998). Globally, these studies have found that the more self-determined styles of regulation were positively associated with enhanced learning, greater interest, increased life satisfaction, greater effort, persistence, and enhanced health whereas the less self-determined forms were negatively associated with these outcomes. Demonstration of positive outcomes being associated with more self-determined regulatory styles has also been shown in experimental (laboratory) studies. For instance, participants who had experimentally been induced to experience intrinsic motivation demonstrated greater level of creativity than participants who had been induced to experience extrinsic motivation (Amabile, 1985; Hennessey, 1989).

According to SDT, one would expect that the more globally self-determined individuals are towards the different activities of their lives, the less they should perceive sociocultural pressures about body image and the less they should endorse society's beliefs related to thinness and obesity. For them, messages about body image should be perceived as information that they will evaluate in relation to their own experiences, goals and values. This information should be used to generate their own criteria about body image and to choose the best course of action that will lead them to attain their own integrated goals or to continue to uphold their own values. If incongruent with their values, the information should simply be disregarded. Also, because self-determination has been found to be associated with a better general functioning, one would expect that people who are globally self-determined in their lives would be at lesser risk of experiencing bulimic symptomatology.

Purpose of the Study

In the present study we examined two models of bulimic symptomatology. The first model is an adapted version of Stice's sociocultural model of eating pathology. According to this model, it is hypothesized that perceived sociocultural pressures about body image will be positively associated with endorsement of society's beliefs related to thinness and obesity which in turn, will

be positively associated with body dissatisfaction. Finally, it is hypothesized that body dissatisfaction will be positively associated with bulimic symptomatology. In the second model, we examined how global self-determination, a motivational variable, can be helpful in better understanding why some women although exposed to sociocultural influences about body image, may be less influenced by them and not present with bulimic symptoms. As in the first model, it is hypothesized that perceived sociocultural pressures about body image will be positively associated with endorsement of society's beliefs related to thinness and obesity which will be positively associated with body dissatisfaction. In turn, body dissatisfaction will be positively associated with bulimic symptomatology. However, in this new model, it is also hypothesized that global self-determination will be directly and negatively related to 1) perceived sociocultural pressures about body image, 2) endorsement of society's beliefs related to thinness and obesity, and 3) bulimic symptoms. The first and second models are presented in Figures 1 and 2 respectively.

Insert Figures 1 and 2 here

Method

Participants and Procedure

Three hundred female⁵ students enrolled in an undergraduate (79.4%) or graduate course (20.6%) at the University of Ottawa were recruited for the present study. The participants' age ranged between 17 and 50 years ($M=22.2$). Approximately half of the sample had an income of less than \$12 000. The income for the rest of the sample was distributed as follows: 7% (between \$12 000 to \$19 999), 9.3% (between \$20 000 to \$39 999), 2% (between \$40 000 to \$59 999) and .3% (between \$60 000 to \$79 999). About 35% did not report their income. The average Body Mass Index (BMI; Kg/m²)⁶ for the sample was 22.5⁷ ($SD=4.13$). Using the BULIT-R cut-off⁸ provided by Thelen, Farmer, Wonderlich and Smith (1991), 2.8% of the women in the sample would be classified as putative bulimics. This percentage appears consistent with other prevalence rates reported for college population (e.g., Stice & Agras, 1998).

With the permission of course instructors, women's participation was solicited during a designated class period. Some women completed the questionnaire at the beginning of a class whereas others completed the questionnaire at home and returned it for the next class in a sealed enveloped. Participants were informed that researchers were interested in better understanding the relationship between women's beliefs or habits regarding their eating behaviors and their perception of themselves. They were informed that their participation was voluntary and anonymous. Finally, researchers ensured that data would remain confidential.

Instruments

The Global Motivation Scale (GMS; Haddad, 1999)

The GMS assesses the reasons why people perform the different activities of their lives. The 32 items (4 items/subscale) are divided into 8 subscales which represent the six motivation subtypes defined by Deci and Ryan (1985): intrinsic motivation (IM), integrated (INTEG), identified (IDEN), introjected (INTRO), external regulation (ER), and amotivation (AMO). There are eight subscales and six motivation subtypes because three of the subscales are devoted to the measurement of intrinsic motivation (intrinsic motivation towards accomplishment (IMA), intrinsic motivation to know (IMK), and intrinsic motivation to experience sensations (IMS)). The intrinsic motivation subtype consists of the summation of those three subscales. The six motivation subtypes fall on a continuum of self-determination, and from highest to lowest levels are: intrinsic motivation (e.g., in order to feel pleasant emotions); integrated regulation (e.g., because by doing them I am living in line with my deepest principles); identified regulation (e.g., because I choose to invest myself in what is important to me); introjected regulation (e.g., because otherwise I would feel guilty for not doing them); external regulation (e.g., in order to show others what I am capable of); and amotivation (e.g., although I do not see the benefit in what I am doing). Participants are asked to indicate on a 7-point Likert scale ranging from 1 ("Does not correspond at all") to 7 ("Corresponds exactly") the extent to which each item corresponds to their own motives for performing different activities in their life.

In the present study, we were interested in measuring a global score of self-determination (self-determination index). Therefore, weights were assigned to each subscale as a function of their position on the self-determination continuum. Because they are considered self-determined forms of motivation, intrinsic motivation, integrated regulation, and identified regulation were assigned the weights of +3, +2, +1, respectively. On the other hand, because they are conceptualized as non self-determined forms of motivation, amotivation, external regulation, and introjected regulation were assigned the following respective weights: -3, -2, -1. It should be noted that all three types of intrinsic motivation were given the same weight (+3), and the total for the three types of intrinsic motivation is divided by three to make it comparable to that of the other scales. The weighted scores were summed to form a global self-determination index using the following equation: $GSD = 3(IM) + 2(INTEG) + (IDEN) - (INTRO) - 2(ER) - 3(AMO)$. Ryan and Connell (1989) have reported extensive support for the construct validity of such a composite index (see also Blais et al., 1990; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991). As there were four items for each of the motivational subscales, we computed four indices using individual motivational items. The four indices (GSD1, GSD2, GSD3, GSD4) correspond to the four indicators of the latent construct global self-determination. Haddad (1999) reported that the GSM displays a good factorial structure and good psychometric properties. Internal consistency for the six motivation subtypes for the current sample ranged from .77 to .92.

Sociocultural Pressures About Body Image

In the present study, sociocultural pressures about body image represent a latent variable that is comprised of five indicators: sociocultural pressures from one's family, one's friends, one's partner, and media to have a thin body as well as a history of being teased about body image.

Sociocultural pressures to have a thin body (Stice et al., 1996a). This scale is comprised of four subscales (2 items/subscale) which represent four different sources of pressure (4 indicators of the latent construct). The 8 items describe the amount of pressure perceived from family, friends, dating partner, and the media to have a thin body. An example of item is: "I've perceived a strong message from my family to have a thin body". Participants are asked to rate, on a 5-point

Likert scale ranging from (“1=Does not agree at all”) to (“5=Strongly agree”) the extent to which they agree with the different items. Stice and colleagues (1996b) reported a Cronbach alpha of .87 for the scale and a test-retest reliability of .93 over 2-weeks. Research with similar measures revealed a moderate correlation ($r=.51$) between child reports of perceived parental pressure to lose weight and parental self-reports of pressure (Thelen & Cormier, 1995). With the current sample, internal consistency was .70 for the family subscale, .82 for the friends subscale, .88 for the partner subscale, and .75 for the media subscale. Internal consistency for the full scale was .85.

History of being teased about physical appearance (Boyer, 1991). The original scale is comprised of 2 subscales (3 item/subscale) assessing a variety of body teasing experiences. Items were adapted from the Teasing Assessment Scale proposed by Thompson (1990). For the present study, only the subscale directly related to the experience of having been teased during childhood/adolescence was used. An example of item for this subscale is: “When you were a child, or an adolescent, were you the brunt of family jokes because of your weight?” Participants are asked to rate, on a 6-point Likert scale ranging from (“1=Never”) to (“6=Always”), the extent to which the items reflect their past teasing experience as a child or adolescent. Previous research has shown a Cronbach alpha of .75 for the subscale. Test-retest reliability was .87 after one month. The subscale has shown good discriminant validity between nondisordered eating women and those with high bulimic symptomatology (Boyer, 1991). Cronbach’s alpha for the current study was .73.

Endorsement of Society’s Beliefs Related to Thinness and Obesity (Boyer, 1991)

This scale assesses the extent to which an individual endorses society’s beliefs about thinness and obesity. The scale is comprised of two subscales (4 items/subscale). One of the subscales refers to beliefs about thinness whereas the other refers to beliefs about obesity. An example of item for each subscale is: “Thin people are well liked” and “Fat people don’t have any self-control”. Participants are asked to rate, on a 7-point Likert scale ranging from (“1=Do not agree at all”) to (“7=Strongly agree”), the extent to which they agree with the different items. The scale has been shown to have Cronbach’s alpha of .80 for the beliefs about thinness and of .81 for

the beliefs about obesity. Test-retest reliability after one month was .83 and .77 for the thinness and obesity subscales respectively. Also, the scale has shown to discriminate between women with bulimic symptoms from those without symptoms (Boyer, 1991). Internal consistency for the current sample was .85 and .80 for the thinness and obesity subscales, respectively.

Eating Disorder Inventory-2 (EDI-2) - Body Dissatisfaction Subscale (EDI-BD; Garner, 1991)

This scale is comprised of 9 items which assess the level of dissatisfaction with several body areas. The EDI-2 is the most commonly used instrument for measuring body dissatisfaction. Participants are asked to rate, on a 6-point Likert scale ranging from (“1=Never) to (“6=Always”), the extent to which they agree with the different items that describe body parts. An example of item is: “Do you think your stomach is too big?” The original version of the EDI revealed a coefficient of internal consistency of .90 for the Body Dissatisfaction Subscale (Garner & Olmstead, 1984). Several authors have also documented good test-retest reliability after one week ($r=.97$; Welch, 1988), after three weeks ($r=.97$; Wear & Pratz, 1987) and after one year ($r=.75$; Crowther, Lilly, Crawford, Shepherd, & Olivier, 1990). Finally, the subscale has shown good convergent and discriminant validity (see Garner, 1991). Internal consistency for the current sample was .92.

Bulimic Symptomatology (BULIT-R; Thelen et al., 1991)

The BULIT-R, a widely used and psychometrically sound measure, was used to assess bulimic symptomatology in accordance with the DSM-III-R criteria. This instrument is comprised of 28 items (34 items in total with 8 filler⁹ items unscored) and is useful to identify individuals who are most likely to be diagnosed with bulimia nervosa on the basis of an interview. Prior research has shown that this self-report scale is a valid indicator of bulimia nervosa in both clinical and nonclinical populations. Participants are asked to choose between five answers (1 to 5) the one that applies best to them. The number circled for each item can be summed in order to obtain a total score. Thelen and colleagues (1991) have suggested that a total score above 104 is possibly indicative of putative bulimia nervosa. An example of item is: “I am afraid to eat anything for fear that I won’t be able to stop”. The scale has shown to have high internal consistency ($\alpha=.97$), to

discriminate well individuals with bulimia nervosa from non eating disordered individuals, and to correlate with other measures of eating pathology. Also, good test-retest reliability ($r=.95$) has been documented (Thelen et al., 1991). Internal consistency for the current sample was .95.

Analyses

Structural Equation Modeling procedures using LISREL 8.3 (Jöreskog & Sörbom, 1996) were performed to test two different models of bulimic symptomatology. Analyses were based on the covariance matrix using Maximum Likelihood estimation (Bollen, 1989). In light of the current debate regarding the assessment of model fit covariance structure analyses, multiple statistical and practical fit indices were used to evaluate the adequacy of the proposed model. They are: the Likelihood chi-square ratio, the Comparative Fit Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI; Bollen, 1989), the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990), and the Parsimony Comparative Fit Index (PCFI; Byrne, 1994).

Ideally, when model fit is adequate, the chi-square likelihood ratio (χ^2) is nonsignificant. However, because the chi-square is notoriously oversensitive to sample size (Byrne, 1989), we also considered the other indices mentioned above in our conclusion about model fit. Values equal or above .90 for CFI and IFI are generally indicative of a good-fit. For the RMSEA, values equal or under .08 represent reasonable errors of approximation in the population. As for PCFI, when goodness-of-fit indices are in the range of .90, it is not unexpected to have a parsimonious-fit index in the range of .50 (Mulaik et al., 1989).

Results

Preliminary Analyses

Preliminary analyses were performed to assess departures from basic assumptions for multivariate analyses. Inspection of the means and standard deviations of each variable included in the analyses indicated their values to be within the theoretical expected range for each of them (see Table 1). Values of kurtosis and skewness were all inferior to $|2|$ and ranged from -.62 to 1.28 and from -.78 to 1.14, respectively. Summary statistics are presented in Table 1. Overall, there is no reason to suspect that the distribution of variables departed significantly from normality.

Moreover, from a multivariate perspective, the distribution of standardized residuals appeared normal.

Insert Table 1 about here

A random selection of bivariate scatterplots was inspected to detect potential departures from linearity. The bivariate scatterplots showed no evidence of nonnormality, heteroscedasticity, or nonlinearity. Casewise residual values were inspected to detect the presence of univariate outliers. No case with a z value > 3.29 which would be indicative of the presence of univariate outliers was noted in the sample. The Mahalanobis distance was used as the criterion for the detection of multivariate outliers. Only one case (0.3%) was identified ($\chi^2(df=17) > 40.79$, $p < .001$) and subsequently removed from the analyses. The final sample on which the analyses were performed was comprised of 299 subjects. Finally, the absence of multicollinearity and singularity was determined by the absence of any correlation above .85 (Tabachnick & Fidell, 1996).

Test of an Adapted Version of Stice's Sociocultural Model of Eating Pathology

As a first analysis, we tested an adapted version of Stice's sociocultural model of eating pathology. This model is depicted in Figure 3.

Insert Figure 3 about here

It is comprised of 5 latent variables or factors, 17 measured variables serving as indicators, 3 standardized structural regression coefficients showing the hypothesized directional influences among the latent variables, 17 factor loadings from the factors onto the indicators, and 17 error variances associated with observed variables.

The statistical hypotheses of the model were the following. First, the regression coefficient of endorsement of society's beliefs related to thinness and obesity on sociocultural pressures about

body image was hypothesized to be positive and significant. Second, the regression coefficient of body dissatisfaction on endorsement of society's beliefs related to thinness and obesity was also hypothesized to be positive and significant. Third, the regression coefficient of bulimic symptomatology on body dissatisfaction was hypothesized to be positive and significant. Finally, the residuals representing the error of prediction of all structural regression equations were hypothesized to be significant, yet of small magnitude, and the covariance between these residuals was hypothesized to be zero. For purposes of identification, loading between the first indicator and its latent construct was fixed to 1.0.

Although the likelihood ratio chi-square was significant ($\chi^2(116, N = 299) = 347.08$, $p < .01$), the fit indices revealed that the correspondence between the estimated model and the sample covariance was satisfactory (RMSEA=.08; CFI=.93; IFI=.93; PCFI=.79). All parameters were significant and of high magnitude. As predicted, sociocultural pressures about body image were positively correlated with endorsement of society's beliefs related to thinness and obesity ($\gamma = .88$), endorsement of society's beliefs related thinness and obesity was positively associated with body dissatisfaction ($\beta = .76$) and body dissatisfaction in turn, was positively related to eating pathology ($\beta = .68$). The amount of variance explained in endorsement of society's beliefs related to thinness and obesity was 77%, the amount of variance explained in body dissatisfaction was 57%, and the amount of variance explained in bulimic symptomatology was 47%.

The Role of Self-Determination in the Sociocultural Model of Eating Pathology

A second model that is comprised of 5 latent variables or factors, 17 measured variables serving as indicators, 6 standardized structural regression coefficients showing the hypothesized directional influences among the latent variables, 17 factor loadings from the factors onto the indicators and 17 error variances associated with observed variables was tested. The model is depicted in Figure 4.

Insert Figure 4 about here

The statistical hypotheses for the model were the following. First, as in the first model, it was hypothesized that sociocultural pressures about body image would be associated positively with endorsement of society's beliefs related to thinness and obesity which would be associated positively with body dissatisfaction. In turn, body dissatisfaction would be associated positively with bulimic symptomatology. Second, it was hypothesized that global self-determination would be associated directly and negatively with sociocultural pressures about body image, endorsement of society's beliefs related to thinness and obesity, and bulimic symptomatology. Finally, residuals presenting the error of prediction of all structural regression equations were hypothesized to be significant, yet of small magnitude, and the covariance between these residuals was hypothesized to be zero. For purposes of identification, the loadings between the first indicator of each latent construct and its target factor were fixed to 1.0.

Although the likelihood ratio chi-square was significant ($\chi^2(113, N = 299) = 278.00$, $p < .001$), the other fit indices revealed that the correspondence between estimated model and the sample covariance was very satisfactory (RMSEA=.07; CFI=.95, IFI=.95, PCFI=.79). In fact, the addition of global self-determination in the model revealed a slightly better fit between the hypothesized model and the data than between the traditional sociocultural model of eating pathology and the data. The difference in the goodness-of-fit statistics between the hypothesized model and the traditional sociocultural model of eating pathology was significant ($\Delta df = 3$, $\Delta \chi^2 = 69.14 > 16.27$; $p < .001$). Also, all estimated parameters were significant and of acceptable magnitude. As illustrated in Figure 2, sociocultural pressures about body image were associated positively with endorsement of society's beliefs related to thinness and obesity ($\beta = .80$) which was associated positively with body dissatisfaction ($\beta = .74$). Body dissatisfaction in turn, was positively associated with bulimic symptomatology ($\beta = .61$). When compared to the first model (i.e., traditional sociocultural model), this model suggests that the introduction of global self-

determination contributed to a decline in the strength of the relationship between sociocultural pressures and endorsement of society's beliefs (.88 to .80), as well as a decline in strength of the relationship between body dissatisfaction and bulimic symptomatology (.68 to .61). The interaction between global self-determination and sociocultural pressures, as well as the interaction between global self-determination and body dissatisfaction were tested for a possible moderating role of global self-determination. Analyses revealed no significant interaction for the two different relationships suggesting that the decrease in the strength of those relationships is explained by the shared variance of global self-determination.

Finally, global self-determination was found to be associated directly with sociocultural pressures about body image ($\gamma = -.30$), endorsement of society's beliefs related to thinness and obesity ($\gamma = -.25$), and bulimic symptomatology ($\gamma = -.21$).

The amount of explained variance in sociocultural pressures about body image was 9%, the amount of variance explained in endorsement of society's beliefs related to thinness and obesity was 82%, the amount of variance explained in body dissatisfaction was 55%, and the amount of explained variance in bulimic symptomatology was 51%. The addition of global self-determination contributed to an additional 5% of the variance in endorsement of society's beliefs related to thinness and obesity, and 4% more in bulimic symptomatology. Although these two percentages appear small, they are nevertheless significant (see Table 2).

Insert Table 2 about here

Discussion

In the present study, two models were examined. The first model was designed to test an adapted version of Stice's sociocultural model of eating pathology. In this model, it was hypothesized that sociocultural pressures about body image would be associated positively with endorsement of society's beliefs related to thinness and obesity, which would be associated positively with body dissatisfaction. Body dissatisfaction in turn, was hypothesized to be

associated positively with bulimic symptomatology. The second model was designed to expand upon the existing literature on the risk factors of eating pathology by examining the role of global self-determination, a motivational variable reflecting choice and freedom. More specifically, this model was aimed at examining how global self-determination could contribute to the understanding of why some women, although exposed to sociocultural pressures about body image, may be less influenced by these pressures and be at lesser risk of experiencing an eating disturbance characterized by bulimic symptoms. As in the first model, sociocultural pressures about body image was hypothesized to be associated positively with endorsement of society's beliefs related to thinness and obesity, which was hypothesized to be associated positively with body dissatisfaction. In turn, body dissatisfaction was hypothesized to be associated positively with bulimic symptomatology. In addition, in this second model, global self-determination was hypothesized to be related directly to sociocultural pressures about body image, endorsement of society's beliefs related to thinness and obesity, and bulimic symptomatology.

Analyses of the first model suggested that the more women perceived sociocultural pressures about body image (e.g., pressures from family, friends, partner, and media to have a thin body and past teasing experiences related to body image), the more they endorsed society's beliefs related to thinness and obesity, which was associated with greater body dissatisfaction. Body dissatisfaction in turn, was associated with more bulimic symptomatology. These findings are in line with recent models of the sociocultural approach of eating pathology (see Stice et al., 1996a; Stice et al., 1998; Twamley & Davis, 1999) and thus, provide additional empirical support for the role of sociocultural factors in the development of eating pathology.

As in the first model, analyses of the second model revealed that the more women perceived sociocultural pressures about body image, the more they endorsed society's beliefs related to thinness and obesity, which led to greater body dissatisfaction. Body dissatisfaction in turn, was associated with more bulimic symptomatology. Moreover, analyses suggested that the addition of structural links between global self-determination (GSD) and sociocultural pressures, between GSD and internalization of society's beliefs, and between GSD and bulimic

symptomatology contributed to a better understanding of why some women, although exposed to sociocultural pressures about the thin-ideal, may be less influenced by these pressures and be at lesser risk of experiencing bulimic symptoms. Three important findings were derived from the addition of these structural links. First, global self-determination was found to be associated directly and negatively with sociocultural pressures about body image. Second, global self-determination was found to be associated directly and negatively with endorsement of society's beliefs related to thinness and obesity. And third, global self-determination was found to be associated directly and negatively with bulimic symptomatology. Let us examine each finding in more details.

Association Between Global Self-Determination and Sociocultural Pressures About Body Image

In agreement with Self-Determination Theory, support was found for the relationship between global self-determination and sociocultural pressures about body image. Analyses suggested that the more self-determined women are in their lives, the less they perceive sociocultural pressures about body image. If we assume that almost every woman is to some extent exposed to the thin-ideal portrayed in society, these findings suggest that global self-determination could possibly act as a buffer against sociocultural pressures about body image. In other words, women who generally have a self-determined profile in life, may not perceive sociocultural messages about body image as a source of pressure. For these women, sociocultural messages about body image could simply represent information that they evaluate in light of their own values and their previous integrated experiences. When inconsistent with their values, this information would be disregarded. Thus, global self-determination may be an important personality characteristic to help understand why some women may be less vulnerable to harmful effects of sociocultural messages about body image.

However, it is important to recognize that in this study, participants were asked to indicate the extent to which they perceived sociocultural pressures about body image. Moreover, exposure to sociocultural messages about the thin-ideal was not directly assessed but rather, inferred. To objectively assess sociocultural pressures and their effects on the individual, it would be interesting

in future studies to manipulate the source of pressure. For example, researchers could form two groups of women according to their level of global self-determination (self-determined versus non self-determined) and expose half of the participants of each group to video images of young, slim female fashion models. The other half of the participants of each group (control conditions) would be presented with neutral video images (e.g., houses). This experimental design could enable us first, to conclude that sociocultural pressures about body image can have an effect on women and second, that some women in comparison to others, may indeed display a greater resistance to these pressures. Such experimental design could increase the internal validity of our findings.

Association Between Global Self-Determination and Endorsement of Society's Beliefs Related to Thinness and Obesity

As hypothesized, global self-determination was found to be associated negatively with endorsement of society's beliefs related to thinness and obesity. This suggests that the more women display a self-determined profile that is, the more women perceive their actions as personally caused and the more they experience choice towards the different activities of their lives, the less they endorse society's beliefs related to thinness and obesity. Conversely, the less women display a self-determined profile, that is the more they feel compelled to act in a certain way and the more they perceive that their actions originate from sources outside their selves, the more they endorse society's beliefs about thinness and obesity. These results suggest that although most women are to some extent exposed to sociocultural factors about body image, not all of them may equally endorse society's beliefs related to thinness and obesity. This is also in line with Ryan, Sheldon, Kasser, and Deci's (1997) idea that people are more likely to adopt extrinsic values (e.g., financial success, physical attractiveness, and social recognition) than intrinsic values (e.g., personal growth, meaningful relationship, and social responsibility) if they have an underlying insecurity, a fragile sense of self that must be continually bolstered by outward indicators of worth. According to these authors, individuals who lack the solid foundation of a well-integrated self (i.e., non self-determined people) should be more vulnerable to internalize extrinsic values (e.g., sociocultural beliefs about thinness) strongly because they rely heavily on them for their self-worth.

Conversely, people with a well-integrated self (i.e., self-determined people), are more likely to internalize values that are in line with their intrinsic nature that is, values that are in harmony with their innate psychological needs (i.e., competence, autonomy, and relatedness).

Association Between Global Self-Determination and Bulimic Symptomatology

As hypothesized, global self-determination was found to be linked negatively to bulimic symptomatology. This suggests that women who are globally self-determined for the different activities of their lives may be at lesser risk to display bulimic symptomatology. As previously mentioned, people with a low self-determined profile are more susceptible to external sources of influence (e.g., parents, friends, media) that may pressure them to adopt some behaviors. Thus, some women may adopt unhealthy weight-control method simply because they subjugate to what their environment pressures them to do. These weight-control methods (e.g., severe dietary restraint) have been found to increase the likelihood of binge eating and hence the onset of bulimia (Polivy & Herman, 1985; Stice et al., 1998). Conversely, highly self-determined women may be at lower risk to experience bulimic symptoms because these women do not perceive external events or contextual factors as having an impact on them, or they do not feel that they have to comply with these pressures. According to Self-Determination Theory, people with a high level of self-determination behave agentically from their own perspective. Information from their social environment is processed in light of their own needs, values and goals. It is used with the idea of choosing the best course of action that can lead to attain their own selected goals. If inconsistent with previous integrated experience, the information will simply be disregarded. The negative association between global self-determination and bulimic symptomatology found in this study is consistent with recent findings from Twamley and Davis (1999) who suggested that body dissatisfaction may not always be a necessary prerequisite for the development of eating pathology. In fact, these authors explained that some women may perceive direct pressure to control their weight regardless of their body size and the feelings they experience towards it.

Another explanation for the negative association between global self-determination and bulimic symptomatology may be explained by the way women regulate their eating behaviors.

According to Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation, if a person displays a self-determined motivational profile, that is the person's general or global motivational orientation is to be self-determined in life, one would expect that this person would also be self-determined towards specific life domains (e.g., eating behaviors, leisure activities, couple relationship). A study by Williams and colleagues (1996) empirically tested this assumption by examining the effect of global motivation of severely obese people on their contextual motivation towards engaging in and following guidelines of a medical program. Results suggested that the more patients were self-determined in their life, the more self-determined was their motivation toward the treatment program. Based on this finding, it could be possible that women who display a self-determined profile also adopt a self-determined regulatory style towards eating behaviors. Conversely, women who display a non self-determined profile would be inclined to adopt a non self-determined regulatory style toward their eating behaviors. Because self-determination is associated with positive consequences (Deci, 1980; Deci & Ryan, 1985; Ryan & Deci, 2000), one would expect that women who use a non self-determined regulatory style toward their eating behaviors would be at greater risk of experiencing bulimic symptoms. For example, if an overweight woman regulates her eating behaviors through fear of being abandoned by her partner (introjected regulation) who pressures her to lose weight, it is possible that she would resort to extreme unhealthy weight-control methods such as self-induced vomiting, abuse of laxatives or diuretics. Conversely, if a woman personally chooses to regulate her eating behaviors because she highly values being in good health, it is unlikely that she would resort to unhealthy behaviors as an attempt to regulate her eating. Thus, chances are that she would not experience bulimic symptomatology.

Finally, another explanation for the relationship between global self-determination and bulimic symptomatology could be related to the way globally self-determined women in comparison to non self-determined ones, define their self-worth. For instance, for women who are globally self-determined, physical appearance is unlikely to be the only determinant of their self-worth because women's global sense of self-determination may affect several aspects of their

lives (interpersonal relationships, work, and leisure). Conversely, women who have a low self-determined profile may possibly attribute much more importance to physical appearance because according to Self-Determination Theory, these women do not behave agentically from their own perspective. Rather, they highly value what is emphasized in their environment. Because positive attributes are strongly associated with physical appearance, failure to meet society's standard about body image could possibly affect negatively their feelings of self-worth. According to Baumeister and Heatherton (1991), in order to avoid negative feelings, individuals will narrow their attention to the immediate stimulus environment. Paradoxically, by doing so, they will not have access to thoughts that could help them regulate their behaviors properly.

Limitations of the Study

Although our findings are congruent with the literature on the risk factors of eating pathology, some limitations of the study invite us to be careful when interpreting the results. First, this study relied exclusively on self-report measures. Albeit the use of anonymous and confidential self-report measures is likely to encourage honest responses, multiple methods of assessment such as a combination of self-reported measures (e.g., peer, partner, parents) and a structured interview could improve the quality of the constructs assessed in this study. Second, as with the vast majority of studies in the area of eating pathology, the present study focused on a sample that was mainly composed of caucasian undergraduate university women. Although, this group has been found to be at risk for bulimic symptomatology, replication with women randomly selected from different communities and from various socioeconomic backgrounds could increase the generalization of our findings. In addition to cultural and gender issues, it is important to note that a sample of university students attending classes may over-represent self-determined or well-functioning women. Third, it is possible that different factors may be involved in the development of bulimic symptomatology for men than women. Therefore, generalization of findings to men cannot be assumed and should be investigated in future studies. Fourth, even though sophisticated statistical procedures were used to evaluate the proposed models, the design involved measurement of the variables at one point in time. The use of a longitudinal design could more adequately

support causal inferences as well as allow for an examination of how behaviors changed over time. Fifth, because this study predicted bulimic symptomatology rather than a diagnosis of bulimia nervosa, these results may not generalize to women with the syndrome of bulimia. Finally, in this study, bulimic symptomatology was studied in the context of sociocultural and motivational factors. However, because eating pathology is believed to result from multiple sources of influences including family dynamics, biological changes, and psychological factors, future research should try to replicate our findings within a larger model that would integrate elements from these other different approaches.

Implications for Prevention of Bulimic Symptoms

Despite these limitations, the present study represents a first attempt to investigate how self-determined motivation can help reduce sociocultural influences about body image and reduce women's risk for bulimic symptomatology. In this way, the current findings could have some potential implications for the prevention of bulimic symptomatology. Whereas the elimination of sociocultural pressures about body image may be extremely difficult, our findings suggest that it may be helpful to encourage the development of a self-determined profile early in life so that young girls would reach adolescence with greater feelings of autonomy and competence. These feelings could enhance their confidence in making choices that are based on their own values and this, at a time when they are more prone to seek outside information to form their self-identity. Increasing their level of global self-determination could possibly help them become more critical about society's beliefs related to thinness and obesity. According to our results, rejection of such beliefs could result in less body dissatisfaction which in turn, could decrease one's risk of experiencing bulimic symptoms.

Another implication of facilitating the development of self-determination may be to reduce one's perception of sociocultural pressures about body image. According to our study, these perceptions represent the first element of a sequence that can lead to bulimic symptomatology. This intrapersonal strategy of facilitating self-determination appears to be a good alternative to some of the more traditional strategies that consist of reducing the actual sources of pressure by

boycotting the ultra-slender images portrayed in the media. Indeed, despite the work of various grassroots organizations in compelling companies to discontinue propaganda about ultra-slender models, it is unrealistic to believe that all sources of pressure can be eliminated. By facilitating the development of a self-determined profile, people could acquire the skills (autonomy and competence) necessary to evaluate sociocultural messages about body image instead of merely acquiescing to them. In other words, sociocultural messages about body image would not be perceived as sources of pressure, but rather as environmental information that they can freely integrate or not with their self.

Research conducted in different domains such as education (e.g., Vallerand, Fortier, & Guay, 1997), physical activity (e.g., Black & Weiss, 1992), and health context (e.g., Williams & Deci, 1996) has shown that interpersonal behaviors that are perceived to foster autonomy, competence, and relatedness facilitate self-determination. Thus, socialization agents such as parents who represent one of the main sources of influence during one's development could facilitate self-determination by adopting a supportive interactional style. For example, among other things, they could provide their children with structured information on eating habits and their relation to eating disorders. However, this information should be presented in a non threatening way that is, with respect of child's opinion and with acknowledgement of the child's perspective and feelings. Also, parents could provide informational feedback, that is feedback that promotes feelings of competence with regard to the child's eating behaviors and other behaviors in general. Finally, devoting time and resources to the child as well as providing warmth and caring could contribute to the enhancement of global self-determination.

Although we recognize that the present findings are preliminary in nature, it is our hope that these findings have aroused the interest of other researchers to further explore how an intrapersonal variable such as self-determined motivation can help reduce sociocultural influences about body image and bulimic symptomatology.

References

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writers. Journal of Personality and Social Psychology, 48, 393-399.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders, (4th ed.). Washington, D. C.: Author.

Asbach, C. (1994). Media influences and personality development: The inner image and the outer world. In D. Zillman, J. Bryant, & A. C. Huston (Eds.), Media, children, and the family: Social scientific, psychodynamic and clinical perspectives (pp. 117-128). Hillsdale, NJ: Erlbaum.

Attie, I., & Brooks-Gunn, J. B. (1989). Development of eating problems in adolescent girls: A longitudinal study. Developmental Psychology, 25, 70-79.

Bentler, P. M. (1990). Comparative fit indices in structural models. Psychological Bulletin, 107, 238-246.

Berscheid, E., Walster, E., & Bohrnstedt, G. (1973, November). The happy American body: A survey report. Psychology Today, 11, 119-131.

Black, S. J., & Weiss, M. R. (1992). The relationship among perceived coaching behaviors, perceptions of ability, and motivation in competitive age-group swimmers. Journal of Sport & Exercise Psychology, 14, 309-325.

Blais, M. R., Brière, N. M., Lachance, L., Riddle, A. S., & Vallerand, R. J. (1993). L'inventaire des motivations au travail de Blais [Blais' Inventory of Work Motivations]. Revue Québécoise de Psychologie, 14, 185-215.

Blais, M. R., Sabourin, S., Boucher, C., & Vallerand, R. J. (1990). Toward a motivational model of couple happiness. Journal of Personality and Social Psychology, 59, 1021-1031.

Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1994). Construction et validation de l'inventaire des motivations interpersonnelles [Construction and Validation of the

Interpersonal Motivations Inventory]. Unpublished manuscript, University of Quebec in Montreal.

Bollen, K. A. (1989). A new incremental fit index for general structural models. Sociological Methods & Research, 17, 303-316.

Bordo, S. (1993). Unbearable weight: Feminism, western culture, and the body. Berkeley: University of California.

Boyer, H. (1991). Analyses d'équations structurelles des facteurs socio-culturels cognitifs sous-jacents à la Boulimie [Structural Equation Analyses of Cognitive Sociocultural Factors of Bulimia]. Ph.D. Thesis. University of Ottawa.

Brière, N. M., Vallerand, R. J., Blais, M. R., & Pelletier, L. G. (1995). Développement et validation d'une mesure de motivation intrinsèque, extrinsèque et d'amotivation en contexte sportif: l'échelle de motivation dans les sports (EMS) [Development and Validation of a Measure of Intrinsic, Extrinsic, and Amotivation in Sports Context: The Sports Motivation Scale (SMS)]. International Journal of Sport Psychology, 26, 465-489.

Byrne, B. M. (1989). A primer of LISREL: Basic applications and programming for confirmatory factor analytic models. New York: Springer-Verlag.

Byrne, B. M. (1994). Structural Equation Modeling with EOS and EOS/Windows. Basic concepts, applications, and programming. Thousand Oaks, CA: Sage.

Carver, C. S., & Scheier, M. F. (1981). Attention, and self-regulation: A control-theory approach to human behavior. New York: Springer-Verlag.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. Psychological Review, 97, 19-35.

Carver, C. S., & Scheier, M. F. (1998). On the self-regulation of behavior. New York: Cambridge University.

Carver, C. S., & Scheier, M. F. (1999). Themes and issues in the self-regulation of behavior. In R. S. Wyer, Jr. Perspectives on behavioral self-regulation: Advances in social cognition Vol. 12 (pp.1-105). Mahaw, NJ: Erlbaum.

Cash, T. F., Winstead, B. A., & Janda, L. H. (1986, April). Body image survey report: The great American shape-up. Psychology Today, 24, 30-37.

Cattarin, J., & Thompson, J. K. (1994). A three-year longitudinal study of body image and eating disturbance in adolescent females. Eating Disorders: The Journal of Prevention and Treatment, 2, 114-125.

Connors, M. E., & Johnson, C. L. (1987). Epidemiology of Bulimia and bulimic symptoms. Addictive Behaviors, 12, 165-179.

Crowther, J. H., Lilly, R. S., Crawford, P. A., Shepherd, K. L., & Olivier, L. L. (1990). The stability of the Eating Disorder Inventory. Paper presented at the Annual Meeting of the American Psychological Association, Boston, MA.

Crowther, J. H., Post, G., & Zaynor, L. (1985). The prevalence of bulimia and binge eating in adolescent girls. International Journal of Eating Disorders, 4, 29-42.

Deci, E. L. (1975). Intrinsic motivation. New York: Plenum.

Deci, E. L. (1980). The psychology of self-determination. Lexington, MA: D.C. Heath.

Deci, E. L., Eghari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The Self-Determination Theory perspective. Journal of Personality, 62, 118-142.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. Journal of Personality and Social Psychology, 53, 1024-1037.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), Nebraska Symposium on Motivation: Vol 38. Perspectives on motivation. (pp. 237-288). Lincoln: University of Nebraska.

Direction générale des services de la promotion de la Santé et du Bien-être social Canada [Health and Welfare Canada] (1988, under review). Le poids et la santé [Weight and Health] [Brochure]. Ottawa, ON: Minister of Supply and Services Canada.

Fabian, L. J., & Thompson, J. K. (1989). Body image and eating disturbance in young females. International Journal of Eating Disorders, 8, 63-74.

Fortier, M. S., Vallerand, R. J., & Guay, F. (1995). Academic motivation and school performance: Toward a structural model. Contemporary Educational Psychology, 20, 257-274.

Freedman, R. J. (1984). Reflections on beauty as it relates to health in adolescent females. Women and Health, 9, 29-46.

Garner, D. M. (1991). Eating Disorder Inventory-2: Professional Manual. Odessa, FL: Psychological Assessment Resources.

Garner, D. M., & Garfinkel, P. E. (1980). Socio-cultural factors in the development of anorexia nervosa. Psychological Medicine, 10, 647-656.

Garner, D. M., Garfinkel, P. E., Swartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. Psychological Reports, 47, 483-491.

Garner, D. M., & Olmstead, M. P. (1984). The Eating Disorder Inventory Manual. Odessa, Florida: Psychological Assessment Resources.

Gordon, R. A. (1988). A sociocultural interpretation of the current epidemic of eating disorders. In B. J. Blinder, B. F. Chanting, & R. Goldstein (Eds.), The eating disorders (pp. 151-163). Great Neck, N. Y.: PMA.

Gordon, R. (1990). Anorexia and bulimia: Anatomy of social epidemic. Cambridge, MA: Basil Blackwell.

Green-Demers, I., Pelletier, L. G., & Ménard, S. (1997). The impact of behavioral difficulty on the saliency of environmental motivation. Canadian Journal of Behavioural Science, 29, 157-166.

Greenstein, A., & Koestner, R. (1996). Success in maintaining new year's resolutions: The value of self-determined reasons. Paper presented at the International Congress of Psychology, Montreal, Quebec, Canada.

Grolnick, W. S., Deci, E. D., & Ryan, M. R. (1997). Internalization within the family: The self-determination perspective. In J. E. Grusec, & L. Kuczynski (Eds.), Parenting and

children's internalization of values: A handbook of contemporary theory (pp.135-161). New York: Wiley.

Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. Journal of Educational Psychology, 52, 890-898.

Grolnick, W. S., Ryan, R. M., & Deci, E. L. (1991). Inner resources for school achievement: Motivational mediators of children's perceptions of their parents. Journal of Educational Psychology, 83, 508-517.

Gross, J., & Rosen, J. C. (1988). Bulimia in adolescents: Prevalence and psychosocial correlates. International Journal of Eating Disorders, 7, 51-61.

Guttman, L. (1954). A new approach to factor analysis: The radex. In Lazarfel (Ed.), Mathematical thinking in the social sciences (pp. 258-348). New York: Free Press of Glencoe.

Haddad, N. K. (1999). When a basic innate need is not met: The case of the impaired proactive self. Ph.D. Thesis. University of Ottawa.

Harris, M. B., & Harris, R. J., Bochner, S. (1982). Fat, four-eyed, and female: Stereotypes of obesity, glasses and gender. Journal of Applied Social Psychology, 12, 503-516.

Harrison, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. Journal of Communication, 1, 40-67.

Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. Psychological Bulletin, 110, 86-108.

Heinberg, L. J., Thompson, J. K., & Stormer, S. (1995). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire. International Journal of Eating Disorders, 17, 81-89.

Hennessey, B. A. (1989). The effect of extrinsic constraints on children's creativity while using a computer. Creativity Research Journal, 2, 151-168.

Johnson, C., & Connors, M. E. (1987). The etiology and treatment of bulimia nervosa: A biopsychosocial perspective. New York: Basic Books.

Jöreskog, K. G., & Sörbom, D. (1996). Lisrel 8.0: User's reference guide. Chicago: Scientific Software International.

Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Differential correlates of intrinsic and extrinsic goals. Personality and Social Psychology Bulletin, *22*, 281-288.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic goals. Personality and Social Psychology Bulletin, *22*, 281-288.

Koestner, R., Losier, G. F., Vallerand, & Carducci, D. (1996). Identified and introjected forms of political internalization: Extending Self-Determination Theory. Journal of Personality and Social Psychology, *70*, 1025-1036.

Larkin, J. C., & Pines, H. A. (1982). No fat persons need apply: Experimental studies of the overweight stereotype and hiring preference. Sociology of Work and Occupations, *6*, 312-327.

Leon, G. R., Carroll, K., Chernyck, B., & Finn, S. (1985). Binge eating and associated habits patterns within college student and identified bulimic populations. International Journal of Eating Disorders, *4*, 43-57.

Leon, G. R., Fulkerson, J. A., Perry, C. L., & Cudeck, R. (1993). Personality and behavioral vulnerabilities associated with risk status for eating disorders in adolescent girls. Journal of Abnormal Psychology, *102*, 438-444.

Leon, G. R., Perry, C. L., Mangelsdorf, C., & Tell, G. J. (1989). Adolescents' nutritional and psychological patterns and risk for the development of an eating disorder. Journal of Youth and Adolescence, *18*, 273-282.

Lowc, M. R. (1994). Putting restrained and unrestrained nondieters on short-term diets: Effects on eating. Addictive Behaviors, *19*, 349-356.

Maddox, G. L., & Lieberman, V. (1969). Overweight as a social disability with medical complications. Journal of Medical Education, *44*, 214-220.

Marlowe, D., & Gergen, K. J. (1968). Personality and social interaction. In G. Lindzen & E. Aronson (Eds.), The handbook of social psychology (2nd ed., pp.590-665). Menlo Park, CA: Addison-Wesley.

Mitchell, J. E., Hatsukami, D., Pyle, R. L., & Eckert, E. D. (1986). The bulimia syndrome: Course of the illness and associated problems. Comprehensive Psychiatry, 27, 165-179.

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. Psychological Bulletin, 105, 430-445.

O'Conner, B. P., & Vallerand, R. J. (1990). Religious motivation in the elderly: A French-Canadian replication and an extension. The Journal of Social Psychology, 130, 53-59.

Pelletier, L. G., Fortier, M., Vallerand, R. J., & Brière, N. M. (2000). Associations between perceived autonomy support, forms of self-regulation, and persistence: A longitudinal investigation. Manuscript submitted for publication.

Pelletier, L. G., Fortier, M., Vallerand, R. J., Tuson, K. M., Brière, N. M., & Blais, M. R. (1995). The Sports Motivation Scale (SMS): A measure of intrinsic motivation, extrinsic motivation, and amotivation in sports. Journal of Sport and Exercise, 17, 35-53.

Pelletier, L. G., Green-Demers, I., & Béland, A. (1997). Pourquoi effectuez-vous des comportements écologique? Validation en langue française de l'Echelle de Motivation vis-à-vis les comportements écologique [Why do you adopt environmental behaviors? Validation in French of the Motivation Toward the Environmental Scale]. Canadian Journal of Behavioural Science, 29, 145-156.

Pelletier, L. G., Tuson, K. M., Green-Demers, I., Noels, K., & Beaton, A. (1998). Why are you doing things for the environment - or are you?: The motivation toward the environment scale (MTES). Journal of Applied Social Psychology, 28, 437-468.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1995). Loisirs et santé mentale: Les relations entre la motivation pour la pratique des loisirs et le

bien-être psychologique [Leisure and Mental Health: Relationships Between Motivation for Leisures and Well-Being]. Canadian Journal of Behavioural Science, 27, 140-156.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1996). Vers une conceptualisation motivationnelle multidimensionnelle du loisir: construction et validation de l'échelle de motivation vis-à-vis des loisirs (EML) [Toward a Multidimensional Conceptualization of Motivation For Leisure: Construction and Validation of the Motivation Scale for Leisures (MSL)]. Loisirs et société, 19, 559-585.

Pike, K. M., & Rodin, J. (1991). Mothers, daughters, and disordered eating. Journal of Abnormal Psychology, 100, 198-204.

Polivy, J., & Herman, C. P. (1985). Dieting and bingeing: A causal analysis. American Psychologist, 40, 193-201.

Pyle, R. L., Halvorson, P. A., Neuman, P. A., & Mitchell, J. E. (1986). The increasing prevalence of bulimia in freshman college students. International Journal of Eating Disorders, 5, 631-647.

Rand, C. S. W., & Kuldau, J. M. (1990). The epidemiology of obesity and self-defined weight problem in the general population: Gender, race, age, and social class. International Journal of Eating Disorders, 9, 329-343.

Rand, C. S. W., & Kuldau, J. M. (1992). Epidemiology of bulimia and symptoms in a general population: Sex, age, race, and socioeconomic status. International Journal of Eating Disorders, 11, 37-44.

Rodin, J., Silberstein, L. R., & Striegle-Moore, R. H. (1985). Women and weight: A normative discontent. In T. B. Sonderegger (Ed.), Psychology and gender: Nebraska Symposium on Motivation, 1984 (pp. 267-307). Lincoln: University of Nebraska.

Ryan, R. M. (1993). Agency and organization: Intrinsic motivation, autonomy and the self in psychological development. In J. Jacobs (Ed.), Nebraska Symposium on Motivation: Vol.40. Developmental perspectives on motivation (pp. 1-56). Lincoln: University of Nebraska.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. Journal of Personality, **63**, 397-427.

Ryan, R. M., & Connell, J. R. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. Journal of Personality and Social Psychology, **57**, 749-761.

Ryan, R. M., & Connell, J. R., & Grolnick, W. S. (1992). When achievement is not intrinsically motivated: A theory of self-regulation in school. In A. K. Boggiano & T. S. Pittman (Eds.), Achievement and motivation: a social-developmental perspective (pp. 167-188). New York: Cambridge University.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, **55**, 68-78.

Ryan, R. M., Rigby, S., King, K. (1993). Two types of religious internalization and their relations to religious orientations and mental health. Journal of Personality and Social Psychology, **65**, 586-596.

Séguin, C., Green-Demers, I., Chantal, Y., Ladouceur, C., & Pelletier, L. G. (1997). Pourquoi les gens ont-ils des relations sexuelles? Une investigation des dimensions de la motivation sexuelle [Why do people have sexual relationships? An investigation of the dimensions of sexual motivation] [Abstract]. Canadian Psychological, Vol 38: 2a, p.72.

Séguin, C., Green-Demers, I., & Pelletier, L. G. (1994). Construction et validation de l'échelle de motivation envers les relations sexuelles (EMERS) [Construction and Validation of the Motivation for Sexual Relationships] [Abstract]. Proceedings of the XVIIth Annual Convention of the Société Québécoise de Recherche en Psychologie, p. A1.52.

Silverstein, B., Perdue, L., Peterson, B., Vogel, L., & Fantini, D. A. (1986). Possible causes of the thin standard of bodily attractiveness for women. International Journal of Eating Disorders, **5**, 907-916.

Steiger, J. H. (1990). Structural model evaluation and modification. An interval estimation approach. Multivariate Behavioral Research, **21**, 309-331.

Stein, D. M., & Buriza, S. R. (1989). Bulimia: Prevalence estimates in female junior high and high school. Journal of Clinical Child Psychology, 18, 206-213.

Stice, E. (1994). A review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. Clinical Psychology Review, 14, 633-661.

Stice, E., & Agras, W. S. (1998). Predicting onset and cessation of bulimic behaviors during adolescence: A longitudinal grouping analyses. Behavior Therapy, 29, 257-276.

Stice, E., Nemeroff, C. J., & Shaw, H. E. (1996a). A test of the dual pathway model of bulimia nervosa: Evidence for dietary restraint and affect regulation mechanisms. Journal of Social and Clinical Psychology, 15, 340-363.

Stice, E., Shaw, H. E., & Nemeroff, C. J. (1998). Dual pathway model of bulimia nervosa: Longitudinal support for dietary restraint and affect-regulation mechanisms. Journal of Social and Clinical Psychology, 17, 129-149.

Stice, E., Schupak-Neuberg, E., Shaw, H. E., & Stein, R. I. (1994). Relation of media exposure to eating disorder symptomatology: An examination of mediating mechanisms. Journal of Abnormal Psychology, 103, 836-840.

Stice, E., Ziemba, C., Margolis, J., & Flick, P. (1996b). The dual pathways model differentiates bulimics, subclinical bulimics, and controls: Testing the continuity hypothesis. Behavior Therapy, 27, 531-549.

Strasburger, V. C. (1995). Adolescents and the media: Medical and psychological impact. Thousand Oaks, CA: Sage.

Striegel-Moore, R. H., Silberstein, L. R., Frensch, P., & Rodin, J. (1989). A prospective study of disordered eating among college students. International Journal of Eating Disorders, 8, 499-509.

Striegel-Moore, R. H., Silberstein, L. R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. American Psychologist, 41, 246-263.

Szmukler, G., McCance, C., McCrone, L., & Hunter, D. (1986). Anorexia nervosa: A psychiatric case register study from Aberdeen. Psychological Medicine, 16, 49-58.

Tabachnick, B. G., & Fidell, L. S. (1996). Using multivariate statistics. 2nd Ed. New York: Harper Collins College Publishers.

Telch, C. F., Agras, W. S. (1996). The effects of short-term food deprivation on caloric intake in eating disordered subjects. Appetite, 26, 221-234.

Thelen, M. H., & Cormier, J. F. (1995). Desire to be thinner and weight control among children and their parents. Behavior Therapy, 26, 85-99.

Thelen, M., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. Psychological Assessment, 3, 119-124.

Thompson, J. K. (1990). Body image disturbance: Assessment and treatment. New York: Pergamon.

Thompson, J. K., Cattarin, J., Fowler, B., & Fisher, E. (1995). The Perception of Teasing Scale (POTS): A revision and extension of the Physical Appearance Related Teasing Scale (POTS): A revision and extension of the Physical Appearance Related Teasing Scale (PARTS). Journal of Personality Assessment, 65, 146-157.

Thompson, J. K., Fabian, L. J., Moulton, D., Dunn, M., & Altabe, M. N. (1991). Development and validation of the Physical Appearance Related Teasing Scale. Journal of Personality Assessment, 56, 513-521.

Thompson, J. K., & Psaltis, K. (1988). Multiple aspects and correlates of body figure ratings: A replication and extension of Fallon and Rozin (1985). International Journal of Eating Disorders, 7, 813-818.

Twamley, E. W., & Davis, M. C. (1999). The sociocultural model of eating disturbance in young women: The effects of personal attributes and family environment. Journal of Social and Clinical Psychology, 4, 467-489.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology Vol 29, (pp.271-360). New York: Academic.

Vallerand, R. J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. Journal of Personality, 60, 599-620.

Vallerand, R. J., Fortier, M. S., & Guay, F. (1997). Self-determination and persistence in a real life setting: Toward a motivational model of high-school dropout. Journal of Personality and Social Psychology, 72, 1161-1176.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Sénécal, C., & Vallière, E. F. (1993). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. Educational and Psychological Measurement, 52, 1003-1017.

Wardle, J., & Beales, S. (1988). Control and loss of control over eating: An experimental investigation. Journal of Abnormal Psychology, 97, 35-40.

Wear, R. W., & Pratz, O. (1987). Test-retest reliability for the Eating Disorder Inventory. International Journal of Eating Disorders, 6, 767-769.

Welch, G. (1988). Selected multivariate statistical techniques and eating disorders. Unpublished doctoral dissertation, University of Otago, New Zealand.

Weltzin, T. E., & Bolton, B. G. (1998). Bulimia Nervosa. In I. B. Weiner (Ed), Personality and Clinical Psychology Series (pp.435-465). New Jersey: Lawrence Erlbaum Associates Publishers.

Whitaker, A., Davies, M., Shaffer, D., Johnson, J., Abrams, S., Walsh, B. T., & Kalikow, K. (1989). The struggle to be thin: A survey of anorexic and bulimic symptoms in a non-referred adolescent population. Psychological Medicine, 19, 143-163.

Whitaker, A., Johnson, J., Shaffer, D., Rapaport, J. L., Kalikow, K., Walsh, B. T., Davies, M., Braiman, S., & Dolinsky, A. (1990). Uncommon troubles in young people: Prevalence estimates of selected psychiatric disorders in a nonreferred adolescent population. Archives of General Psychiatry, 47, 487-496.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students. Journal of Personality and Social Psychology, 70, 767-779.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. Journal of Personality and Social Psychology, 70, 115-126.

Williams, R. L., Schaefer, C. A., Shisslack, C. M., Gronwaldt, V. H., & Comerici, G. D. (1986). Eating attitudes and behaviors in adolescent women: Discrimination of normals, dieters, and suspected bulimics using the Eating Attitudes Test and Eating Disorder Inventory. International Journal of Eating Disorders, 5, 879-894.

Wilson, G. T., & Eldredge, K. L. (1992). Pathology and development of eating disorders: Implications for athletes. In K. D. Brownell, J. Rodin, & J. H. Wilmore (Eds.), Eating, body weight, & performance in athletes: Disorders of modern society (pp.115-127). Philadelphia: Lea & Febiger.

Wiseman, M. A., Gray, J. J., Mosimann, J. E., & Ahrens, A. H. (1992). Cultural expectations of thinness in women: An update. International Journal of Eating Disorders, 11, 85-89.

Wolf, N. (1991). The beauty myth: How images of beauty are used against women. New York: William Morrow.

Authors Note

This paper was prepared while the first author was supported by a doctoral scholarship from the Social Sciences and Humanities Research Council of Canada (SSHRC), and the second author was supported by a grant from the Social Sciences and Humanities Research Council of Canada (SSHRC).

Footnotes

¹ Conservative estimates of Bulimia evaluate its prevalence between 1 to 3% among adolescents and young adult females (American Psychiatric Association, 1994).

² Stice theoretical model of Bulimia was called the Dual Pathway Model of Bulimia because it posits that dietary restraint and negative affect are the final proximal predictors of bulimia (Stice, Shaw, and Nemeroff, 1998).

³ Stice (1994) has speculated about factors that might moderate the different links involved in the sociocultural model but those factors have not been empirically tested.

⁴ According to DeCharms (1968), *intention* can have either an internal or external perceived locus of causality. An internal perceived locus of causality refers to the initiation and organization of behavior by the self. The action is volitional and the person experiences himself or herself as the “origin” of the behavior. An external perceived locus of causality on the other hand, refers to the initiation and organization of behavior by sources located *outside* the self. Sources outside the self refer to internal (e.g., guilt) or external (e.g., authority, media) pressures. The behavior is *not volitional*. The person experiences himself or herself as a “pawn” governed by pressures or inducements even though the person intended to perform the action.

⁵ Statistics suggest that bulimia nervosa occurs almost exclusively among females (Rand & Kulda, 1992; Whitaker et al., 1990). The Diagnostic and Statistical Manual of Mental Disorders (4th.Ed) suggests that the rate of occurrence of this disorder in males is approximately one-tenth of that in females (APA, 1994; p.548). For that reason, only women were included in this study.

⁶ The BMI was calculated from the reported height and weight of each participant.

⁷ According to Health and Welfare Canada (1988, under review), a Body Mass Index (BMI) below 20 may be associated with health problems for some people, a BMI between 20-25 is a good weight for most people, a BMI between 25-27 may lead to health problems in some people, and a BMI over 27 represents an increased risk of developing health problems.

⁸ The BULIT-R cutoff score of 104 was used to identify participants (putative bulimics) whom are most likely to be diagnosed with bulimia nervosa on the basis of an interview. This cutoff score

has shown to discriminate well between a group of bulimic individuals ($M=117.95$) and a group of non eating disordered individuals ($M=57.50$), $t(46)=16.41$, $p<.0001$ (Thelen et al., 1991).

⁹ In the BULIT-R, eight of the items pertaining to specific means of radical weight control (two items each concerning laxatives, diuretics, fasting, and exercise) were found not to discriminate well between bulimic individuals and non eating disordered individuals. Thus, Thelen and their colleagues (1991) decided that these items would not be scored but would be retained to provide information about weight control behaviors. The eight items are called filler items.

Table 1

Summary Statistics for the Indicators of the Two Models of Bulimic Symptomatology

Variables	Mean	Standard Deviation	Skewness	Kurtosis	Theoretical Range
GSD1	14.58	8.95	-.34	-.27	-36/+36
GSD2	11.39	9.59	-.19	-.23	-36/+36
GSD3	10.59	8.70	.08	-.21	-36/+36
GSD4	11.76	8.83	-.29	.40	-36/+36
TEASE	6.96	3.80	1.05	.48	3/18
FAMILY	3.84	2.16	1.17	.52	2/10
FRIENDS	3.30	1.63	1.24	1.09	2/10
PARTNER	3.93	2.28	1.10	.27	2/10
MEDIA	7.46	2.36	-.62	-.57	2/10
THINNESS	14.64	5.90	.15	-.73	4/28
OBESITY	9.71	4.69	.79	.02	4/28
DISAT1	10.86	3.88	.07	-.78	3/18
DISAT2	11.81	3.75	-.28	-.36	3/18
DISAT3	10.62	4.02	.17	-.75	3/18
BULIT1	18.80	7.12	.74	-.02	9/45
BULIT2	16.49	6.04	1.19	1.06	9/45
BULIT3	17.75	7.14	1.28	1.14	10/50

Table 2

Goodness-of-fit statistics showing the contribution of global self-determination (GSD) to sociocultural pressures about body image, to endorsement of society's beliefs and to bulimic symptomatology

Models	df	χ^2	Δdf	$\Delta\chi^2$	RMSEA	CFI	IFI	PCFI
<u>First Model</u>								
Model without links between GSD ... and								
sociocultural pressures about body image	116	347.08			.08	.93	.93	.79
endorsement of society's beliefs								
bulimic symptomatology								
<u>Second Model</u>								
Model including the significant contribution of GSD								
to sociocultural pressures about body image	115	315.64	1	31.44**	.08	.94	.94	.79
to endorsement of society's beliefs	115	314.35	1	32.73**	.08	.94	.94	.79
to bulimic symptomatology	115	341.32	1	5.76*	.08	.93	.93	.79

Note. $\Delta df=1$, $\Delta\chi^2=31.44$; $p<.001^{**}$, $\Delta\chi^2=5.76$; $p<.025^*$

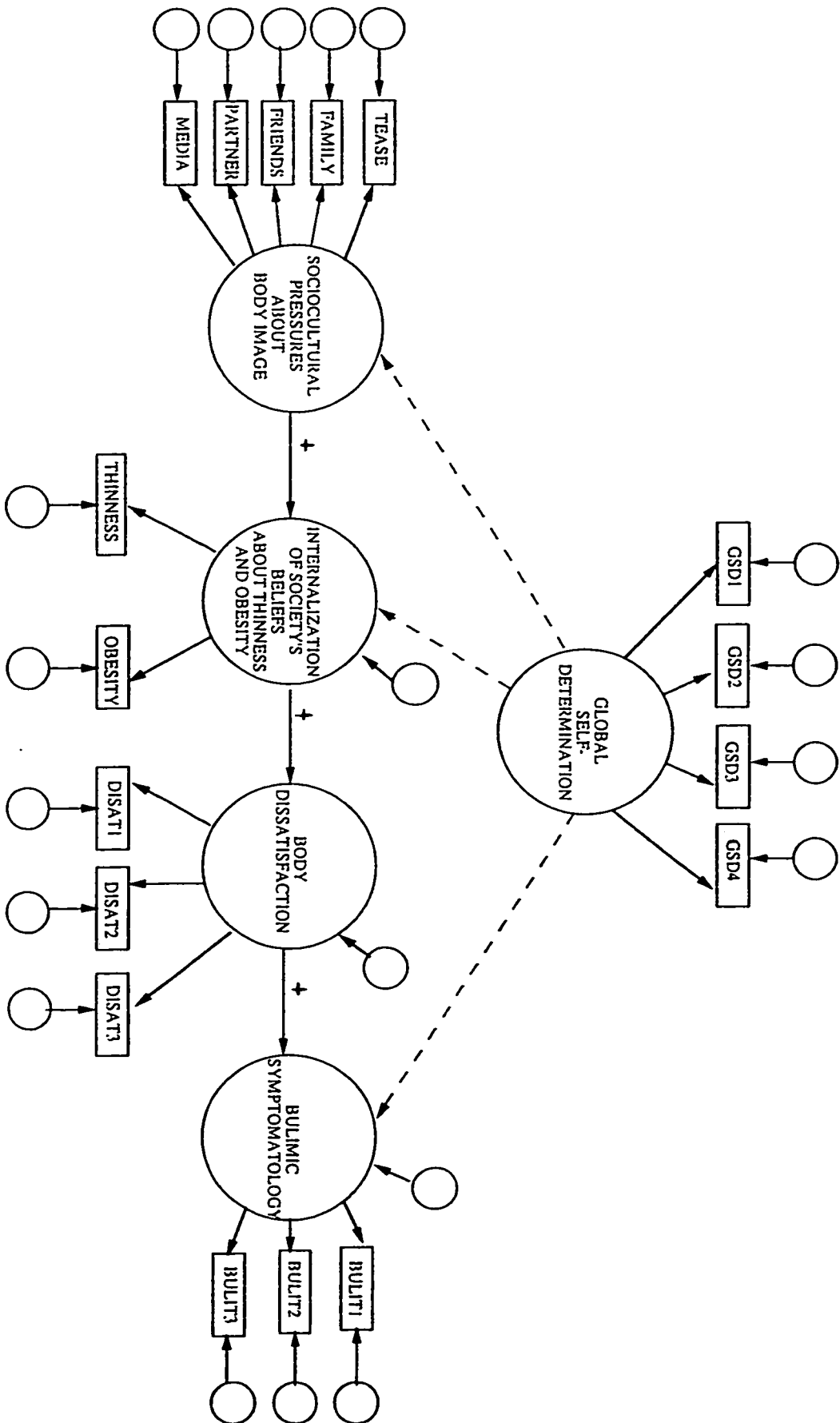
Figure captions

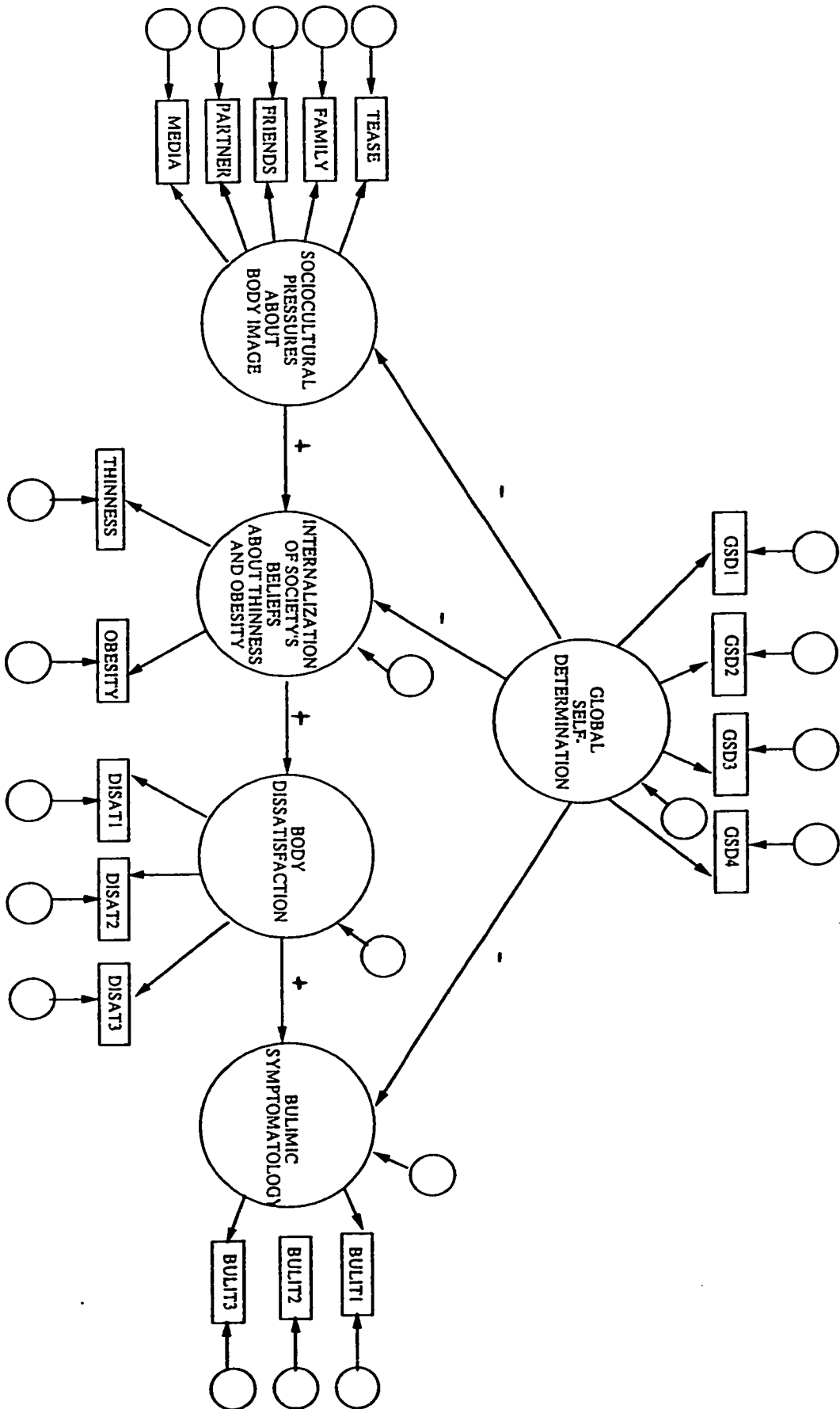
Figure 1. Hypothesized relationships between sociocultural pressures about body image, internalization of society's beliefs about thinness and obesity, body dissatisfaction, and bulimic symptomatology. Global self-determination is included in the measurement model but not in the structural model.

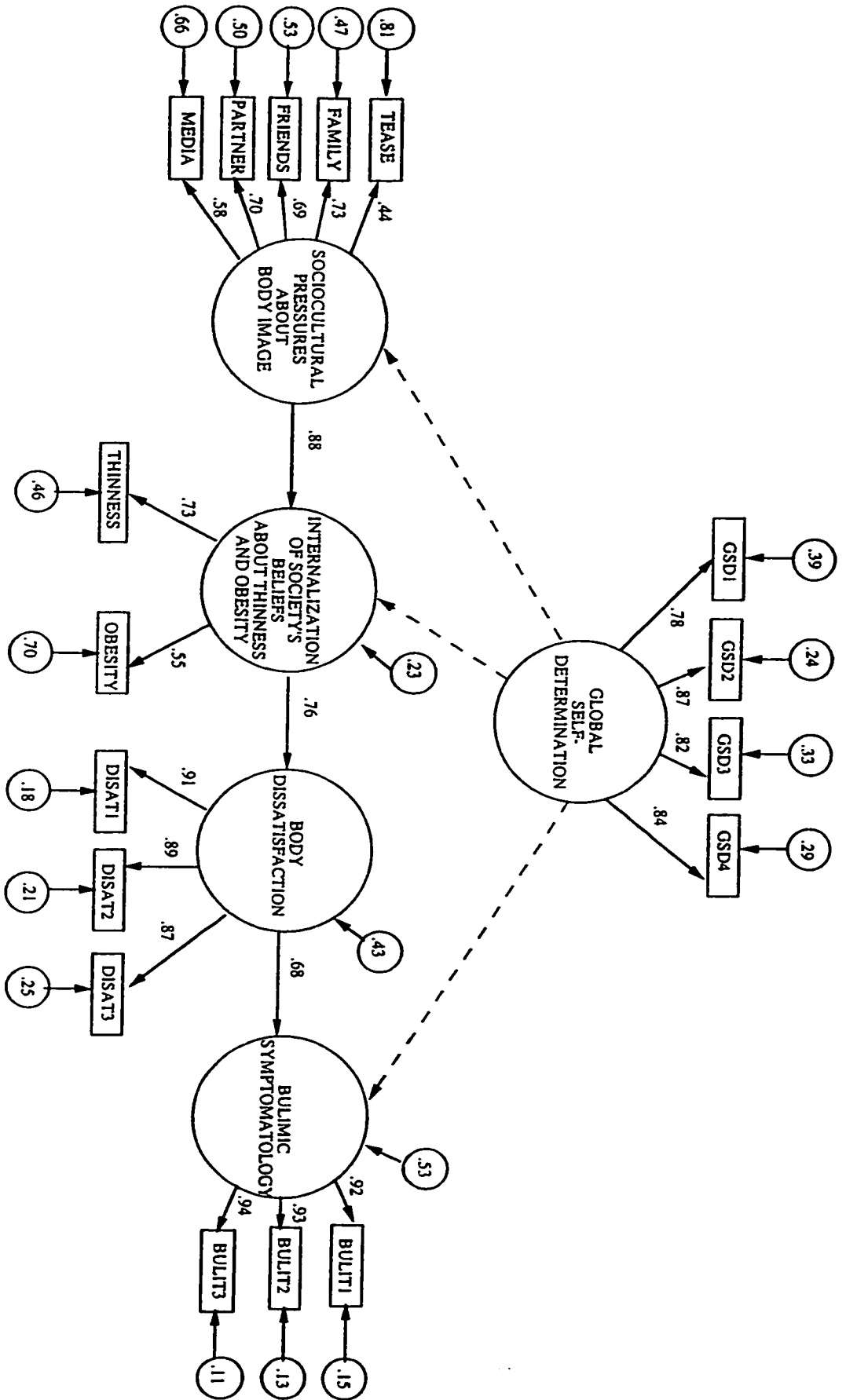
Figure 2. Extended sociocultural model of bulimic symptomatology. This model includes the relationships between global self-determination and sociocultural pressures about body image, between global self-determination and internalization of society's beliefs about thinness and obesity, and between global self-determination and bulimic symptomatology.

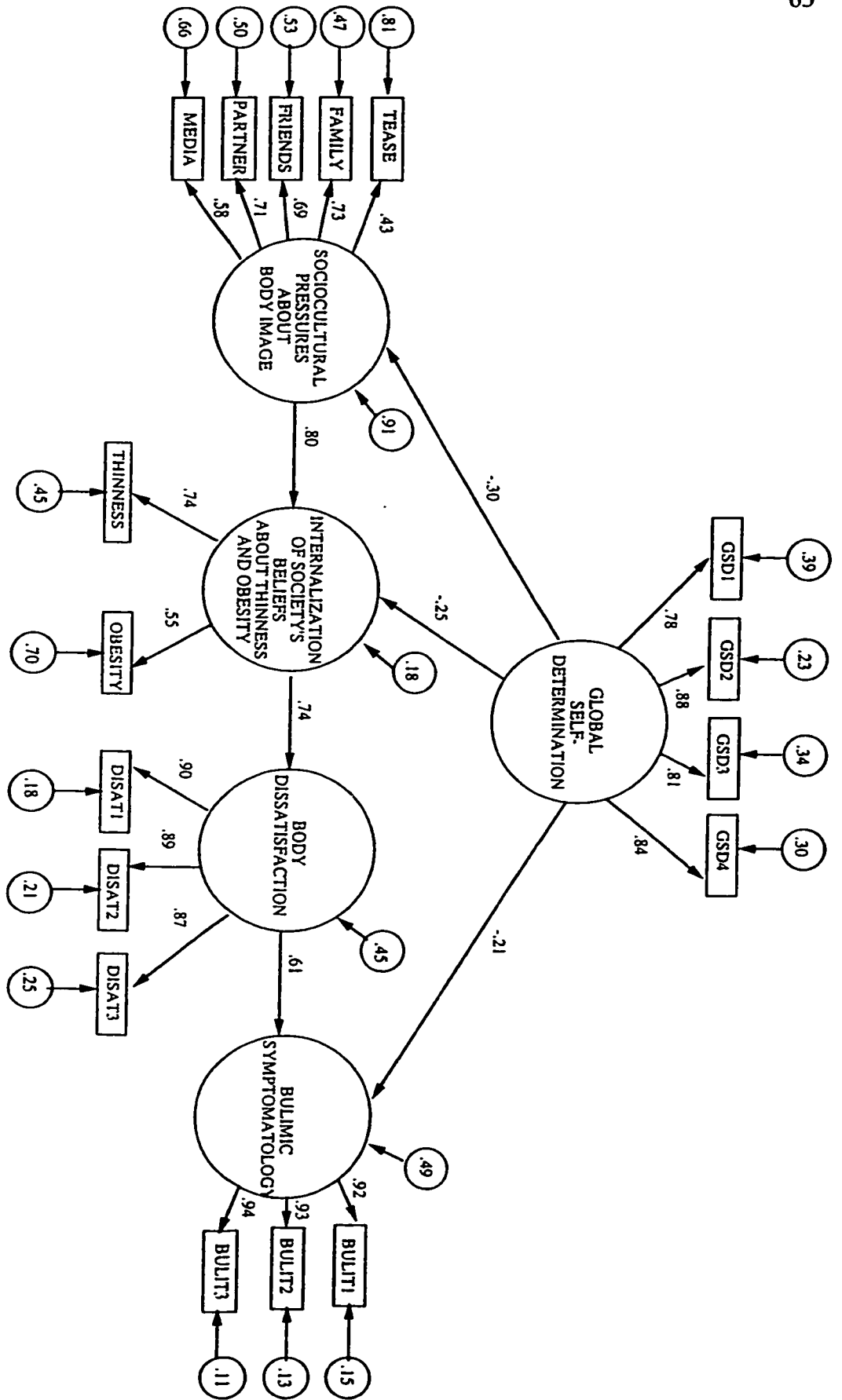
Figure 3. Test of an adapted version of Stice's sociocultural model of bulimic symptomatology. All estimates are significant at the .05 level.

Figure 4. The role of global self-determination in the sociocultural model of bulimic symptomatology. All estimates are significant at the .05 level.









Why Do Women Regulate What They Eat?

Relationships Between Forms of Regulation, Eating Behaviors and Psychological Adjustment

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January 15, 2001

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Abstract

A new measure of women's motives for regulating their eating behaviors, namely the Regulation of Eating Behaviors Scale (REBS) is introduced. This scale is based on the different styles of behavioral regulation identified by Deci and Ryan in their Self-Determination Theory (SDT; 1985, 1991; Ryan & Deci, 2000). In a first study ($N=335$), an experimental version of the REBS was developed and its psychometric properties were evaluated. In a second study ($N=339$), a confirmatory factor analysis was conducted on the REBS and the psychometric properties of the scale were further assessed. As well, a motivational model examining the relationships between two global forms of regulation of eating behaviors (autonomous vs. controlled), two types of eating behaviors (healthy vs. dysfunctional) and psychological adjustment was tested. Participants for the two studies were university female students. Together, results supported the factor structure and the construct validity of the scale. Also, structural equation analyses of the motivational model of the regulation of eating behaviors suggested that an autonomous regulation was positively associated with healthy eating behaviors, whereas a controlled regulation was positively associated with dysfunctional eating behaviors (bulimic symptomatology). A controlled regulation was also found to be associated negatively with healthy eating behaviors. Finally, dysfunctional eating behaviors were negatively associated with psychological adjustment, whereas healthy eating behaviors were positively associated with this same construct. Results are discussed in terms of their implication for the integration and maintenance of a successful and healthy regulation of eating behaviors.

Why Do Women Regulate What They Eat?

Relationships Between Forms of Regulation, Eating Behaviors, and Psychological Adjustment

Ingestion of food is a behavior everyone needs to do for survival. However, the regulation of this behavior can sometimes become difficult and maladaptive. In fact, although common sense suggests that people eat when they feel hungry and quit when they become full, many people have difficulties controlling the amount and/or the quality of foods they consume, either occasionally or more generally (Baumeister, Heatherton, & Tice, 1994). Evidences of such difficulties are, to some extent, reflected in the high prevalence of overweight people, the high amount of money people spend in numerous weight-loss methods, and the inability for most people to maintain weight-loss over time. For instance, in 1997, based on the Body Mass Index (BMI) cutoff of 27.3, 33% of the American adult population in the United States was estimated as overweight (Kuczmarski, Flegal, Campbell, & Johnson, 1994). In 1998, using the new BMI cutoff of 25 and higher proposed by the National Heart, Lung, and Blood Institute, 55% of the population was classified as overweight. Statistics reveal that as much as 40% to 70% of the U.S population is trying to lose weight at any given time (CDC, 1991). Also, some 33 billion dollars are spent annually on weight-loss products, commercial programs and aids in the United States (Wolf, 1991). Unfortunately, studies consistently show that weight loss programs and/or weight-loss strategies are associated with repeated weight-loss and regain. For example, of those who lose weight through dieting, some 95% will eventually regain it, and in some cases these people will gain more than they initially lost (Garner & Wooley, 1991). Similarly, a recent review by Cogan and Rothblum (1993) of 50 studies based on a stratified random sample of weight-loss studies conducted in the 1980s, revealed that the typical woman participant who was 48% above her insurance table weight before treatment, lost on average 12.8 lbs during a 13-week regimen and then regained 4.3 lbs by the next follow-up period. Although it is recognized that genetic inheritance play an important role in the variability of body weight (e.g., Meyer & Stunkard, 1993; Polivy & Herman, 1983) and that some people may diet despite having a normal weight (e.g., Levy & Heaton, 1993; Williamson, Serdula, Anda, Levy, & Byers, 1992), we believe that taken

together, the above statistics show that failure at controlling one's food intake is a prevalent problem in today's society.

Most of the studies on self-regulation failure have focused on situational factors that could interfere with normal processes of regulation. More specifically, three types of factors have been examined. They are: factors affecting goals used as standards for self-regulation, factors leading to monitoring breakdown, and factors reducing the organism's capacity to self-regulate. For example, in the domain of eating behaviors, situations interfering with individuals' capacity to monitor what they do (e.g., eating while watching television, or eating socially rather than alone; Conger, Conger, Costanzo, Wright, & Matter, 1980; Edelman, Engell, Bronstein, & Hirsch, 1986) have been found to lead to failure at self-regulation. Such failures have generally been conceptualized as temporary and limited to specific situations or contexts. Hence, when not exposed to these situations, it is generally assumed that people can successfully regulate their eating behaviors.

However, for other people, the difficulty to regulate their eating behaviors is not limited to sporadic situations. Rather, their self-regulatory processes lead them to experience repeatedly failures at controlling their food consumption, and even in some cases, to pathological problems. For example, Bulimia Nervosa, one of the most prevalent forms of psychopathology among female adolescents and young women results from a self-regulatory problem in which one ignores satiety sensations such as internal hunger cues and restricts intake (Polivy & Herman, 1985). As a consequence of starvation, the person most often a woman, engages in episodes of bingeing. During these episodes, she feels that she cannot stop eating or control what and how much she is eating (American Psychiatric Association, 1994). In this case, self-regulation failure may not only be the result of factors that interfere with one's capacity to self-regulate, but also the expression of a dysfunctional self-regulatory style. Once binge eating begins, most individuals will learn to purge to rid themselves of the large quantity of food ingested during a binge. Eventually, the restraint-binge-purge cycle becomes self-perpetuating and resistant to change.

When not properly regulated, eating behaviors can have detrimental effects on physical and psychological health. For example, eating binges are often followed by a state of anguish feelings of guilt and disparaging self-criticisms which contribute to the experience of a depressed mood. The compensatory behaviors (e.g., self-induced vomiting) that are used in order to avoid weight-gain following eating binges can lead to a significant disturbance in electrolytes which in turn, can cause cardiac arrhythmias. Chronic overeating, especially in high-fat and high-calorie foods, can contribute to obesity which is associated with a significant number of medical complications such as cardiac problems, hypertension, and gastric impairments (VanItallie & Lew, 1992). Furthermore, because obesity is highly stigmatized throughout the life-span, its condition is often linked to low self-esteem, depression, and heightened anxiety (Heatherton, 1993). On the other hand, as is the case for people who suffer from anorexia nervosa, an excessive and rigid control of eating behaviors using strict diet or fasting can lead to impaired renal function and cardiovascular problems, and even death from starvation (Foreyt & Mikhail, 1997).

Currently, five of the ten leading causes of death in the United States (coronary heart disease, certain types of cancers, strokes, non-insulin-dependent diabetes mellitus, and atherosclerosis) are associated with an inadequate regulation of eating behaviors. Together, these nutrition-related health problems account for nearly two-thirds of the deaths in the United States (Beneke & Vander Tuig, 1996). Because nutrition constitutes an important risk factor in the development of many health problems, it appears that many of these health problems could be prevented if people would adopt lifestyles that, among other things, promoted the proper daily regulation of healthful eating behaviors.

Dietary surveys suggest that people are more and more aware of the relationship between the positive regulation of eating behaviors and health (Tippett & Goldman, 1994). Unfortunately, although some individuals are successful at regulating these behaviors for a short period of time, many fail to do so over a longer period. Therefore, the challenge of addressing ways to help people maintain healthy eating behaviors and integrate them in their lifestyle remains a complex and prominent one for many health professionals.

One theoretical perspective that could have important implications for the understanding of a successful integration and maintenance of the regulation of eating behaviors is the Self-determination theory proposed by Deci and Ryan (1985, 1991). This theory is of particular interest for the following reasons: First, it postulates the existence of different regulatory styles that differ in the degree to which the regulatory processes underlying behaviors have been internalized and brought into harmony with other processes of the person's innate, core self. Second, it explains the process of internalization of behaviors that is, how behaviors initially regulated by sources outside the self (e.g., parents, partner) can be self-regulated and form a permanent part of the individual's character. Finally, it postulates various consequences associated with the different regulatory styles.

Overview of Studies

The goal of the present article is to better understand, from a motivational point of view, why some women may be successful at regulating their eating behaviors whereas others may be at risk of repeated failures. The bulimic symptomatology which reflects dysfunctional eating behaviors is used as a measure of chronic failure at self-regulation of eating behaviors. In a first study, a new instrument is developed to measure different motives underlying women's regulation of eating behaviors namely, the Regulation for Eating Behaviors Scale (REBS). The REBS is based on the different behavioral regulatory styles identified by Deci and Ryan in their Self-Determination Theory (SDT; 1985, 1991). In a second study, the factorial structure of the REBS is verified with a second sample of women and the psychometric properties of the scale are examined. Finally, a motivational model is proposed and tested in order to examine the relationships between two global forms of regulation of eating behaviors (autonomous and controlled), two types of eating behaviors (healthy vs. dysfunctional) and psychological adjustment. A description of the Self-Determination Theory and the proposed model are outlined in the following sections.

Self-Determination Theory (SDT)

According to Deci and Ryan (1985, 1991; see also Ryan, 1995; Ryan & Connell, 1989; Ryan & Deci, 2000; Ryan, Rigby, & King, 1993; Ryan, Sheldon, Kasser, & Deci, 1996), regulation of a behavior can take many forms which correspond to different behavioral regulatory styles. These behavioral regulatory styles can be differentiated according to their level of self-determination, that is the degree of choice and freedom underlying regulation of behavior. The different behavioral styles of regulation are associated with one of the three basic types of motivation: intrinsic motivation, extrinsic motivation and amotivation.

Intrinsic Motivation

Intrinsically motivated behaviors are engaged in for their own sake; for the pleasure, the interest, and the satisfaction derived from participation itself. They are performed voluntarily, in the absence of material rewards or external constraints (Deci & Ryan, 1985). Performing the activity thus becomes an end in itself. Individuals who regulate their eating behaviors because they take pleasure in fixing healthy meals are considered intrinsically motivated. They embrace the activity with a sense of personal choice and commitment. That is, their behavior emanate from their true sense of self and is fully endorsed. Deci and Ryan posit that intrinsic motivation stems from the innate psychological needs of competence and self-determination. Thus, regulation of activities that allows individuals to experience feelings of competence and self-determination (i.e., autonomy) will be engaged in because of intrinsic motives.

Extrinsic Motivation

In contrast to intrinsic motivation, extrinsic motivation pertains to a variety of behaviors that are engaged in as a means to an end and not for their own sake. Individuals who are extrinsically motivated are not interested in the activity per se. The activity is performed to prompt agreeable consequences or to avoid disagreeable ones (Deci, 1975). It was originally thought that extrinsic motivation exclusively referred to non self-determined behaviors, that is behaviors that could only be brought about by external contingencies (e.g., rewards), thus sources of control residing outside the person. Deci and Ryan, along with their colleagues (e.g., Ryan & Connell,

1989; Ryan, Connell, & Deci, 1985; Ryan, Connell, & Grolnick, 1990), have proposed that there are, in fact, different types of extrinsic motivation that vary to the extent the regulation of behavior is perceived as constrained by external sources or as freely chosen by the individual. These types of extrinsic motivation can be ordered along a self-determined continuum. From lower to higher levels of self-determination, they are: external regulation, introjected regulation, identified regulation, and integrated regulation.

External regulation encompasses behaviors governed by external sources of control that is, behaviors that are compelled by reward and punishment contingencies. Individuals who regulate their eating behaviors because a health professional has advised them or because their partner pressures them to do so are motivated by external regulation. In this case, regulation of eating behaviors is performed not for the satisfaction derived from doing the activity itself but to obtain rewards (e.g., recognition from health professional) or to avoid negative consequences (e.g., criticisms from partner). The motivation is extrinsic because the reason for participation lies outside the activity itself. Moreover, the regulation of behavior is not chosen (i.e., self-determined) because the individual feels controlled by external sources and feels pressured to behave in a certain way (Deci & Ryan, 1985).

With introjected regulation, the formally external source of control has been internalized such that its actual presence is no longer needed to initiate behavior. Instead, the control stems from within the person in the form of self-imposed pressures such as guilt or anxiety (Ryan & Connell, 1989). Individuals who regulate their eating behaviors because they would feel ashamed of themselves if they were not eating healthy are motivated by introjected regulation. At this level of internalization, even though one has "taken in" a value or a goal, one has not fully accepted it as its own. The internalization is only partial in the sense that one is still "being regulated" rather than operating from an integrated sense of volition (Williams & Deci, 1996). The individual experiences a sense of pressure and conflict, a lack of integration with the self. For these reasons, introjected regulation is defined as non self-determined and internally controlled.

In contrast, with identified regulation, external regulatory processes have been internalized into one's sense of self. The activity is valued and is perceived as being chosen by oneself. Although it may not be intrinsically enjoyable, one personally decides to do the activity because it is congruent with its own values and goals. Individuals who regulate their eating behaviors because they believe it is a good thing to do in order to feel better about themselves in general are motivated by identified regulation. Although with identified regulation, the behavior is still performed for extrinsic reasons (e.g., to achieve a personal goal), it is internally regulated and self-determined. In contrast to introjected regulation, in this case the activity has been accepted as one's own and it is perceived as beneficial, important and meaningful. What is missing however, is consistency between the regulation of this activity and other regulatory processes that have previously been integrated to the self. For example, although a woman may highly value eating healthy, she may not always find the time to plan and prepare healthy meals because of other priorities in her life (e.g., work and family). As a consequence, she may be inconsistent in her efforts to regulate her eating behaviors.

When a behavior becomes consistent with other priorities in someone's life, it is said to be integrated. More specifically, integrated regulation results when the behavior is performed not only because an individual values its significance, but also because it is consistent with previous integrated experiences and values in the person's self-system. The instrumental behavior has been valorized to such an extent that it has become part of one's self-definition. Individuals who regulate their eating behaviors because eating healthy is congruent with other important aspects of their lives are motivated by integrated regulation. For these individuals, eating healthy facilitates their engagement in the other priorities of their lives. They have come to realize that good eating behaviors energizes them and promotes efficiency for the different activities that they do. For example, because they believe that eating healthy gives them more energy, they become more efficient at work. Consequently, these people are left with more time in the evening for other important activities such as exercising at the gym, playing with their children or gardening around the house.

Amotivation

In addition to the two categories of motivation presented above (intrinsic motivation and extrinsic motivation), Deci & Ryan (1985) have also proposed that it was necessary to consider a third category in order to fully understand the nature of human behaviors namely, amotivation. Amotivation refers to a state where individuals fail to perceive contingencies between their actions and the outcomes of their actions. Thus, amotivated individuals are not able to foresee the consequences of their behavior. They have a pervasive sense that their behavior are caused by external forces beyond their control. They experience feelings of incompetence and lack of control (Deci & Ryan, 1985). Regulation of amotivated behaviors is mechanical and meaningless because individuals are incapable of perceiving the motives underlying it. Individuals who once had good reasons for regulating their eating behaviors, but now wonder whether they should continue are said to be amotivated.

The Self-Determination Continuum

According to Deci and Ryan (1985), the different behavioral regulatory styles presented above can be differentiated along a continuum. This continuum contains identifiable gradations of reasons for performing a behavior or an activity that range from non self-determined styles of regulation (i.e., amotivation, external regulation, and introjection) to self-determined ones (i.e., identification, integration, and intrinsic motivation). The gradation of reasons are a reflection of an internalization process where the regulation of behavior, which was initially reinforced by external sources (e.g., incentives or a significant other), is taken in to be governed by the self and to form a permanent part of the person's character. This internalization process takes place because individuals are inherently motivated to internalize within themselves the regulation of activities that are useful to effective functioning in the social world even though they may not be inherently interesting (Deci, Eghari, Patrick, & Leone, 1994). For example, for many individuals the regulation of eating behaviors does not represent a pleasurable activity. However, some people will choose to pay attention to the quantity and quality of the foods they eat because they highly value being in good health.

Because intrinsic motivation underlies regulation of behaviors that are freely initiated and performed for the pleasure inherent to the activity itself, it represents the highest level of self-determination on the continuum. Conversely, because amotivation depicts the absence of agency and involves feelings of incompetence and lack of control, it represents the least self-determined form (absence of self-determination). The various regulatory styles associated with extrinsic motivation are situated between these two ends of the continuum. More specifically, integrated regulation represents the highest self-determined regulatory styles associated with extrinsic motivation because it reflects a complete integration of the behavior in the person's self-definition. External regulation represents the least self-determined regulatory styles associated with extrinsic motivation because the source of control is located outside the person. Identified regulation is said to be more self-determined than introjected regulation because the behavior has gained enough importance to be valorized in itself instead of resulting from internal pressure.

The existence and validity of the self-determination continuum has been supported by several studies where a distinct correlational pattern was obtained between the different behavioral regulatory styles forming the continuum. This correlational structure is called "simplex pattern" (Guttman, 1954). Specifically, in that particular structure, each regulatory style displays positive correlations with adjacent regulatory style on the continuum. The magnitude of the correlations between a particular regulatory style and the others is expected to decrease progressively and, eventually, to become negative as a function of the distance separating the regulatory styles on the continuum. This simplex pattern has been identified in several different life domains such as education (Vallerand, Pelletier, Blais, Brière, Sénécal, & Vallière, 1993; Vallerand & Bissonnette, 1992), work (Blais, Brière, Lachance, Riddle, & Vallerand, 1993), leisure (Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1995; Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996), sports (Brière, Vallerand, Blais, & Pelletier, 1995; Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995); interpersonal relationships (Blais, Vallerand, Pelletier, & Brière, 1994), couple relationships (Blais, Sabourin, Boucher, & Vallerand, 1990), religious beliefs (O'Conner & Vallerand, 1990), pro-environmental action (Pelletier, Green-Demers, & Béland, 1997;

Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998), and sexuality (Séguin, Green-Demers, & Pelletier, 1994; Séguin, Green-Demers, Chantal, Ladouceur, & Pelletier, 1997).

Consequences of Self-Determination

Because the different behavioral regulatory styles proposed by Deci and Ryan (1985, 1991) coexist on a continuum from high to low self-determination, and because higher self-determination levels are theoretically associated with beneficial consequences, the association between regulatory styles and consequences should vary with the level of self-determination. Specifically, self-determined regulatory styles should relate to the most positive consequences. The relationship between regulatory styles and positive consequences should decrease with the level of self-determination of the regulatory style considered, and eventually, grow negative for the least determined regulatory styles. Studies performed in a variety of life domains such as education (Deci, Vallerand, Pelletier, & Ryan, 1991), work (Blais, Lacombe, Vallerand, & Pelletier, 1990), interpersonal relationships (Blais et al., 1994), pro-environment action (Pelletier et al., 1998), health (Williams, Grow, Freedman, Ryan, & Deci, 1996), leisure (Pelletier et al., 1995) and sports (Vallerand, Deci, & Ryan, 1987) offer support for this proposition. In general, the more self-determined regulatory styles were found to lead to better learning, more interest, greater effort, better performance, higher self-esteem, increased life satisfaction, persistence, and enhanced health, whereas the less self-determined regulatory styles were negatively related to those outcomes (see Vallerand, 1997 for a review).

If we now extend these findings to the domain of eating behaviors, one would expect that self-determined regulatory styles towards eating behaviors would be positively associated with healthy eating behaviors which in turn, would be associated with positive psychological adjustment. Conversely, it would be expected that non self-determined regulatory styles towards eating behaviors would be associated positively with dysfunctional eating behaviors (i.e., bulimic symptomatology) which in turn, would be associated negatively with psychological adjustment.

STUDY 1

The purpose of this first study was threefold. First, because no scale has been developed or validated on the regulation of eating behaviors, the first goal was to develop a preliminary version of the REBS designed to measure the different behavioral regulatory styles proposed by Deci and Ryan's Self-Determination Theory (SDT, 1985, 1991). Thus, the intent was to create six subscales that could assess intrinsic motivation, the four types of extrinsic motivation (integrated, identified, introjected, and external regulation) and amotivation towards the regulation of eating behaviors. The second goal was to perform an exploratory factor analysis on the REBS as a preliminary analysis of the scale's structure. Finally, the third goal was to assess the internal consistency of the six subscales.

Method

Participants

Data were collected from 354 female¹ students who were enrolled in different undergraduate (95.7%) and graduate (2.6%) courses at the University of Ottawa. Approximately 2% of the sample did not report their level of education. Eleven questionnaires with missing data on the REBS subscales were eliminated from the analyses. The final sample comprised 343 women. The participants' age ranged between 17 and 50 years, ($M=21.2$ years). Participants' income was distributed as follows: 55.7% (less than 12 000\$), 5.8% (12 000\$ to 19 999\$), 6.4% (between 20 000\$ and 39 999\$), .6% (between 40 000\$ and 59 999\$) and 1.2% (between 60 000\$ and 79 999\$). About 30% of the participants did not report their income. With the permission of professors, some women completed the questionnaire at the beginning of a class, whereas others completed the questionnaire at home and returned it for the next class in a sealed envelop. Men, as well as women who did not want to participate, were invited to leave the classroom for a period of 45 minutes. Participants received the information that researchers were interested in better understanding the reasons as to why women regulate their eating behaviors. They were informed that their participation was voluntary and that their answers would remain confidential and anonymous.

Scale Development and Procedure

A group of researchers who were familiar with Self-Determination Theory as well as the literature related to eating behaviors met in order to generate an initial pool of reasons as to why women regulate their eating behaviors. The most frequently reported reasons were then formulated into items that correspond to the six regulatory styles identified by Deci and Ryan (1985). A total of 46 items comprised the initial version of the REBS. More specifically, the intrinsic motivation subscale (e.g., For the satisfaction of eating healthy) as well as the external regulation subscale (e.g., Because other people close to me insist that I do) comprised 9 items each. The identified regulation (e.g., Because it's a good thing I can do to feel better about myself in general) and amotivation (e.g., Honestly, I don't know. I can't really see what I'm getting out of it) subscales comprised 8 items each. Finally, the integrated (e.g., Because eating healthy is an integral part of my life) and introjected regulation (e.g., Because I don't want to be ashamed of how I look) subscales comprised 6 items each. Items were presented in random order. Participants were asked to indicate the extent to which each item corresponded to their personal motive for regulating their eating behaviors in response to the question: "Why are you regulating your eating behaviors?" They were asked to circle the appropriate number on a 7-point scale ranging from 1 (Does not correspond at all) through 4 (Corresponds moderately) to 7 (Corresponds exactly).

Results and Discussion

Preliminary analyses were performed to assess departures from basic assumptions. Values of kurtosis and skewness were first examined. With the exception of a few variables on the external regulation and amotivation subscales, all other variables of the REBS had kurtosis and skewness values below |2|. Values of kurtosis, skewness, means, and standard deviations for each items and subscales of the REBS are presented in Table 1.

Insert Table 1 about here

Data transformations² were used to correct the variables that had elevated scores of skewness and/or kurtosis. After transformations, values of kurtosis ranged between -1.28 and 1.35, whereas values of skewness ranged between .49 and 1.78. These values provided no reason to suspect that the distribution of variables departed significantly from normality. The univariate distribution was deemed acceptable. Also, from a multivariate point of view, the distribution of standardized residuals appeared normal. Inspection of the means and standard deviations for each item of the REBS indicated their values to be in plausible and within theoretical expected range.

Potential departures from linearity were screened for by examining a random selection of bivariate scatterplots. The bivariate distributions revealed acceptable linear configurations for the different variables including those which had been transformed. Bivariate scatterplots were also inspected to identify uneven distributions of the variance between pairs of variables. Scatterplots displayed no evidence of heteroscedasticity. The standardized scores for all variables of the REBS were screened to identify univariate outliers. Seven cases (2.0%) revealed standardized scores greater than |3.29|. This number was deemed acceptable since it was less than 5%. As for multivariate outliers, $\chi^2(df=32) \chi^2 > 59.70, p < .001$, 8 cases were identified and subsequently removed from the analyses. No multicollinearity or singularity was present in the sample since all correlations were below .85 (Tabachnick & Fidell, 1996). The final sample comprised 335 participants.

An exploratory factor analysis using maximum likelihood extraction with oblique rotation was performed on the REBS as a preliminary analysis of the scale structure, with the specific purpose of reducing the number of items to 4 per subscale. It was possible to obtain a clean factorial solution that offered support for the proposed subscales. Specifically, five factors had eigenvalues superior to 1, whereas the sixth factor had an eigenvalue of .94. However, for theoretical reasons, we chose to keep the sixth factor because it is part of the self-determination continuum proposed by the Self-Determination Theory and because this continuum has been reported in several studies (e.g., Pelletier, Tuson, & Haddad, 1997; Pelletier et al., 1996; Pelletier

et al., 1998). In total, the six factors explained 71.4% of the sample variance. All factors are comprised of four items. The saturated coefficients are all above .30 and load exclusively on their target factor. Results of the exploratory factor analysis are presented in Table 2. Evaluation of internal consistency of the subscales revealed to be adequate. Cronbach alphas ranged from .79 to .91. They are presented in Table 2.

Insert Table 2 about here

In sum, the results of this first study supported the proposed six-factor structure scale for the regulation of eating behaviors. It was possible to obtain 24 items (4 items per subscale) which correspond to the six regulatory styles of behavior postulated by Deci and Ryan (1985, 1991). Internal consistency appeared to be adequate.

STUDY 2

The purpose of this study was to further explore the REBS factorial structure and its psychometric properties, including construct validity. The study had three specific goals. The first goal was to verify the factorial structure of the REBS on a second sample of participants using confirmatory factor analysis and to reassess internal consistency of the subscales. The second goal was to evaluate the pattern of correlations between the REBS subscales, and the correlations between the REBS and related constructs. Finally, the third goal was to test a motivational model of the regulation of eating behaviors. This model incorporates two global forms of regulation of eating behaviors (autonomous vs. controlled), two types of eating behaviors (healthy vs. dysfunctional), and psychological adjustment. According to SDT (1985, 1991), it is proposed that an autonomous form of regulation towards eating behaviors should be related to healthy eating behaviors, which in turn should lead to psychological psychological adjustment. Conversely, it was hypothesized that a controlled form of regulation towards eating behaviors would be associated positively with dysfunctional eating behaviors (e.g., bulimic symptomatology), which in turn should be associated negatively with psychological adjustment. Also, it was hypothesized

that an autonomous form of regulation should be negatively associated with dysfunctional eating behaviors whereas a controlled form of regulation should be negatively associated with healthy eating behaviors.

Insert Figure 1 about here

Method

Participants and Procedure

A questionnaire package containing the REBS as well as other measures related to the regulation of eating behaviors was distributed to 350 female students enrolled in different undergraduate (70.8%) and graduate (26.9%) courses at the University of Ottawa. Approximately 2% of the women did not report their level of education. Five questionnaires (cases) had to be removed from the analyses because of missing data on the REBS or other measures used in the present study. The final sample comprised 345 female students. Participants' age ranged from 17 and 49 years, ($M=22.5$). Participants' income was distributed as follows: 50.4% (less than 12 000\$), 11% (12 000\$ to 19 999\$), 6.7% (between 20 000\$ and 39 999\$), 2% (between 40 000\$ and 59 999\$), .3% (between 60 000\$ and 79 999\$) and finally, .3% (between 80 000\$ and 99 999\$). About 30% of the participants did not report their income. The average Body Mass Index (BMI; Kg/m²) for the sample was 22.5³ ($SD=4.2$). Using the BULIT-R cut-off provided by Thelen, Farmer, Wonderlich and Smith (1991), 2.9% of the women would be classified as putative bulimics. That is, 2.9% of the women in the sample would likely be diagnosed with bulimia nervosa if a clinical interview was to be conducted. This percentage appears consistent with other prevalence rates reported for college population (e.g., Stice & Agras).

As for study 1, with the permission of professors, some women completed the questionnaire at the beginning of a class whereas others completed the questionnaire at home and returned it for the next class in a sealed envelop. Men as well as women who did not want to participate were invited to leave the classroom for a period of 45 minutes. The participants

received the information that researchers were interested in better understanding the reasons as to why women regulate their eating behaviors. They were informed that their participation was voluntary and anonymous. Finally, researchers ensured that data would remain confidential.

Instruments

In addition to the REBS, each questionnaire package contained measures related to consequences associated with the forms of regulation of eating behaviors (e.g., healthy and dysfunctional eating behaviors), as well as indicators of psychological adjustment (e.g., depressive symptomatology, self-esteem, life satisfaction).

The Regulation of Eating Behaviors Scale

This scale is comprised of 24 items (4 items/subscale) which are divided into 6 subscales that represent the six motivation subtypes defined by Deci and Ryan (1985): intrinsic motivation (IM; e.g., Because it's fun to create meals that are good for my health), integrated regulation (INTEG; e.g., Because eating healthy is congruent with other important aspects of myself), identified regulation (IDEN; e.g., Because I believe it's a good thing I can do to feel better about myself in general), introjected regulation (INTRO; e.g., Because I would be humiliated if people thought I wasn't in control of my eating behaviors), external regulation (ER; e.g., Because other people insist that I do), and amotivation (AMO; e.g., I don't know. I can't see how my effort to eat healthy are helping my health situation). Participants are asked to indicate on a 7-point Likert scale ranging from 1 ("Does not correspond at all") to 7 ("Correspond exactly") the extent to which each item corresponds to their own motives for regulating their eating behaviors.

Healthy Eating Behaviors Scale

This scale was developed for the purpose of the present study. It was inspired from recommendations made by the Canada Food Guide concerning healthy eating behaviors (Health & Welfare Canada, 1992). The scale was initially comprised of eleven items which were subjugated to an exploratory factor analysis. Results revealed a clean structure of 8 items divided in two subscales (4 items/subscale). One of the subscales refers to "healthy foods", whereas the other refers to "foods that should be eaten in moderation". An example of item for the healthy foods

subscale is: "I eat vegetables, fruits and grain products". Factor loadings for this subscale ranged from .40 to .77. An example of item for the foods eaten in moderation subscale is: "I eat foods such as chips, chocolate, and candies". Factor loadings for this subscale ranged between .38 and .73. Participants were asked to indicate, on a 5-point Likert scale how frequent they consume each type of food. The four items of the subscale "foods eaten with moderation" are recoded such that a high score indicates a low frequency of consumption of the food item whereas a low score indicates a high frequency of consumption of the food item. Internal consistency for the present sample is acceptable, namely .69 for the "healthy foods" subscale whereas internal consistency for the "foods eaten in moderation" subscale is .66⁴. The scale displays a good factor structure. A Confirmatory Factor Analysis revealed an adequate fit for the model, $\chi^2(19, N=339)=50.85$ $p<.001$, CFI=.93, IFI=.94, RMSEA=.07, and PCFI=.60⁵. All estimated parameters were significant and of acceptable magnitude. More specifically, factor loadings for the subscale "healthy foods" ranged from .36 to .77, whereas the factor loadings for the subscale "foods that should be eaten with moderation" ranged from .32 and .79. The scale structure has also been tested on an independent sample and it revealed acceptable psychometric properties. For instance, internal consistency was .74 for the "healthy foods" subscale and .69 for the "foods eaten with moderation" subscale. Taken together, these psychometric properties suggest that the scale is valid and reliable.

Bulimic Symptomatology (BULIT-R; Thelen et al., 1991)

The BULIT-R, a widely used and psychometrically sound measure, was used to assess bulimic symptomatology in accordance with the DSM-III-R criteria. This instrument is comprised of 28 items (34 items in total with 8 filler⁶ items unscored) and is useful to identify individuals who are most likely to be diagnosed as bulimic on the basis of an interview. Prior research has shown that this self-report scale is a valid indicator of bulimia nervosa in both, clinical and nonclinical populations. Participants are asked to choose among five answer (1 to 5) the one that applies best to them. The number circled for each item can be summed in order to obtain a total score. Thelen and colleagues (1991) have suggested that a total score above 104 is indicative of putative bulimia

nervosa. An example of item is: “I use laxatives or suppositories to help control my weight”. The scale has shown to have high internal consistency ($\alpha=.97$), to discriminate well individuals with bulimia nervosa from non eating disordered individuals, and to correlate with other measures of eating pathology. Also, good test-retest reliability ($r=.95$) has been documented (Thelen et al., 1991). Internal consistency for the current sample was .95.

Psychological Adjustment

A psychological adjustment index (PAI) that consists of different variables (depressive symptomatology, self-esteem and life satisfaction) associated with psychological adjustment and mental health was used in this study (Pelletier et al., 1995).

Center for epidemiological studies - depressed mood scale (CES-D; Radloff, 1977). This scale is comprised of 20 items that were originally designed to measure depressive symptomatology in the general population. However, the scale has also been useful in clinical and psychiatric settings. This scale is not intended as a clinical diagnostic tool. The items of the scale represent symptoms associated with depression. It has shown to have high internal consistency (i.e., .85 for the general population and .90 for the patient sample), acceptable test-retest reliability, and excellent concurrent validity correlating significantly with a number of depression and mood scales. The scale has also been found to discriminate well between psychiatric inpatients and the general population and moderately among levels of severity within patients groups. It has also been found to reflect improvements after psychiatric treatment. Finally, the scale has been shown to be a valuable tool to identify groups at high-risk of depression and to study the relationships between symptoms and many other variables. Participants are asked to indicate on a 4-point Likert scale, the frequency of their symptoms (0=Rarely or none of the time; 3=Most or all of the time). The total score (20 items) can vary between 0 and 60, with a higher score indicating a high frequency of depressive symptoms. Internal consistency for the current sample was .92.

Self-esteem scale (SES; Rosenberg, 1965). This unidimensional self-esteem measure is comprised of 10 items. Its reliability and validity are well established. The convergent and discriminant validity of the SES have been documented in several studies. In terms of reliability,

the SES has revealed satisfying internal consistency and temporal stability. A test-retest of two weeks and 7 months revealed coefficients of .85 and .73 respectively. Participants are asked to indicate on a 5-point Likert scale ranging from 1 ("Do not agree at all") to 5 ("Strongly agree") the extent to which they agree with each item. For parsimonious reasons, only five items were kept from the original scale. An example of item is: "I feel down-hearted, blue, and sad". Internal consistency for this sample is .83.

Life satisfaction scale (LSS; Diener, Emmons, Larsen, & Griffin, 1985). This scale is comprised of 5 items assessing participants' global perception of their life satisfaction. Participants are asked to rate, on a 5-point Likert scale 1 ("Do not agree") to 5 ("Strongly agree"), to which extent they agree with the different items. A 2-month test-retest has revealed a coefficient of .82. Internal consistency for the present sample was .90.

General Questions About Eating Behaviors

Participants were asked to answer six questions related to eating behaviors. These questions were: To what extent ... 1) do you **find it important** to regulate your eating behaviors; 2) are you **trying** to regulate your eating behaviors?; 3) are you concerned by the **quantity** of food you're eating?; 4) are you concerned by the **quality** of food you're eating?; 5) do you **intend** to regulate your eating behaviors in the future?; and 6) do you **consider yourself successful** in the way you regulate your eating behaviors?" Participants were asked to indicate their answer on a 7-point Likert scale that was specific to each item (e.g., 1="Not trying at all" 4="Moderately trying", and 7="Trying a lot").

Results and Discussion

Preliminary Analyses

Before proceeding with the main analyses of the study (confirmatory factor analysis on the REBS and test of the hypothesized structural equation model), preliminary analyses were conducted to verify that the basic assumptions related to the use of multivariate procedures were respected. Each of the variables under study was examined in order to assess departures from univariate and multivariate normality, linearity, and homoscedasticity. Examination of values of

skewness and kurtosis revealed that some items had values greater than |2|. Those items were related to the external regulation and amotivation subscales of the REBS. The mean skewness and kurtosis for these subscales were also greater than 2. Data transformations⁷ were used to correct the variables that had elevated skewness and/or kurtosis. After transformations, values of kurtosis ranged between -1.82 and 1.14, whereas values of skewness ranged between -1.61 and 1.31. Those values provided no reason to suspect that the distribution of the variables departed significantly from normality. The univariate distribution was deemed acceptable. Also, from a multivariate point of view, the distribution of standardized residuals appeared approximately normal. Inspection of the means and standard deviations for each item of the REBS as well as each variable to be included in the structural equation model indicated their values to be in plausible and within theoretical expected range. Values of kurtosis, skewness, means, and standard deviations for each variable included in the study are presented in Table 3 and 4.

Insert Table 3 and 4 about here

Overall, after transformation of the data, examination of summary statistics for the REBS and the hypothesized structural equation model provided no reason to suspect that the distribution of the variables departed significantly from normality. Also, inspection of various bivariate scatterplots generally displayed normal and linear configuration as well, as no heteroscedasticity. The distribution of the standardized scores for all variables included in this study was examined to detect potential univariate outliers. Seven cases (2.1%) revealed standardized scores greater than |3.29|. This number was deemed acceptable because it was less than 5%. As for multivariate outliers, $\chi^2(df=45) > 80.4$, $p < .001$, 6 cases were identified and subsequently removed from the analyses. No multicollinearity or singularity was present in the sample because all correlations were below .85 (Tabachnick & Fidell, 1996). The final sample was comprised of 339 participants.

Confirmatory Factor Analysis of the REBS

Basic assumptions being satisfied, a confirmatory factor analysis was performed using LISREL 8.3 (Jöreskog & Sörbom, 1996). A six-factor model was designed and assessed. The initial model included the estimation of the 24 target loadings, 6 factor variances, correlations between all 6 factors, as well as uniqueness values for all 24 items (i.e., error variance). The items of the REBS were hypothesized to display significant and substantial loadings on their target factors and zero loadings on all other factors. The factors were hypothesized to be correlated, since it seems plausible that participants would not limit themselves to the use of a single regulatory style of eating behaviors. The error variances (uniquenesses) of the items were hypothesized to be small, yet significant. Finally, for identification purposes, the loadings between the first indicator of each latent construct and its target factor were fixed to 1.0.

Model fit was assessed by the means of multiple statistical and practical fit indices: the chi-square likelihood ratio (χ^2), the Comparative Fit Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI; Bollen, 1989), the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990) and the Parsimony Comparative Fit Index (PCFI; Byrne, 1994). The use of such multiple criteria is recommended in light of the current debate concerning the assessment of model fit in covariance structure analyses. When model fit is adequate, the chi-square likelihood ratio (χ^2) is nonsignificant. However, because the chi-square likelihood ratio (χ^2) is notoriously oversensitive to sample size (Byrne, 1989), alternative fit indices such as the CFI, IFI, RMSEA and PCFI are generally assessed. Values equal or above .90 for CFI and IFI are generally indicative of a good fit. For the RMSEA, values equal or under .08 represent reasonable errors of approximation in the population. As for PCFI, when goodness-of-fit indices are in the range of .90, it is not unexpected to have a parsimonious-fit indice in the range of .50 (Mulaik et al., 1989).

Analyses suggested that, although the initial model displayed a somewhat low fit, $\chi^2(237, N=339)=676.46$ $p<.001$, CFI=.88, IFI=.88, RMSEA=.08, and PCFI=.76, reestimation of the model after respecifications of some parameters led to an adequate fit. More specifically,

examination of the modification indices revealed that three correlations between the error uniqueness values of two indicators were of sizable magnitude ($\theta_{(12,11)}=109.35$; $\theta_{(14,13)}=23.99$; $\theta_{(4,2)}=15.78$). Post hoc analyses were conducted whereby correlations between two items of the identified regulation subscale, two items of the introjected regulation subscale, and two items of the intrinsic motivation subscale were estimated. Table 5 present the initial model along with three other models that include estimation of correlated errors.

Insert Table 5 here

As shown in Table 5, estimation of the correlation between two items of the identified regulation scale contributed to a considerable improvement of the fit ($\Delta\chi^2=103.8$; $p<.001$). However, when further examining the modification indices, another correlated error between two items of the introjected subscale suggested that its estimation could further improve the model fit ($\Delta\chi^2=23.94$ $p<.001$). Finally, estimation of a last correlated error between two items of the intrinsic motivation subscale led to further improvement of model fit ($\Delta\chi^2=16.75$; $p<.001$). This last model revealed an adequate fit, $\chi^2(234, N=339)=531.97$ $p<.001$, CFI=.92, IFI=.92, RMSEA=.06, and PCFI=.78. All estimated parameters of the model were significant and within an acceptable range. Results of the confirmatory factor analysis and internal consistencies for each subscale are presented in Figure 1. It is important to recognize that although the post hoc analyses were theoretically sound, they remain exploratory in nature because they reflect the detection of misfitting parameters in the original hypothesized measurement model (Byrne, 1998).

Insert Figure 1 about here

Correlations among the six REBS subscales. To test for the self-determination continuum postulated by Deci and Ryan (1985), Pearson correlations were computed among the six subscales. As indicated earlier, support for this self-determination continuum would be obtained

through a simplex pattern where adjacent subscales (e.g., integrated and identified regulation) have the highest positive correlations and the subscales at the opposite ends of the continuum (e.g., amotivation and intrinsic motivation) have the most negative correlations. The Pearson correlations between the six subscales of the REBS are presented in Table 6.

Insert Table 6 about here

In general, the results supported the presence of a self-determination continuum. For example, adjacent subscales generally showed higher Pearson correlations (e.g., intrinsic motivation and integrated regulation, $r = .64$, $p < .001$) than the subscales farther apart (e.g., intrinsic motivation and identified regulation, $r = .44$, $p < .001$ or intrinsic motivation and amotivation, $r = -.15$, $p < .01$). It should be noted that some deviations from the simplex pattern were observed. These deviations involved the introjected and external regulation subscales. More specifically, although non significant, the intrinsic motivation subscale presented a higher correlation with introjected regulation ($r = -.09$, n.s) than with external regulation ($r = -.06$, n.s). Correlations among the factors of the REBS (phi values) are also presented in Table 6. Again, with the exception of two deviations, results globally supported the presence of a simplex pattern. The deviations involved the amotivation subscale which presented a higher correlation with the identified regulation subscale ($r = -.19$, $p < .001$) than with the intrinsic motivation subscale ($r = -.12$, n.s). However, overall correlations between adjacent constructs displayed high magnitude whereas correlations between constructs further apart displayed lower magnitude. Finally, internal consistency of the REBS subscales appear adequate ($.70 \leq \text{Cronbach } \alpha \leq .90$).

Correlations between the REBS subscales and related constructs. Correlations between the REBS subscales and constructs related to the regulation of eating behaviors were examined. In general, constructs with a negative valence (i.e., bulimic symptomatology and depressive symptomatology) displayed positive correlations with the non self-determined regulatory styles (i.e., introjected regulation, external regulation, and amotivation), whereas constructs with a

positive valence (i.e., self-esteem, life satisfaction, and healthy eating behaviors) displayed negative correlations with these same regulatory styles. A reverse pattern was observed for the self-determined regulatory styles. That is, the constructs with a negative valence (i.e., bulimic symptomatology and depressive symptomatology) displayed negative or no correlation with most of the self-determined regulatory styles (i.e., intrinsic motivation, integrated and identified regulations) whereas constructs with a positive valence (i.e., self-esteem, life satisfaction, and healthy eating behaviors) generally displayed positive correlations with these same regulatory styles. Among the non self-determined regulatory styles, introjected regulation displayed the highest negative correlation with constructs having a negative valence. As for the self-determined regulatory styles, integrated, and identified regulation displayed the highest positive correlations with constructs having a positive valence.

Examination of correlations between the different subscales of the REBS and other constructs related to eating behaviors revealed that although some of the non self-determined regulatory styles (i.e., external and introjected regulations) were positively associated with the importance of regulating eating behaviors, being concerned by the quantity and quality of foods and intending to regulate eating behaviors in the future, only self-determined regulatory styles (i.e., intrinsic motivation, integrated and identified regulations) were positively associated with success in the regulation of their eating behaviors. Among the self-determined regulatory styles, integrated regulation displayed the strongest positive association with successful regulation. The non self-determined regulatory styles were all negatively associated with this latter construct. In terms of concerns for the quantity and quality of the foods, results suggested that women with an integrated or identified regulation displayed the greatest concern for the quality of food they eat. Conversely, although women with an integrated or identified regulation displayed some concern for the quantity of food they eat, women with an introjected regulation displayed the strongest concern for the quantity of food they eat. Among all the regulatory styles, identified regulation presented the highest correlation with future intentions to regulate eating behaviors. Correlations between each regulatory style and constructs related to the regulation of eating behaviors are presented in Table

7. Also, correlations between the different regulatory styles of eating behaviors and Body Mass Index scores are presented in this same table. All the non self-determined regulatory styles were found to be positively associated with BMI scores, whereas none of the self-determined regulatory styles were found to be associated with this latter construct.

Insert Table 7 about here

As suggested by Pelletier (in press), examination of each regulatory style can be useful when one is interested to identify which specific regulatory style is the best predictor of a specific outcome or when one is interested in examining the impact of specific determinants on the different regulatory styles. However, when researchers are interested in testing a parsimonious or an integrative theoretical model that involves two specific types of consequences (e.g., healthy vs. pathological), grouping together the six regulatory styles in two main categories (autonomous vs. controlled form of regulation) is often favoured (Elliot & Sheldon, 1998; Sheldon & Elliot, 1998). This type of grouping is also useful when a researcher is interested in testing a parsimonious model that not only involves two types of consequences associated with the styles of regulation, but also one that focuses on the subsequent relationships of these two distinct consequences.

Thus, for testing the motivational model of the regulation of eating behaviors, the different self-determined subscales that is, the intrinsic motivation subscale and the integrated and identified regulation subscales were grouped to form a global score of autonomous regulation. Similarly, the non self-determined subscales that is, the introjected and external regulation subscales as well as the amotivation subscale were grouped to form a global score of controlled regulation. But before turning to the motivational model of the regulation of eating behaviors, correlations were computed between these two types of global forms of regulation (autonomous vs. controlled) and the different constructs of Table 7. These correlations are also presented in Table 7.

Clear distinctions were observed between the two global forms of regulation. For example, an autonomous regulation was positively associated with healthy eating behaviors, self-

esteem, and life satisfaction whereas a controlled regulation was positively associated with bulimic symptomatology and depression. Also, it was found that, although both global forms of regulation (autonomous and controlled) were related to importance, intention, and efforts to regulate eating behaviors, an autonomous regulation was more strongly associated with these constructs. An interesting finding relates to women's concern for the quality versus quantity of the food they eat. Correlations suggest that both groups of women (with autonomous regulation and with controlled regulation) were concerned by the quantity and quality of foods they eat. However, women with an autonomous regulation were mainly concerned by the quality of the foods ($r=.43$) whereas women with a controlled regulation were mainly concerned by the quantity of the foods ($r=.41$). Only women who reported an autonomous regulation were found to be successful with the regulation of their eating behaviors ($r=.46$). A controlled regulation was negatively associated with a successful regulation of eating behaviors ($r=-.25$). Finally, the BMI appears to be correlated with the regulation of eating behaviors only when a controlled form of regulation is used. When women display an autonomous form of regulation, there is no association with the BMI score.

Test of the Hypothesized Motivational Model of the Regulation of Eating Behaviors

A model incorporating the two global forms of regulation of eating behaviors (autonomous vs. controlled regulation), their consequences on eating behaviors (healthy eating behaviors vs. dysfunctional eating behaviors (bulimic symptomatology) and psychological adjustment was assessed using structural equation modeling (LISREL 8.3; Jöreskog & Sörbom, 1996). The estimation procedure was performed using Maximum Likelihood (ML) fitting function. The hypothesized model is depicted in Figure 2.

Insert Figure 2 about here

It is comprised of 5 latent variables, 14 measured variables serving as indicators, 4 standardized structural regression coefficients showing the hypothesized directional influences

among the latent variables, 14 factor loadings from the factors onto the indicators and 14 error variances associated with the observed variables. The statistical hypotheses corresponding to the structural model are the following. First, it was hypothesized that the structural regression coefficient of healthy eating behaviors on autonomous regulation would be positive and significant. Second, it was hypothesized that the structural regression coefficient of dysfunctional eating behaviors (bulimic symptomatology) on controlled regulation would be positive and significant. Third, it was hypothesized that the structural regression coefficient of bulimic symptomatology on autonomous regulation, and the structural regression coefficient of controlled regulation on healthy eating behaviors would be negative and significant. Fourth, it was hypothesized that the structural regression coefficient of healthy eating behaviors on bulimic symptomatology would be negative and significant. Fifth, it was hypothesized that the structural regression coefficient of psychological adjustment on healthy eating behaviors would be positive and significant, whereas the structural regression coefficient of psychological adjustment on dysfunctional eating behaviors (bulimic symptomatology) would be negative and significant. Finally, the residuals representing the error of prediction of all structural regression equations were hypothesized to be significant, yet of small magnitude, and the covariance between these residuals was hypothesized to be zero.

With the exception of the likelihood ratio chi-square, the fit indices revealed that the correspondence between the estimated model and the sample covariance was satisfactory, $\chi^2(71, N=339)=229.25$, $p<.001$; RMSEA=.007; CFI=.93; IFI=.93; and PCFI=.78. As predicted, autonomous regulation was associated positively with healthy eating behaviors ($\gamma=.75$) and healthy eating behaviors in turn, were correlated positively with psychological adjustment ($\beta=.27$). Controlled regulation was associated positively with bulimic symptomatology ($\gamma=.77$) which in turn, was correlated negatively with psychological adjustment ($\beta=-.64$). Also, autonomous regulation was associated negatively with bulimic symptomatology ($\beta=-.13$) and controlled regulation was associated negatively with healthy eating behaviors ($\beta=-.15$). Relationships between the different variables of the model are depicted in Figure 3. The amount of variance

explained in healthy eating behaviors, bulimic symptomatology, and psychological adjustment was 55%, 57%, and 49% respectively.

Insert Figure 3 about here

General Discussion

In the present article, we were interested in better understanding from a motivational point of view, why some women may be successful at regulating their eating behaviors whereas others may be at greater risk of experiencing repeated failures at self-regulation. The bulimic symptomatology which reflects dysfunctional eating behaviors was used as a measure of chronic failure at self-regulation of eating behaviors. In a first study, a new instrument was developed to measure different motives underlying women's regulation of eating behaviors namely, the Regulation for Eating Behaviors Scale (REBS). The REBS was based on the different behavioral regulatory styles identified by Deci and Ryan in their Self-Determination Theory (SDT; 1985, 1991). In a second study, the factorial structure of the REBS was verified with a second sample of women and its psychometric properties including its construct validity, were assessed. Finally, a motivational model was proposed and tested in order to examine the relationships between two global forms of regulation of eating behaviors (autonomous vs. controlled), two types of eating behaviors (healthy vs. dysfunctional) and psychological adjustment.

Results of study 1 suggested that the regulation of eating behaviors is a multidimensional concept. The exploratory factor analysis conducted on the REBS supported the six different types of reasons postulated to explain why women may regulate their eating behaviors. The different reasons were found to reflect the six different styles of behavioral regulation identified by Deci and Ryan in their Self-Determination Theory. Comparisons of means of regulatory styles of eating behaviors suggested that the primary reason as to why women regulate their eating behaviors is for identified motives that is, because they personally value regulating their eating behaviors. Comparisons of means between the non self-determined regulatory styles suggested that women

regulate their eating behaviors mainly because of introjected motives. That is, regulation of eating behaviors occurs as a result of internal pressures or emotions related to self-esteem (e.g., guilt or anxiety). Globally, the experimental version of the REBS revealed an adequate structure and very acceptable internal consistency.

Results of Study 2 provided additional support for the factorial structure of the REBS. Confirmatory factor analysis conducted on an independent sample of women supported the proposed six-factor structure of the scale. Model fit revealed to be adequate and support was found for all of the estimated parameters of the model. Moreover, all subscales of the REBS presented acceptable levels of internal consistency. Correlations between the REBS subscales globally supported the presence of the self-determination continuum which reflects the idea that the motives underlying regulation of eating behaviors vary in the extent to which the regulation of behavior has been internalized and integrated with one's sense of self.

In terms of the correlations between the REBS subscales and different constructs related to eating behaviors, some correlations deserve particular attention. For example, although self-determined regulatory styles (i.e., intrinsic motivation, integrated, or identified regulations) as well as non self-determined regulatory styles (i.e., introjected and external regulation, amotivation) were found to be associated with finding important, trying, and having future intentions, to regulate eating behaviors, women with a self-determined regulatory style were found to be more successful in the regulation of their eating behaviors than women with a non self-determined regulatory style. This suggests that being aware of the importance of regulating eating behaviors, devoting efforts, and having future intentions to regulate eating behaviors may not be sufficient for experiencing success at it. A personal endorsement of the regulation appears to be a necessary condition for a successful regulation. In other words, when regulatory processes underlying one's behavior have been taken in but not accepted as one's own (i.e., introjected regulation), individuals do not experience success at self-regulation.

Another interesting finding concerns the preoccupation of women for the quantity versus the quality of the food they eat. Women with a self-determined regulatory style were found to be

mostly concerned by the quality of the foods they eat, whereas women who reported a non self-determined regulatory style were found to be mostly concerned by the quantity of food they eat. Considering that women who reported a non self-determined regulatory style were found to be unsuccessful in the regulation of their eating behaviors and because these women were also found to be mostly concerned by the quantity of foods, it would be interesting to examine if an emphasis on the quantity of food instead of on the quality could put someone at greater risk for self-regulation failure of eating behaviors.

Consistent with Self-Determination Theory (Deci and Ryan, 1985, 1991), women's reasons for regulating their eating behaviors were found to be related differently to various consequences. Women who indicated regulating their eating behaviors for self-determined motives (i.e., intrinsic motivation, integrated, and identified regulations) reported more positive consequences such as healthy eating behaviors, higher self-esteem, and greater life satisfaction. Conversely, women who indicated regulating their eating behaviors for non self-determined motives reported more bulimic and depressive symptoms, lower self-esteem, and lower satisfaction with life. These relationships were also supported in the structural equation model. In this model, the six regulatory styles were grouped in two global forms of regulation (i.e., autonomy and controlled). It was found that women who reported an autonomous regulation also reported healthy eating behaviors. Conversely, women who reported a controlled regulation reported bulimic symptoms reflecting an eating disturbance. It is interesting to note that controlled regulation was also negatively associated with healthy eating behaviors whereas autonomous regulation was not related to bulimic symptomatology. This suggests that perceiving pressure (internal or external) to regulate eating behaviors not only could lead to dysfunctional eating behaviors but it could also prevent someone from eating healthily. Finally, it appears that healthy eating could affect positively the overall psychological adjustment of the individual whereas having dysfunctional eating behaviors (bulimic symptomatology) could affect it negatively. Although we believe that good eating behaviors are not sufficient for psychological adjustment, our results suggest that it may be a necessary in order to experience psychological adjustment.

In sum, this paper was the first to address, from a theoretical point a view, the regulatory processes underlying eating behaviors. Our findings clearly suggest that women are motivated to regulate their eating behaviors for different reasons, and that these reasons reflect different degrees of internalization of the regulatory processes of eating behaviors. Unlike most studies in the domain of eating behaviors, our research examined predictors of dysfunctional eating behaviors as well as predictors of healthy eating behaviors in one integrative model. Findings suggest that the more women display a self-determined regulatory style towards their eating behaviors, the more they have healthy eating behaviors. On the other hand, the more women display a non self-determined regulatory style towards their eating behaviors, the more they have dysfunctional eating behaviors. Finally, our findings suggest that the regulatory processes underlying eating behaviors can have an impact on one's global psychological adjustment.

Limitations of the Studies

Despite the interesting findings obtained in the two studies of this paper, some limitations should be underlined. First, the studies relied exclusively on self-report measures. Although participants were informed that their answers would remain anonymous and confidential, it would be important to substantiate our findings with multiple-reporter data (e.g., parental report of participants' eating behaviors), more objective measures (e.g., use a scale for recording weight), and multiple methods of measurement (e.g., structured interviews in addition to questionnaire use). Second, as with the vast majority of studies in the area of eating pathology, the investigation focused on a sample that was mainly composed of undergraduate university females. Replication with women randomly selected from different communities and from various socioeconomic backgrounds could increase the generalization of our findings. Third, because the studies were exclusively comprised of women, generalization of the findings to men cannot be assumed and should be investigated. Fourth, even though sophisticated statistical procedures were used to evaluate the motivational model, the design involved measurement of the variables at one point in time. In future studies, it would be important to use a longitudinal design to help validate the presumed direction of effects found in our study. Because the modal age of onset for bulimia is 18

(Mitchell, Hatsukami, Pyle, & Eckert, 1986), it would be important to recruit participants from the beginning of high school and to follow them over at least, a two-year period. This should allow researchers to assess participants before the development of bulimic symptoms as well as during a bulimic phase. Fifth, in our studies bulimic symptomatology was used as a measure of dysfunctional eating behaviors which were hypothesized to represent repeated failures at self-regulation. Future studies could examine if our findings can be replicated with other dysfunctional eating behaviors (e.g., anorexia nervosa). Sixth, although our goal was to distinguish predictors of healthy eating behaviors from dysfunctional ones, we recognize that our measure of dysfunctional eating behaviors not only referred to eating behaviors (e.g., binges) but it also included compensatory behaviors (e.g., use of diuretics, self-induced vomiting etc.). Future research would benefit from distinguishing the two constructs. Finally, it remains important to acknowledge the exploratory status of the present findings. Other studies are certainly needed to further assess the psychometric properties of the REBS (e.g., test-retest reliability) and its associations with different variables related to eating behaviors.

Practical Implications

Although preliminary in nature, these findings hold some potential important implications for a variety of health professionals concerned with understanding why some women may be more successful than others at regulating their eating behaviors. One possible way of addressing this issue seems to inquire about the different reasons as to *why* women regulate their eating behaviors. Indeed, results of the present studies suggest that it is important to distinguish between autonomous and controlled motives given the different associations that these two global categories of motives present with eating behaviors (healthy versus pathological). Consistent with other findings, our results suggest that although women may be motivated to regulate their eating behaviors, successful regulation is less likely to occur if the motivation is non self-determined. It is important for women to develop a genuine willingness for the activity so that they can personally endorse the regulation of the behavior. Therefore, health professionals' efforts should not be confined merely at encouraging women to regulate their eating behaviors but at promoting the

importance of developing a self-determined regulatory style towards eating behaviors. The contextual factors that foster the development of self-determined motives for an activity have been the focus of extensive studies (see Deci & Ryan, 1987, 1991 for literature reviews). Globally, autonomy supportive, informative and caring contexts by opposition to controlling contexts that provide negative feedback were found to affect the quality of the self-regulatory process. Thus, having a partner who displays a caring attitude and who provides information about the regulation of healthy eating by supporting one's autonomy and competence rather than giving information in a non controlling way that is, in the form of a contingency (e.g., if you don't start eating healthy now, I will leave you) may help the person develop a self-determined style of regulation.

Future Avenues of Research

Although, contemporary research has acknowledged the negative impact of pressures (sociocultural influences, partner, friends, and families' pressures) on eating behaviors, it has neglected to examine how positive interpersonal behaviors (e.g., autonomy support, competence support, and caring) could facilitate the adoption of a self-determined regulatory style towards eating, which in turn could lead to positive eating behaviors. A future study could specifically examine this question. For example, by using a two-group design with random assignment to a *control group* or a to a *dietary counseling "plus" group*, researchers could compare the impact of the type of dietary advice received on people's motivation to regulate their eating behaviors. In the control group, participants could receive "standard" dietary advice about how to properly read dietary labels of products whereas in the dietary counseling "plus" group, participants could receive similar dietary advice but in the form of an autonomy supportive interactive style. That is, the health care professional would display support of autonomy and competence as well as a caring attitude toward the participant. The dietary sessions could take place over three weeks (1 session/week). A six-week follow-up could be done after the last dietary advice session.

Other avenues of research could be explored. For example, in a longitudinal study, researchers could examine if, when placed in a context where it becomes difficult to regulate one's appetite, people who regularly use a self-determined style of regulation for their eating behaviors

are more resilient and less susceptible to fail at regulating their eating behaviors than those who use a non self-determined style. Because Christmas Holidays and Thanksgiving are known as periods where people tend to overindulge themselves, researchers could measure people's weight a week before Christmas or Thanksgiving and reassess it two weeks after. People's style of regulation towards their eating behaviors would also be measured at baseline and two weeks after. In addition, participants could be asked to keep a daily record of the foods eaten during those three weeks.

In sum, as briefly described above, the Regulation of Eating Behaviors Scale (REBS) developed in this paper may prove useful for many researchers interested in better understanding determinants as well as consequences of people's motivation for regulating their eating behaviors. It is our hope that the present paper has laid the foundation for such type of work.

References

- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.
- Baumeister, R. F., Heatherton, T. F., & Tice, D. M. (1994). Losing control: How and why people fail at self-regulation. San Diego: Academic.
- Beneke, W. M., Vander Tuig, J. G. (1996). Contemporary Issues in behavior therapy: Improving the human condition. In J. R. Cautela and W. Ishaq (Eds.), Improving eating behaviors: A stimulus-control approach to lifestyle change (pp. 105-121). New York: Plenum.
- Bentler, P. M. (1990). Comparative fit indices in structural models. Psychological Bulletin, 107, 238-246.
- Blais, M. R., Brière, N. M., Lachance, L., Riddle, A. S., & Vallerand, R. J. (1993). L'inventaire des motivations au travail de Blais. Revue Québécoise de Psychologie, 14, 185-215.
- Blais, M. R., Lacombe, D., Vallerand, R. J., & Pelletier, L. G. (1990). Motivation en contexte de travail: Nature, déterminants et conséquences. Unpublished manuscript, Université du Québec à Montréal.
- Blais, M. R., Sabourin, S., Boucher, C., & Vallerand, R. J. (1990). Toward a motivational model of couple happiness. Journal of Personality and Social Psychology, 59, 1021-1031.
- Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1994). Construction et validation de l'inventaire des motivations interpersonnelles. Unpublished manuscript, University of Quebec in Montreal.
- Bollen, K. A. (1989). Structural equations with latent variables. New York: Wiley.
- Brière, N. M., Vallerand, R. J., Blais, M. R., & Pelletier, L. G. (1995). Développement et validation d'une mesure de motivation intrinsèque, extrinsèque et d'amoivation en contexte sportif: l'échelle de motivation dans les sports (EMS). International Journal of Sport Psychology, 26, 465-489.

Byrne, B. M. (1989). A primer of LISREL: Basic applications and programming for confirmatory factor analytic models. New York: Springer-Verlag.

Byrne, B. M. (1994). Structural Equation Modeling with EQS and EQS/Windows. Basic concepts, applications, and programming. Thousand Oaks, CA: Sage.

Byrne, B. M. (1998). Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming. Mahaw, NJ: Erlbaum.

Centers for Disease Control and Prevention. (1991). Body weight perceptions and selected weight-management goals and practices of high school students. Journal of the American Medical Association, 266, 2811-2812.

Cogan, J. C., Rothblum, E. D. (1993). Outcomes of weight-loss programs. Genetic, Social, and General Psychology Monographs, 118, 385-415.

Conger, J. C., Conger, A. J., Costanzo, P. R., Wright, K. L., & Matter, J. A. (1980). The effect of social cues on the eating behavior of obese and normal subjects. Journal of Personality, 48, 258-271.

Deci, E. L. (1975). Intrinsic motivation. New York: Plenum.

Deci, E. L., Eghari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. Journal of Personality, 62, 118-142.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. Journal of Personality and Social Psychology, 53, 1024-1037.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), Nebraska Symposium on Motivation: Vol 38. Perspectives on motivation. (pp. 237-288). Lincoln: University of Nebraska.

Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. Educational Psychologist, 26, 325-346.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffen, S. (1985). The satisfaction with life scale. Journal of Personality and Assessment, 49, 71-76.

Direction générale des services de la promotion de la Santé et du Bien-être social Canada [Health and Welfare Canada] (1988, under review). Le poids et la santé [Weight and Health] [Brochure]. Ottawa, ON: Minister of Supply and Services Canada.

Edelman, B., Engell, D., Bronstein, & Hirsch, E. (1986). Environmental effects on the intake of overweight and normal-weight men. Appetite, 7, 71-83.

Elliot, A. J., & Sheldon, K. M. (1998). Avoidance of personal goals and the personality-illness relationship. Journal of Personality and Social Psychology, 75, 1282-1299.

Foreyt, J. P., & Mikhail, C. (1997). Anorexia nervosa and bulimia nervosa (3rd Ed.). In E. J., Mash & L. G. Terdal (Eds.), Assessment of Childhood Disorders. (pp. 683-716). New York: Guilford.

Garner, D. M., & Wooley, S. C. (1991). Confronting the failure of behavioral and dietary treatments for obesity. Clinical Psychology Review, 11, 729-780.

Guttman, L. (1954). A new approach to factor analysis: The radex. In Lazarfel (Ed.), Mathematical thinking in the social sciences (pp. 258-348). New York: Free Press of Glencoe.

Health and Welfare Canada (1992). Canada's Food Guide to Healthy Eating: Its Rational [Brochure]. Ottawa, ON: Minister of Supply and Services Canada.

Heatherton, T. F. (1993). Body dissatisfaction, self-focus, and dieting status, and dieting status among women. Psychology of Addictive Behaviors, 7, 225-231.

Jöreskog, K. G., & Sörbom, D. (1996). Lisrel 8.0: User's reference guide. Chicago: Scientific Software International.

Kuczmarski, R. J., Flegal, K. M., Campbell, S. M., & Johnson, C. L. (1994). Increasing prevalence of overweight among U.S. adults: The National Health and Nutrition Examination Surveys, 1960 to 1991. Journal of the American Medical Association, 272, 205-211.

Levy, A., & Heaton, A. (1993). Weight control practices of U.S. adults trying to lose weight. Annals of Internal Medicine, 119, 661-666.

Meyer, J. E., & Stunkard, A. J. (1993). Genetics and human obesity. In A. J. Stunkard & T. Wadden (Eds.), Obesity therapy and treatment (pp. 137-149). New York: Raven.

Mitchell, J. E., Hatsukami, D., Pyle, R. L., & Eckert, E. D. (1986). The bulimia syndrom: Course of illness and associated problems. Comprehensive Psychology, 35, 165-179.

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. Psychological Bulletin, 105, 430-445

National Heart, Lung, and Blood Institute (1998). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults. Bethesda, MD: National Heart, Lung and Blood Institute.

O'Conner, B. P., & Vallerand, R. J. (1990). Religious motivation in the elderly: A French-Canadian replication and an extension. The Journal of Social Psychology, 130, 53-59.

Pelletier, L. G. (in press). A motivational analysis of self-determination for pro-environmental behaviors. In E. L. Deci & R. M. Ryan (Eds.). The Handbook of Self-Determination. Rochester, NY: University of Rochester.

Pelletier, L. G., Green-Demers, I., & Béland, A. (1997). Pourquoi effectuez-vous des comportements écologique? Validation en langue française de l'Echelle de Motivation vis-à-vis les comportements écologique [Why do you adopt environmental behaviors? Validation in French of the Motivation Toward the Environmental Scale]. Canadian Journal of Behavioural Science, 29, 145-156.

Pelletier, L. G., Fortier, M., Vallerand, R. J., Tuson, K. M., Brière, N. M., & Blais, M. R. (1995). The Sports Motivation Scale (SMS): A mesure of intrinsic motivation, extrinsic motivation, and amotivation in sports. Journal of Sport and Exercise, 17, 35-53.

Pelletier, L. G., Tuson, K. M., Green-Demers, I., Noels, K., & Beaton, A. (1998). Why are you doing things for the environment - or are you?: The motivation toward the environment scale (MTES). Journal of Applied Social Psychology, 28, 437-468.

Pelletier, L. G., Tuson, K. M., & Haddad, N. J. (1997). Client motivation for therapy scale: A measure of intrinsic motivation, extrinsic motivation, and amotivation for therapy. Journal of Personality Assessment, 68, 414-435.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1995). Loisirs et santé mentale: Les relations entre la motivation pour la pratique des loisirs et le bien-être psychologique. Canadian Journal of Behavioural Science, 27, 140-156.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1996). Vers une conceptualisation motivationnelle multidimensionnelle du loisir: construction et validation de l'échelle de motivation vis-à-vis des loisirs (EML). Loisirs et société, 19, 559-585.

Polivy, J., & Herman, C. P. (1983). Breaking the diet habit: The natural weight alternative. New York: Basic Books.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Rand, C. S. W., & Kulda, J. M. (1992). Epidemiology of bulimia and symptoms in a general population: Sex, age, race, and socioeconomic status. International Journal of Eating Disorders, 11, 37-44.

Rosenberg, M. (1965). Society and the adolescent self-image. New Jersey: Princeton University.

Ryan, R. M. (1993). Agency and organization: Intrinsic motivation, autonomy and the self in psychological development. In J. Jacobs (Ed.), Nebraska symposium on motivation: Developmental perspectives on motivation (Vol. 40, pp. 1-56). Lincoln, NE: University of Nebraska.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. Journal of Personality, 63, 397-427.

Ryan, R. M., & Connell, J. R. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. Journal of Personality and Social Psychology, 57, 749-761.

Ryan, R. M., & Connell, J. R., & Deci, E. L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. E. Ames (Eds.), Research on motivation in education: The classroom milieu (Vol.12, pp. 13-52). New York: Academic.

Ryan, R. M., & Connell, J. R., & Grolnick, W. S. (1992). When achievement is not intrinsically motivated: A theory of self-regulation in school. In A. K. Boggiano & T. S. Pittman (Eds.), Achievement and motivation: a social-developmental perspective (pp.167-188). New York: Cambridge University.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55, 68-78.

Ryan, R. M., Rigby, S., King, K. (1993). Two types of religious internalization and their relations to religious orientations and mental health. Journal of Personality and Social Psychology, 65, 586-596.

Ryan, R. M., Sheldon, K. M., Kasser, T., & Deci, E. L. (1996). All goals are not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds.), The psychology of action: Linking cognition and motivation to behavior (pp. 7-26). New York: Guilford.

Séguin, C., Green-Demers, I., Chantal, Y., Ladouceur, C., & Pelletier, L. G. (1997). Pourquoi les gens ont-ils des relations sexuelles? Une investigation des dimensions de la motivation sexuelle [Abstract]. Canadian Psychology, Vol 38: 2a, p.72.

Séguin, C., Green-Demers, I., & Pelletier, L. G. (1994). Construction et validation de l'échelle de motivation envers les relations sexuelles (EMERS) [Abstract]. Proceedings of the XVIIth Annual Convention of the Société Québécoise de Recherche en Psychologie, p. A1.52.

Sheldon, K. M., & Elliott, A. J. (1998). Not all personal goals are "personal": Comparing autonomous and controlled reasons for goals as predictors of effort and attainment. Personality and Social Psychology Bulletin, 24, 546-557.

Steiger, J. H. (1990). Structural model evaluation and modification. An interval estimation approach. Multivariate Behavioral Research, 21, 309-331.

Stice, E., & Agras, W. S. (1998). Predicting onset and cessation of bulimic behaviors during adolescence: A longitudinal grouping analyses. Behavior Therapy, 29, 257-276.

Thelen, M., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. Psychological Assessment, 3, 119-124.

Tippett, K. S., Goldman, J. D. (1994). Diets more healthful, but still fall short of dietary guidelines. Food Review, 17, 8-14.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology Vol 29, (pp.271-360). New York: Academic.

Vallerand, R. J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. Journal of Personality, 60, 599-620.

Vallerand, R. J., Deci, E. L., & Ryan, R. M. (1987). Intrinsic motivation in sport. Exercise and Sport Sciences Review, 15, 389-425.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Sénécal, C., & Vallière, E. F. (1993). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. Educational and Psychological Measurement, 52, 1003-1017.

VanItallie, T. B., & Lew, E. A. (1992). Assessment of morbidity and mortality risk in the overweight patient. In T.A Wadden & T.B VanItallie (Eds.), Treatment of the seriously obese patient (pp. 3-32). New York: Guilford.

Whitaker, A., Johnson, J., Shaffer, D., Rapaport, J. L., Kalikow, K., Walsh, B. T., Davies, M., Braiman, S., & Dolinsky, A. (1990). Uncommon troubles in young people: Prevalence estimates of selected psychiatric disorders in a nonreferred adolescent population. Archives of General Psychiatry, 47, 487-496.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students. Journal of Personality and Social Psychology, 70, 767-779.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. Journal of Personality and Social Psychology, 70, 115-126.

Williamson, D., Serdula, M., Anda, R., Levy, A., & Byers, T. (1992). Weight loss attempts in adults: Goals, duration, and rate of weight loss. American Journal of Public Health, 82, 1251-1257.

Wolf, N. (1991). The beauty myth: How images of beauty are used against women. New York: Morrow.

Authors Note

This paper was prepared while the first author was supported by a doctoral scholarship from the Social Sciences and Humanities Research Council of Canada (SSHRC), and the second author was supported by a grant from the Social Sciences and Humanities Research Council of Canada (SSHRC).

Footnotes

¹ Statistics suggest that Bulimia Nervosa occurs almost exclusively among females (Rand & Kulda, 1992; Whitaker et al., 1990). The Diagnostic and Statistical Manual of Mental Disorders (4th ed.) suggests that the rate of occurrence of this disorder in males is approximately one-tenth of that in females (APA, 1994; p.548). For that reason, only women were included in the studies of this paper.

² The transformation $(\log_{10}X)+10$ was used to correct for the kurtosis and/or skewness that were higher than 2.

³ According to Health and Welfare Canada (1988, under review), a Body Mass Index (BMI) below 20 may be associated with health problems for some people, a BMI between 20-25 is a good weight for most people, a BMI between 25-27 may lead to health problems in some people, and a BMI over 27 represents an increased risk of developing health problems.

⁴ Although the internal consistency could be improved, the likely consequence of having a scale with a low consistency would be to weaken the structural links of the model to be tested, not to invalidate it. Statistically, we would be less likely to find significant links between the Healthy Eating Behaviors Scale and other constructs.

⁵ The initial model fit was below acceptable range ($\chi^2(18, N=339)=81.67$ $p<.001$, CFI=.88, IFI=.88, RMSEA=.10, PCFI=.60). However, examination of the modification indices ($\Delta\chi^2(6,5)=30.89$) suggested that the estimation of one correlated error between two indicators of the same factor would lead to an important increase in the fit of the model.

⁶ In the BULIT-R, eight of the items pertaining to specific means of radical weight control (two items each concerning laxatives, diuretics, fasting, and exercise) were found not to discriminate well between bulimic individuals and non eating disordered individuals. Thus, Thelen and their colleagues (1991) decided that these items would not be scored but would be retained to provide information about weight control behaviors. The eight items are called filler items.

⁷ The transformation $(1/X)+10$ was used to correct for the kurtosis and/or skewness >2 .

Table 1

Descriptive Statistics for the REBS Items and Subscale (Study 1)

	M	SD	Kurtosis	Skewness
Intrinsic Motivation (IM)	4.13	1.50	-.89	-.10
IM1	4.00	1.78	-.91	-.10
IM2	3.79	1.81	-1.03	-.03
IM3	4.82	1.48	-.43	-.36
IM4	3.91	1.84	-1.03	-.10
Extrinsic Motivation (EM)				
Integrated Regulation (INTEG)	4.25	1.48	-.64	-.04
INTEG1	4.18	1.62	-.70	-.06
INTEG2	4.61	1.60	-.61	-.30
INTEG3	3.82	1.80	-.97	.06
INTEG4	4.37	1.70	-.69	-.25
Identified Regulation (IDEN)	5.24	1.25	.24	-.72
IDEN1	5.42	1.44	.15	-.78
IDEN2	5.10	1.50	.06	-.64
IDEN3	5.12	1.62	.14	-.84
IDEN4	5.32	1.56	.12	-.89
Introjected Regulation (INTRO)	3.29	1.62	-.93	.37
INTRO1	3.01	2.06	-1.14	.51
INTRO2	3.82	2.15	-1.41	-.01
INTRO3	3.20	1.75	-1.05	.27
INTRO4	2.58	1.79	-.39	.87
External Regulation (ER)	1.95	1.12	1.90	1.51
ER1	2.43	1.69	-.30	.93
ER2	1.68	1.22	2.96	1.93
ER3	2.06	1.52	.92	1.37
ER4	1.62	1.24	4.64	2.25
Amotivation (AMO)	1.44	.76	5.24	2.25
AMO1	1.43	.86	5.54	2.33
AMO2	1.46	1.03	7.71	2.73
AMO3	1.41	1.00	10.34	3.03
AMO4	1.45	1.07	7.65	2.75

Note. The theoretical range for each scale and each subscale is 1 to 7 (N=343).

Table 2

Results of the Exploratory Factor Analysis

Items	F1	F2	F3	F4	F5	F6
Intrinsic motivation ($\alpha=.89$)						
Because it's fun to create meals that are good for my health.	-.90	-.06	.08	-.02	.03	.06
Because I like to find new ways to create meals that are good for my health.	-.89	.00	-.00	-.02	-.09	-.05
Because I take pleasure in fixing healthy meals.	-.80	.13	-.09	.04	.04	-.04
For the satisfaction of eating healthy.	-.33	.26	.29	-.01	.07	-.04
Integrated regulation ($\alpha=.91$)						
Because eating healthy is an integral part of my life.	-.10	.86	-.12	-.07	-.07	-.01
Because eating healthy is part of the way I have chosen to live my life.	-.08	.86	.00	.04	.09	-.01
Because regulating my eating behaviors has become a fundamental part of who I am.	-.05	.73	.09	.11	-.02	-.03
Because eating healthy is congruent with other important aspects of my life.	.06	.65	.26	-.05	-.05	-.06
Identified regulation ($\alpha=.83$)						
Because I believe it will eventually allow me to feel better.	.04	-.06	.90	.02	-.05	.00
Because I believe it's a good thing I can do to feel better about myself in general.	-.07	.00	.80	.11	.02	-.05
Because I think it's a good idea to try to regulate my eating behaviors.	-.02	.24	.48	.08	-.03	.02
Because eating healthy is a way to ensure long-term health benefits.	-.22	.18	.44	-.13	.02	-.01
Introjected regulation ($\alpha=.85$)						
Because I don't want to be ashamed of how I look.	-.04	-.08	.01	.93	.04	.00
Because I feel I must absolutely be thin.	.11	.06	-.03	.88	.06	.03
Because I would feel ashamed of myself if I was not eating healthy.	-.04	-.06	.06	.58	-.20	.05
Because I would be humiliated if people thought I was not in control of my eating behaviors.	-.06	.11	.09	.57	-.14	-.02
External regulation ($\alpha=.79$)						
Because other people close to me insist that I do.	.01	.01	.06	.02	-.80	-.06
Because other people close to me (e.g., my partner or parents) will be upset if I don't.	.02	.03	-.07	.10	-.77	.01
Because people around me nag me to do it.	.01	-.05	-.03	.03	-.72	.03
Because it is expected of me.	-.04	.03	.03	-.05	-.50	.08
Amotivation ($\alpha=.82$)						
I don't really know. I truly have the impression that I'm wasting my time trying to regulate my eating behaviors.	.01	.06	-.00	-.02	.01	.83
I don't know why I bother.	.03	.02	.05	.05	.05	.81
Honestly, I don't know. I can't really see what I'm getting out of it.	.02	.00	-.03	-.05	-.12	.63
I don't know. I can't see how my efforts to eat healthy are helping my health situation.	-.05	-.09	-.02	.04	.01	.60

Table 3

Descriptive Statistics for the REBS Items and Subscale (Study 2)

	<u>M</u>	<u>SD</u>	<u>Kurtosis</u>	<u>Skewness</u>
Intrinsic Motivation (IM)	4.06	1.52	-.79	-.02
IM1	3.96	1.79	-.88	-.16
IM2	3.79	1.84	-1.04	.10
IM3	4.72	1.64	-.56	-.49
IM4	3.77	1.86	-1.06	.03
Extrinsic Motivation (EM)				
Integrated Regulation (INTEG)	4.26	1.57	-.78	-.10
INTEG1	4.30	1.68	-.82	-.15
INTEG2	4.59	1.79	-.88	-.32
INTEG3	3.86	1.87	-1.02	.17
INTEG4	4.29	1.75	-.80	-.26
Identified Regulation (IDEN)	5.27	1.18	.53	-.80
IDEN1	5.45	1.45	.77	-1.01
IDEN2	5.14	1.40	.15	-.47
IDEN3	5.20	1.62	.48	-.99
IDEN4	5.30	1.56	-.85	-1.09
Introjected Regulation (INTRO)	3.30	1.68	-.95	.33
INTRO1	3.33	2.12	-1.30	.33
INTRO2	3.99	2.14	-1.40	-.06
INTRO3	3.22	1.80	-.98	.31
INTRO4	2.67	1.96	-.40	.94
External Regulation (ER)	1.98	1.17	2.19	1.55
ER1	2.45	1.71	-.34	.91
ER2	1.73	1.31	3.22	1.97
ER3	2.08	1.54	.88	1.35
ER4	1.64	1.28	4.59	2.25
Amotivation (AMO)	1.47	.85	6.42	2.39
AMO1	1.46	.93	7.21	2.52
AMO2	1.50	1.12	7.39	2.71
AMO3	1.44	1.03	9.12	2.89
AMO4	1.49	1.13	6.71	2.63

Note. The theoretical range for each scale and each subscale is 1 to 7 (N=345).

Table 4

Descriptive Statistics for the Indicators Included in the Motivational Model of the Regulation of Eating Behaviors

	<u>M</u>	<u>SD</u>	<u>Kurtosis</u>	<u>Skewness</u>	<u>Theoretical Range</u>
Intrinsic Motivation (IM)	16.24	6.07	-.79	-.03	4/28
Integrated Regulation (INTEG)	17.06	6.24	-.75	-.12	4/28
Identified Regulation (IDEN)	21.05	4.72	.52	-.80	4/28
Introjected Regulation (INTRO)	13.24	6.74	-.95	.32	4/28
External Regulation (ER)	7.90	4.70	2.13	1.54	4/28
Amotivation (AMO)	5.86	3.38	6.68	2.43	4/28
Healthy eating behaviors (HEB1)	14.85	3.03	-.49	-.35	4/20
Healthy eating behaviors (HEB2)	13.43	3.16	-.31	-.62	4/20
Dysfunctional Eating Behaviors					
(Bulimic symptomatology)					
BULIT1	18.54	7.41	-.03	.84	9/45
BULIT2	16.49	6.75	1.14	1.30	9/45
BULIT3	18.08	7.99	.81	1.26	10/50
Depressive Symptomatology (DEPRE)	15.61	11.24	.46	.91	0/60
Self-Esteem (SE)	17.82	3.88	-.09	-.70	5/25
Life Satisfaction (LS)	17.57	4.55	-.55	-.25	5/25

Table 5

Goodness-of-fit statistics for competing models

Competing Models	df	χ^2	Δ df	$\Delta \chi^2$	RMSEA	CFI	IFI	PCFI
Initial Model	237	676.46			.08	.88	.88	.76
Second Model	236	572.66	1	103.80	.06	.90	.91	.77
Third Model	235	548.72	1	23.94	.06	.91	.91	.77
Chosen Model	234	531.97	1	16.75	.06	.92	.92	.78

Note. $\Delta \chi^2 \geq 16.75$, $p < .001$

Table 6

Internal Consistencies (Diagonal), Pearson Correlations (Above Diagonal), Factor Correlations (Below Diagonal) Among the Regulation for Eating Behaviors Subscales

	1	2	3	4	5	6
Intrinsic Motivation (1)	(.87)	.78	.71	.09	.03	-.12
Integrated Regulation (2)	.64	(.90)	.89	.21	.07	-.14
Identified Regulation (3)	.44	.63	(.79)	.33	.12	-.19
Introjected Regulation (4)	-.09	.09	.24	(.85)	.64	.34
External Regulation (5)	-.06	.01	.07	.53	(.81)	.51
Amotivation (6)	-.15	-.19	-.15	.26	.38	(.77)

Note. $r \geq .13$; $p < .05$ ($N=339$)

Table 7

Correlations Between the Different Subscales of the Regulation of Eating Behaviors Scale and Related Constructs as Well as Correlations

Between the Two Global Forms of Regulation of Eating Behaviors (in Bold) and Related Constructs.

	IM	INTEG	IDEN	INTRO	ER	AMO	Autonomous Regulation	Controlled Regulation
To what extent women ...								
find important to regulate their eating behaviors	.26	.49	.49	.32	.09	-.22	.48	.20
try to regulate their eating behaviors	.25	.47	.45	.35	.08	-.11	.46	.21
are concerned by the quantity of food they eat	-.00	.18	.33	.54	.22	.02	.18	.41
are concerned by the quality of food they eat	.28	.41	.43	.20	.08	-.08	.43	.13
intend to regulate their eating behaviors in the future	.14	.34	.49	.41	.13	-.05	.36	.28
are successful in regulating their eating behaviors	.34	.54	.27	-.20	-.13	-.32	.46	-.25
Consequences of the regulatory styles on eating behaviors								
Healthy eating behaviors	.40	.56	.34	.07	-.02	-.22	.52	-.02
Bulimic symptomatology	-.11	-.02	.12	.68	.40	.25	-.02	.63
Psychological Adjustment								
Depressive symptomatology	-.14	-.09	-.06	.43	.32	.24	-.07	.47
Self-esteem	.21	.18	.04	-.45	-.34	-.25	.18	-.47
Life satisfaction	.15	.17	.01	-.27	-.21	-.15	.14	-.29
BMI	-.02	-.08	.09	.13	.14	.17	-.02	.18

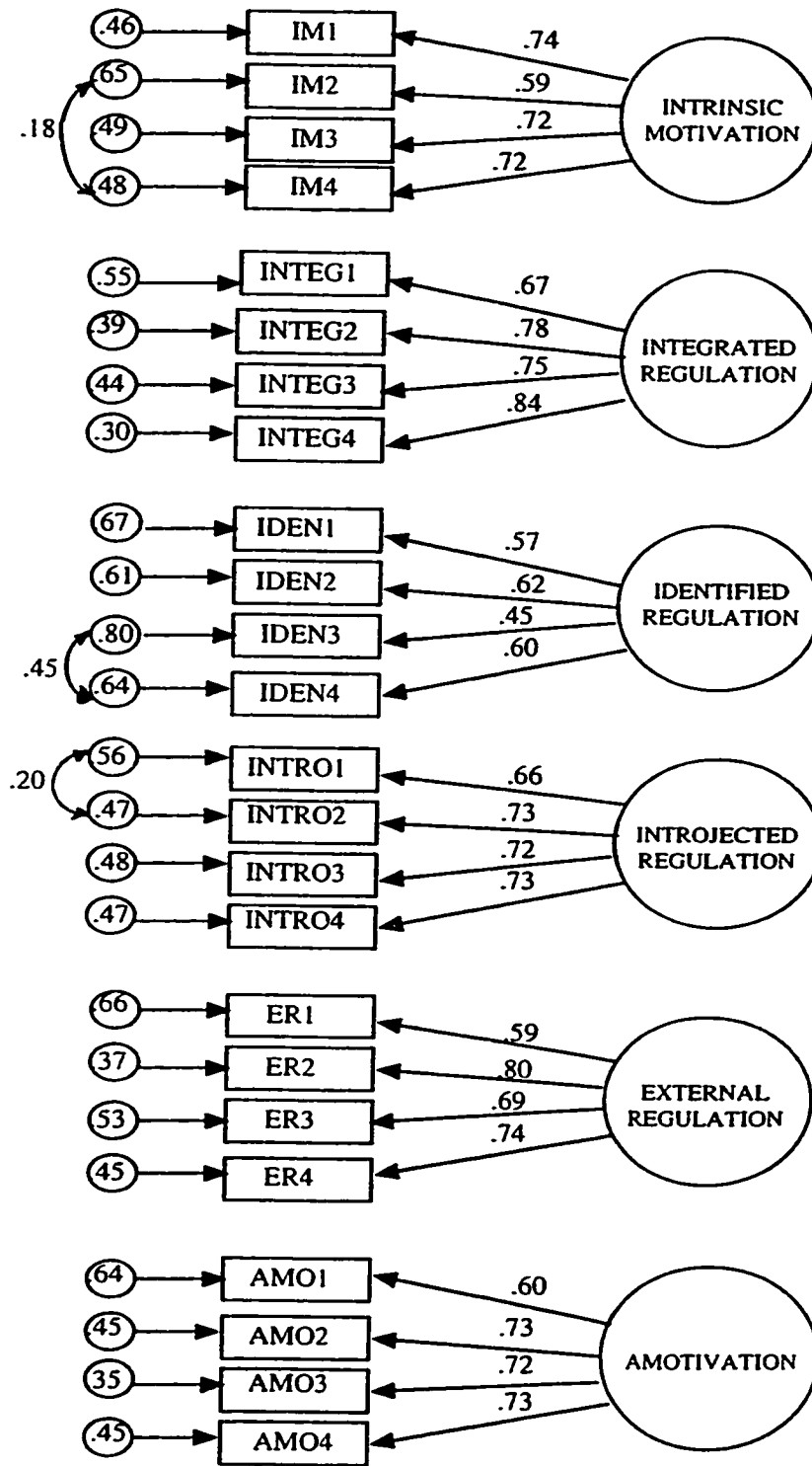
Note. $r \geq .13$; $p < .05$ ($N=339$)

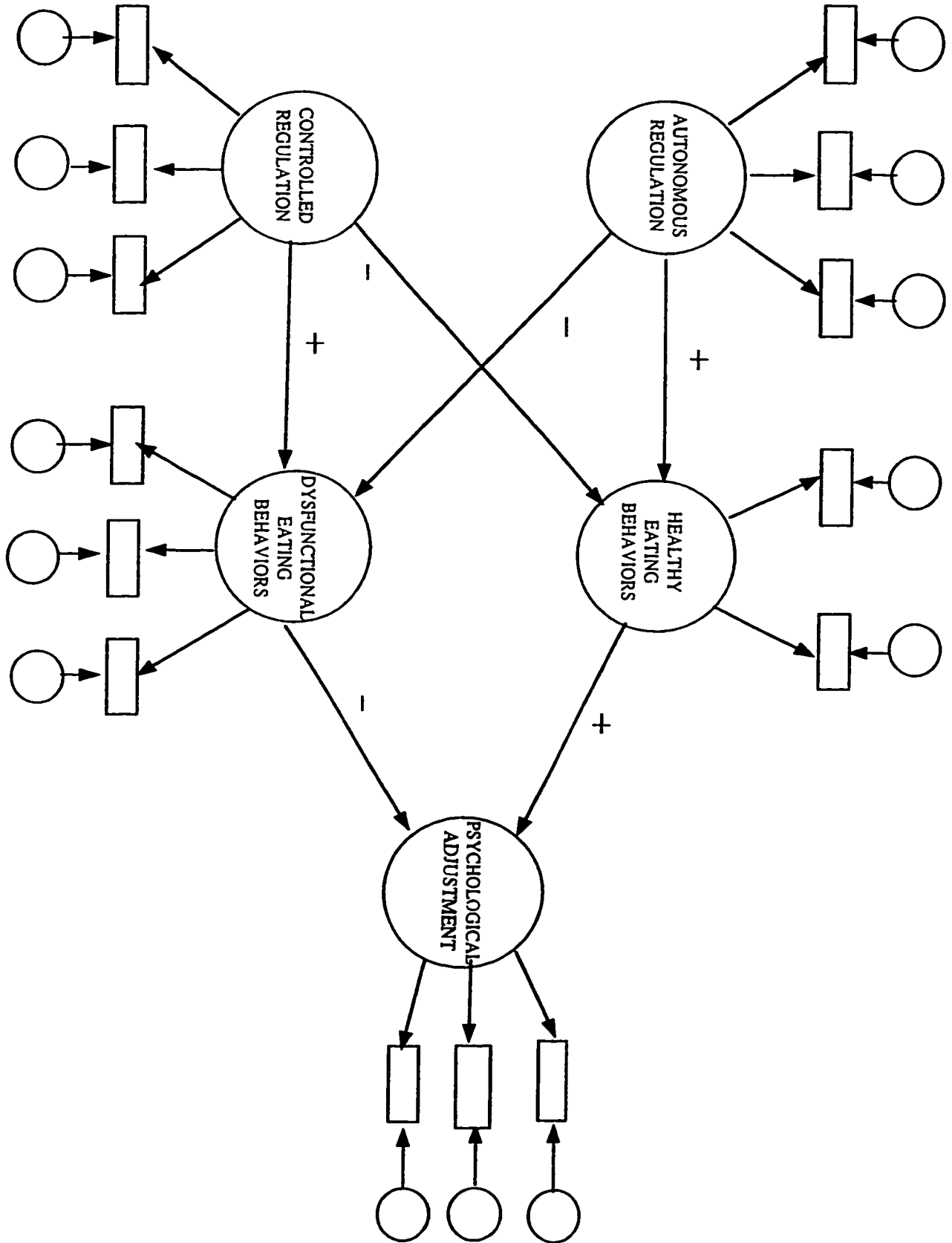
Figure Captions

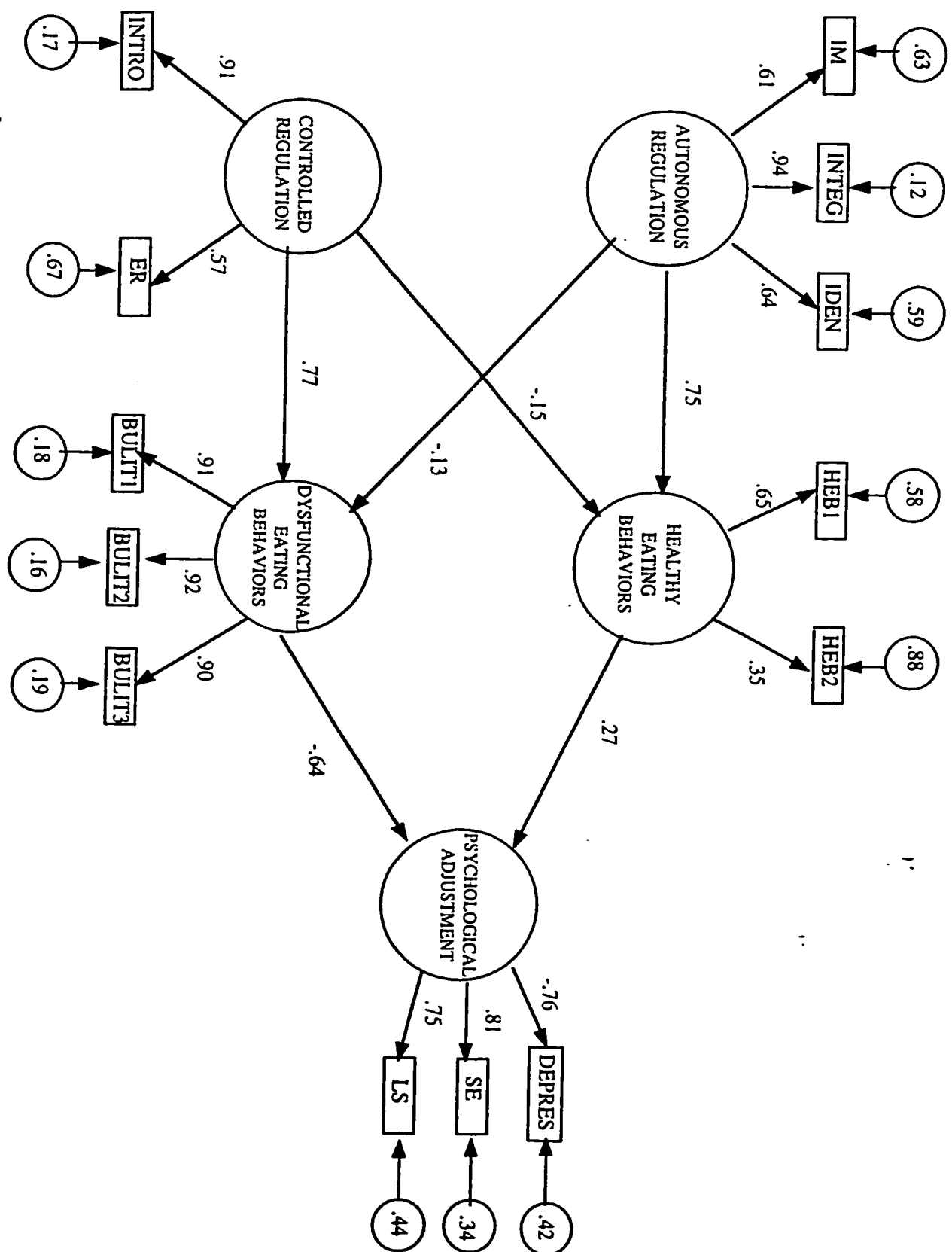
Figure 1. Confirmatory Factor Analysis of the REBS. All estimates are significant at the .01 level.

Figure 2. Hypothesized Relationships Between Autonomous Regulation, Controlled Regulation, Healthy Eating Behaviors, Dysfunctional Eating Behaviors, and Psychological Adjustment.

Figure 3. Relationships Between Forms of Regulation, Eating Behaviors, and Psychological Adjustment. All estimates are significant at the .05 level.







**Toward an Integrative Model of the Regulation of Eating Behaviors:
An Examination of Motivational Mechanisms for the Relationships
Between Body Dissatisfaction and Eating Behaviors**

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January 15, 2001

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Abstract

The purpose of this study was to propose and test an integrative model of the regulation of eating behaviors that could help us better understand why for some women body dissatisfaction is associated with dysfunctional eating behaviors, whereas for others it may be associated with healthy eating behaviors. Participants ($N=442$) were comprised of university female students. Based on Deci and Ryan's Self-Determination Theory (1985, 1991; Ryan & Deci, 2000), two global forms of regulation of eating behaviors (i.e., autonomous vs. controlled regulation) were proposed as motivational mechanisms that could explain the nature of the relationships between body dissatisfaction and two types of eating behaviors (healthy vs. dysfunctional). The model also incorporated determinants of body dissatisfaction (i.e., sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity) as well as psychological adjustment consequences (i.e., self-esteem, life satisfaction, and depression). Finally, global self-determination was included in the model as a determinant of the two global forms of regulation of eating behaviors as well as a factor that could increase women's resiliency against sociocultural influences related to body image. The proposed model was tested using structural equation modeling. Globally, findings suggest that women's global level of self-determination in life can influence the way they regulate their eating behaviors, which in turn is related to qualitatively different eating behaviors. Women's eating behaviors in turn can affect their psychological adjustment. Also, it appears that women's global level of self-determination may reduce sociocultural influences related to body image. Findings are discussed in terms of their research and clinical implications.

**Toward an Integrative Model of the Regulation of Eating Behaviors:
An Examination of Motivational Mechanisms for the Relationships
Between Body Dissatisfaction and Eating Behaviors**

Over the years, several correlational studies have documented a strong relationship between body dissatisfaction and abnormal eating attitudes and behaviors (e.g., Kiemle, Slade, & Dewey, 1987; Striegel-Moore, McAvay, & Rodin, 1986). More recently, these findings have been corroborated in longitudinal studies. For instance, Attie and Brooks-Gunn (1989), in a 2-year longitudinal study of adolescent girls, found that initial levels of body dissatisfaction were a significant predictor of increases in eating problems at the end of the 2-year period, whereas several other variables (i.e., general psychopathology, family relationship or early physical development) yielded nonsignificant results. Similarly, Stice and Agras (1998), in a 9-month longitudinal study of adolescent girls, found that body dissatisfaction was a good predictor of the onset of binge eating and use of compensatory behaviors aimed at avoiding weight gain (e.g., self-induced vomiting, use of laxatives and diuretics). Furthermore, they found that decreased body dissatisfaction predicted the remission of these bulimic behaviors.

Although in the past body dissatisfaction has been strongly recognized among clinical populations with eating and weight-related disorders (e.g., Bruch, 1962; Stunkard & Burt, 1967), in the mid-80s findings emerged suggesting that individuals of normal weight, without symptoms of an eating disorder, also experience body concerns, body dissatisfaction, or distress related to one's body appearance (e.g., Cash, Winstead, & Janda, 1986; Rodin, Silberstein, & Striegel-Moore, 1985; Thompson & Thompson, 1986). In fact, Rodin and his colleagues (1985) suggested that concern over weight and eating behaviors had become so prevalent in society that a moderate degree of body dissatisfaction was now considered normative among women. Several studies conducted among non clinical populations have supported this idea. For instance, Raich and colleagues, 1992) have observed that 70.4% of American adolescent girls and 48% of Spanish adolescent girls from high school want to be thinner than their current size. Also, a U.S. national survey conducted in 1993, indicated that 48% of the adult American women sampled reported

globally negative evaluations of their appearance. Similarly, a survey conducted in three urban private schools by Huon (1994), revealed that 52.4% of Australian girls between the ages of 15 and 18 want to weigh at least 7 kg less than their current weight.

Thus, if body dissatisfaction can be found in both clinical and non clinical populations, how can we explain that some women, although dissatisfied with their physical appearance, do not have or go on to develop an eating pathology? Indeed, despite the normative discontent among women in our society, only a minority develop an eating pathology. This suggests that body dissatisfaction, in and of itself, is not sufficient to explain dysfunctional eating behaviors.

With the exception of Stice and colleagues (Stice, Nemeroff, & Shaw, 1996; Stice, Shaw, & Nemeroff, 1998), to the best of our knowledge, no other researchers have examined mechanisms that could explain the relationship between body dissatisfaction and eating behaviors. Moreover, the few studies that have examined such mechanisms have focused exclusively on pathological eating behaviors (e.g., bulimic symptomatology) thus, leaving unaddressed the issue of why, in some cases, body dissatisfaction can be associated with non disordered eating.

Accordingly, the purpose of this study was to propose and test an integrative model of the regulation of eating behaviors that could help us better understand from a motivational point of view, why for some women, body dissatisfaction is associated with dysfunctional eating behaviors, whereas for others it may be associated with healthy eating behaviors. The proposed model incorporates two variables identified in the literature as determinants of body dissatisfaction (i.e., sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity), two forms of regulation of eating behaviors (i.e., autonomous and controlled), two types of eating behaviors (dysfunctional and healthy), as well as indicators of psychological adjustment representing possible consequences of eating behaviors (i.e., self-esteem, life satisfaction, and depressive symptomatology). Finally, global self-determination is also included in the model as a determinant of the two forms of regulation of eating behaviors, sociocultural pressures about body image, and endorsement of society's beliefs about thinness and obesity. The

proposed model is depicted in Figure 1. Each step of this model is described in the following sections.

Insert Figure 1 about here

Determinants of body dissatisfaction

Past research on body dissatisfaction has identified several possible determinants of body dissatisfaction. For the present study, we chose to examine two determinants, namely sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity. These determinants are most consistently found across studies and will be briefly reviewed here (for a more comprehensive review, see Stice, 1994).

Sociocultural Pressures About Body Image

Integrative models that have empirically examined the processes by which sociocultural factors contribute to bulimic symptomatology have suggested that pressures to be thin deriving from family, friends, dating partners, and the media were associated with endorsement of the ideal-body stereotype which was associated with body dissatisfaction. Body dissatisfaction in turn, was found to be linked with bulimic symptomatology through restrained eating and negative affect (Stice et al., 1996a; Stice et al., 1998). In these models, perceived pressures to have a thin body were also found to be associated directly with body dissatisfaction, suggesting that endorsement of the thin-ideal may not be necessary for people's negative comments related to one's body image to produce body dissatisfaction.

Among the different sources of pressure, the media has been proposed as one of the most important perpetrators of the norms and aesthetic standards embraced by society (Garner & Garfinkel, 1982; Gordon, 1988; Harrison & Cantor, 1997). For instance, an examination of popular women's magazines over the last several decades has revealed an increased number of articles and advertisements promoting methods of weight-loss (Garner, Garfinkel, Swartz, & Thompson, 1980; Wiseman, Gray, Mosiman, & Ahrens, 1992). Also, experimental exposure to

media-portrayed thin-ideal images resulted in increased depressed feelings, stress, anxiety, guilt, shame, insecurity, stress, and body dissatisfaction (Heinberg & Thompson, 1995; Irving, 1990; Stice & Shaw, 1994).

Teasing during childhood or adolescence represents another source of external pressure that may reinforce the glorification of slenderness and thus, indirectly create body dissatisfaction. Because adolescence is characterized by numerous physical changes, young girls are often teased about physical aspects of their bodies without necessarily being overweight. The adolescent girl who is repeatedly teased or criticized about her body tends to become overly self-conscious and preoccupied with it. Over time, the message driven by unpleasant and frequent teasing concerning her body can become internalized. According to Carver and Scheier (1998, 1999), when people become aware of an aspect of their self (e.g., body image), they engage in a comparison process whereby they assess their appearance (actual self) relative to a salient standard (society's thin-ideal). Because the ideal body image portrayed by society is extremely thin, this comparison often translates into body dissatisfaction. Thus, from an early age, the woman becomes aware of the negative impact of her physical appearance on her environment.

Numerous studies have provided empirical support for the relationship between recollections of teasing experiences and body dissatisfaction. For instance, two large-scale studies found that adult women who had been teased as adolescents about their physical appearance had higher levels of body dissatisfaction compared to women who had not been teased, or rarely teased (Berscheid, Walster, & Bohmstedt, 1973; Cash et al., 1986). Thompson, Coover, Richards, Johnson, and Cattarin (1995), using covariance structure modeling, found that recollections of teasing was directly associated with body dissatisfaction, eating disturbance and overall psychological functioning. More importantly, the study revealed that the level of obesity was not associated directly with body dissatisfaction, but rather it was mediated by recollections of teasing experiences. Only individuals who were obese and who had also been teased showed high levels of body dissatisfaction.

Endorsement of Society's Beliefs About Thinness and Obesity

Over the last decades, a number of studies have shown an increasing trend toward slenderness for fashion models as well as an increase in the number of articles and advertisements promoting weight-loss (e.g., Brenner & Cunningham, 1992; Garner et al., 1980; Silverstein, Perdue, Peterson, & Kelly, 1986; Silverstein, Peterson, & Perdue, 1986; Wiseman et al., 1992). Current societal standards for body image suggest that thinness is highly valued and is associated with attractiveness, success, and intelligence (Striegle-Moore et al., 1986; Thompson, 1990). On the other hand, any amount of excess weight is frowned upon and is perceived as socially undesirable (Rand & Kulda, 1990; Rodin et al., 1985). Several authors (e.g., Stice, 1994; Stice et al., 1998; Stice, Ziemba, Margolis, & Flick, 1996; Twamley & Davis, 1999) have proposed that repeated exposure to sociocultural messages related to body image lead to the endorsement of the thin-ideal as the criteria for feminine beauty. Endorsement of the thin-ideal in turn, has been empirically found to be associated with body dissatisfaction. For example, using structural equation modeling, Boyer (1991) found that among the female students, the greater the endorsement of society's beliefs about thinness and obesity, the greater was the disparity between their current and ideal body images which in turn was related to greater body dissatisfaction. More recently, Stice and colleagues (1996a, 1998), using a multifactorial model of bulimic symptomatology, found that perceived sociocultural pressure to be thin had an indirect effect on body dissatisfaction through endorsement of the ideal-body stereotype. Finally, in an earlier study (Dion & Pelletier, 2000a), we also found that sociocultural pressures about body image was positively associated with endorsement of society's beliefs about thinness and obesity, which in turn was positively associated with body dissatisfaction.

In sum, this brief review on some determinants of body dissatisfaction suggests that when repetitively exposed to sociocultural messages about body image, individuals are more likely to endorse society's beliefs about thinness and obesity. Endorsement of such beliefs leads them to develop a desired image (society's standard of beauty) to which they compare their actual body image. As we will see in the next section, for many women, comparison of the two images results

in body dissatisfaction. In an attempt to reduce the discrepancy between their current body image and the internalized body-ideal, some women may use extreme measures to regulate their eating behaviors (e.g., severe dieting).

Body Dissatisfaction: Discrepancy Between Actual and Ideal Self

The use of schematic stimuli consisting of human figures ranging in size from underweight to overweight has been recognized as a simple and efficient method for evaluating body dissatisfaction (Stunkard, Sorenson, & Schulsinger, 1983; Thompson & Gray, 1995). According to this method, individuals are asked to choose, between a series of silhouettes numbered from 1 to 7, the one that most closely matches their perceived current and ideal body sizes. The difference between individuals' current and ideal self-size rating constitutes an index of their level of body dissatisfaction (Thompson, 1992, 1995; Williamson, Gleaves, Watskin, & Schlundt, 1993; Williamson, Davis, Bennett, Goreczny, & Gleaves, 1989).

This simple way of conceptualizing body dissatisfaction is congruent with Control Theory of Carver and Scheier (CT; 1981, 1982). Simply stated, this theory suggests that people continually engage in a process of discrepancy evaluation in which the discrepancy is both an impetus for action and the basis of ongoing regulatory feedback. In other words, when people focus their attention on an aspect of their self (e.g., body image), it induces an evaluation process in which they compare their actual state with a salient reference value (standard). The comparison can yield to one of two outcomes: the two values being compared are identical or they are different. If no discrepancy is perceived between the two values, the output function, that is the behavior that results from the comparison, will remain the same. On the other hand, if one does find a discrepancy, then the output will change in order to reduce the discrepancy between the input and the reference value. The person will become motivated to act in order to reduce it. That is, they will exert control over their behavior, they will regulate it.

Although many human actions are performed as an attempt to create and maintain conformity to desired goal values, Carver and Scheier (1981, 1990, 1998, 1999, 2000) have argued that other actions are performed as an attempt to increase distance from comparison values

which might be thought of as anti-goal values (e.g., not being obese). Thus, the first type of actions is said to be regulated by a discrepancy-reducing feedback loop (e.g., be slim), whereas the second type of actions is said to be regulated by a discrepancy-enlarging feedback loop (e.g., not being obese).

Although Control Theory provides a good understanding of "how", as a function of feedback processes, one can efficaciously make progress and stay on track with their goal, we believe that this theory does not explain "why" in some cases, efficacious discrepancy-reduction can result in healthy modification of behaviors, whereas in others it may lead to pathological problems. The case of anorexic women is a good example for illustrating this point.

Anorexic girls feel very dissatisfied with their body image. Despite being severely underweight, they have a strong desire to lose weight. Consequently, they severely restrict their food intake and may even use extreme measures such as self-induced vomiting to reach their goal. Every calorie they consume is calculated and their actual weight is constantly compared with their ideal body weight (standard or goal). In one day, anorexic girls may successfully go through several comparisons in order to keep their weight within the boundaries they have set for themselves. Yet, although they may be efficacious in reducing the discrepancy between their ideal and actual body weight, the regulation of their eating behaviors leads them to experience negative psychological and physiological consequences. Thus, how can we explain that in some cases, the discrepancy reducing loop leads to negative consequences, while in others it does not?

In agreement with Ryan and Deci (1999), we believe that an understanding of such a phenomenon implies an examination of the *nature* of the regulatory process underlying the behavior, that is what is the source or the impetus that gives rise to the regulation of the behavior? In other words, does one perceive that the regulation emanates from the self or, alternatively, is the regulation brought about by forces or pressures external to the self? As we will see in the next section, Self-Determination Theory (SDT; Deci & Ryan, 1985, 1991), which takes a different theoretical approach to self-regulation, holds the potential to contribute significantly to the understanding of why in some cases self-regulation can lead to problems and in others not.

Self-Determination Theory

Contrary to Carver and Scheier's Control Theory (1998, 1999, 2000), Ryan and Deci (1999, 2000) have suggested that self-regulation is not a bidimensional goal-directed process where one's motivation is to reduce discrepancies between actual acts and desired acts (approach) or to increase distance between actual acts and undesired ones (avoidance). According to these authors, the approach/avoidance model of Carver and Scheier cannot precisely account for the phenomenon of self-regulation because an approach-oriented regulation can either be autonomous (e.g., I regulate my eating behaviors because I value being healthy) or controlled (e.g., I regulate my eating behaviors because I feel obliged to follow my physician's advice). In the same way, an avoidance-oriented regulation can be either autonomous (e.g., I regulate my eating behaviors because it is important for me to avoid diseases or death), or controlled (I follow my physician's advice to regulate my eating behaviors in order to decrease my chances of having high cholesterol).

Deci and Ryan (1985, 1991; Ryan & Connell, 1989; Ryan & Deci, 1999, 2000) have proposed that self-regulation can take many forms that correspond to qualitatively different behavioral regulatory styles. These regulatory styles vary in their implied level of autonomy and are associated with one of the three basic types of motivation: intrinsic motivation, extrinsic motivation, and amotivation.

Intrinsic Motivation

Intrinsic motivation represents the manifestation of one's innate tendency to seek challenge, discover novel things, and to master the environment in absence of material rewards or external constraints. It takes its origin from the innate psychological needs of competence and self-determination (Deci, 1975; Deci & Ryan, 1985). When intrinsically motivated, one embraces the activity with a sense of personal choice and commitment. The reason for performing the activity is the intense feelings of pleasure and satisfaction experienced while doing it. Thus, engaging in the activity becomes an end in itself.

Extrinsic Motivation

As opposed to intrinsic motivation, extrinsic motivation pertains to a variety of behaviors that are engaged in as a means to an end and not for their own sake (Deci, 1975). The activity is performed to prompt pleasant consequences or to avoid unpleasant ones. Individuals do not derive satisfaction from the process of doing the activity but rather, they derive satisfaction in the attainment of the outcome following completion of the activity. It was originally thought that extrinsic motivation exclusively referred to non self-determined behaviors, that is behaviors that could only be brought about by external contingencies (e.g., rewards), thus sources of control residing outside the person. However, Deci and Ryan, along with their colleagues (e.g., Ryan & Connell, 1989; Ryan, Connell, & Deci, 1985; Ryan, Connell, & Grolnick, 1990), have proposed that there are, in fact, different forms of extrinsic motivation that vary to the extent the regulation of behavior is perceived as constrained by external sources or as freely chosen by the individual. These forms of regulation can be ordered along a self-determined continuum. From lower to higher levels of self-determination, they are: external regulation, introjected regulation, identified regulation, and integrated regulation.

External regulation corresponds to behaviors that are governed by external sources of control originating from one's environment (e.g., reward or punishment). The motivation is extrinsic because the reason for participation lies outside the activity itself. Moreover, the regulation of behavior is not chosen (i.e., self-determined) because the individual feels controlled by external sources and feels pressured to behave in a certain way (Deci & Ryan, 1985).

With introjected regulation, the formerly external source of control has been internalized such that its actual presence is no longer needed to initiate behavior. Instead, the control stems from within the person in the form of self-imposed pressures such as guilt or anxiety (Ryan & Connell, 1989). At this level of internalization, even though one has "taken in" a value or a goal, one has not fully accepted it as one's own. The internalization is only partial in the sense that one is still "being regulated" rather than operating from an integrated sense of volition (Williams & Deci, 1996). The individual experiences a sense of pressure and conflict, a lack of integration with

the self. For these reasons, introjected regulation is defined as non self-determined and internally controlled.

In contrast, with identified regulation, external regulatory processes have been internalized into one's sense of self. The activity is valued and is perceived as being central to one's identity. One personally decides to do the activity because it is congruent with one's own values and goals. Although with identified regulation, the behavior is still performed for extrinsic reasons (e.g., to achieve personal goals), it is internally regulated and self-determined. In contrast to introjected regulation, in this case the activity has been accepted as one's own and it is perceived as beneficial and important. What is missing however, is consistency between the regulation of this activity and other regulatory processes that have previously been integrated to the self.

Finally, with integrated regulation the behavior is performed not only because an individual values its significance, but also because it is consistent with other self-schemas that one possesses. The instrumental behavior has been valorized to an extent such that it has become part of one's self-definition. It is consistent with previous integrated experiences and values in the person's self-system. Behaviors characterized by integrated regulation are still considered extrinsically motivated because they are done to attain separable outcomes rather than for their inherent satisfaction.

Amotivation

In addition to the two categories of motivation presented above (intrinsic motivation and extrinsic motivation), Deci & Ryan (1985) also proposed that it was necessary to consider a third category, amotivation, in order to fully understand the nature of human behaviors. Amotivation refers to a state where individuals fail to perceive contingencies between their actions and the outcomes of their actions. Thus amotivated individuals are not able to foresee the consequences of their behavior. They have a pervasive sense that their behaviors are caused by external forces beyond their control. They experience feelings of incompetence and a sense of lack of control (Deci & Ryan, 1985).

Self-Determination Continuum

According to Deci and Ryan (1985), the different regulatory styles presented above can be differentiated along a continuum of self-determination which goes from non self-determined regulatory styles (i.e., amotivation, external regulation, and introjected regulation) to self-determined ones (i.e., identification, integration, and intrinsic motivation).

Because intrinsic motivation underlies regulation of behaviors that are freely initiated and performed for the pleasure inherent to the behavior itself, it represents the highest level of self-determination of the continuum. Conversely, because amotivation involves feelings of incompetence and lack of control, it represents the least self-determined form (absence of self-determination). The various styles of regulation associated with extrinsic motivation are situated between these two ends of the continuum. Their position on the continuum is reflective of an internalization process where the regulation of behavior, which was initially reinforced by external sources (e.g., incentives or a significant other), is taken in to be governed by the self to eventually form a permanent part of the person's character. Thus, introjected regulation is said to be more self-determined than is external regulation because external pressures have been internalized in the form of personal feelings such as guilt and anxiety. In comparison with introjected regulation, identified regulation represents a higher level of self-determination because valuing the behavioral outcome is likely to alleviate pressure and foster free choice. Finally, integrated regulation is considered to be the highest level of self-determination because it represents a full assimilation of the behavior to the self such that there is coherence among the different regulatory processes. The internalization process is thought to take place because individuals are inherently motivated to integrate within themselves the regulation of activities that are useful to effective functioning in the social world even though they may not be inherently interesting (Deci, Eghari, Patrick, & Leone, 1994).

Over the last decades, the validity of the self-determination continuum has been supported in several studies in which the correlations between the motivational constructs (i.e., self-regulatory styles) forming the continuum yield a simplex pattern. The term simplex pattern is used

when the constructs forming a continuum assume a particular structure (Guttman, 1954). That is, each subscale should display positive correlations with adjacent form of regulation on the continuum. The magnitude of the correlations between a particular subscale and the others is expected to decrease progressively and, eventually, to grow negative as a function of the distance separating the subscales on the continuum. This simplex pattern has been identified in several life domains including education (Vallerand, Pelletier, Blais, Brière, Sénécal, & Vallière, 1993; Vallerand & Bissonnette, 1992), work (Blais, Brière, Lachance, Riddle, & Vallerand, 1993), leisure (Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996), sports (Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995); interpersonal relationships (Blais, Vallerand, Pelletier, & Brière, 1994), couple relationships (Blais, Sabourin, Boucher, & Vallerand, 1990), religious beliefs (O'Conner & Vallerand, 1990), pro-environmental action (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998), and sexuality (Séguin, Green-Demers, Chantal, Ladouceur, & Pelletier, 1997; Séguin, Green-Demers, & Pelletier, 1994).

Consequences of Self-Determination

Because the regulatory styles coexist on a continuum from high to low self-determination, and considering that higher self-determination is associated with beneficial consequences (Deci, 1980, Deci & Ryan, 1985), the associations between the regulatory styles and positive consequences should vary with the level of self-determination. Specifically, highly self-determined regulatory styles are expected to lead to positive consequences whereas low self-determined regulatory styles are expected to bring negative outcomes. Studies performed in a variety of life domains such as education (Deci, Vallerand, Pelletier, & Ryan, 1991), work (Blais, Lacombe, Vallerand, & Pelletier, 1990), interpersonal relationships (Blais et al., 1994), pro-environment action (Pelletier et al., 1998), health (Williams, Grow, Freedman, Ryan, & Deci, 1996), leisure (Pelletier et al., 1995) and sports (Vallerand, Deci, & Ryan, 1987) offer support for this proposition. In general, it was found that the more self-determined forms of regulation led to enhanced learning, greater interest, greater effort, better performance, higher self-esteem, increased

life satisfaction, persistence, and enhanced health whereas the less self-determined forms of regulation were negatively related to those outcomes.

Thus, in this study, one would expect that self-determined regulatory styles would be associated with healthy eating behaviors whereas non self-determined regulatory styles would be associated with dysfunctional eating behaviors (i.e., bulimic symptomatology). Also, because several studies have shown that negative mood states, most notably depression, low self-esteem, and anxiety were associated with bulimic symptomatology (e.g., Hudson, Pope, Jonas, Yurgelun-Todd, & Frankenburgh, 1987; Laessle, Wittchen, Fitcher, & Pike, 1989; Shisslack, Pazda, & Crago, 1990), it is expected that dysfunctional eating behaviors would be associated negatively with psychological adjustment, whereas healthy eating behaviors would be associated positively with this same construct.

For instance, according to Self-Determination Theory, if a woman regulates her eating behaviors because eating healthily is an integral part of her lifestyle, she should experience more positive consequences than a woman who regulates her eating behaviors because her partner insists that she does. Support for this idea was found in one of our previous studies (Dion & Pelletier, 2000b). In that study, we examined the relationships between two global forms of regulation (autonomous and controlled) of eating behaviors and two types of eating behaviors (healthy and dysfunctional). Structural equation analyses revealed that an autonomous form of regulation (i.e., self-determined regulatory styles) of eating behaviors was associated positively with healthy eating behaviors, whereas a controlled form of regulation (i.e., non self-determined regulatory styles) of eating behaviors was positively associated with dysfunctional eating behaviors.

But what determines which regulatory styles will be adopted by women? In other words, if two women experience similar degrees of body dissatisfaction, how can we explain that one regulates her eating behaviors in a self-determined way whereas the other displays a non self-determined regulatory style towards her eating behaviors? In the next section, we will examine possible determinants of the eating regulatory styles.

Global Self-Determination as a Determinant of the Regulatory Styles of Eating Behaviors

Recently, Vallerand (1997) proposed a hierarchical model of motivation that provides a theoretical framework for organizing and understanding the basic mechanisms underlying motivation. According to this model, motivation exists at three levels of generality in the individual. These levels are: global (or personality), life context (or domain), and situational (or state). For each level, various determinants (interpersonal and intrapersonal factors) and consequences (affective, cognitive, and behavior) of motivation have been identified. For the purpose of the present paper, only intrapersonal determinants of motivation will be discussed.

Intrapersonal determinants refer to characteristics defining individuals. According to the hierarchical model of motivation, it is proposed that these determinants have a top-down effect from motivation at the next higher level of motivation to the next lower level in the hierarchy. That is, global motivation can be channeled toward more specific life domains (contextual level) and contextual motivation can be channeled to situational motivation (situational level). For instance, a study by Williams and colleagues (1996) specifically assessed the impact of global motivation of severely or morbidly obese patients on their contextual motivation to participate in a medically supervised weight-loss program and to adhere to the regimen. Results from a path analysis revealed that global self-determined motivation at Time 1 predicted contextual self-determined motivation toward the treatment at Time 2. In other words, the more patients' global motivation was self-determined, the more their contextual motivation to engage in the treatment program was also self-determined. Several studies have also supported the impact of contextual motivation on situational motivation. Those studies were conducted in different domains such as education (e.g., Chantal, Guay, & Vallerand, 1995), sport (e.g., Blanchard, Vallerand, & Provencher, 1995), leisure (Chantal et al., 1995), and interpersonal relationships (e.g., Blais et al., 1994).

In agreement with Vallerand's hierarchical model of motivation to the domain of eating behaviors, one would expect that women with a global self-determined motivational orientation should display volition and self-determination for the regulation of their eating behaviors. For them, regulation of eating behaviors should reflect a personal decision and not be the result of

imposed pressure from themselves, their partner or society in general. Conversely, women with a global non self-determined motivational orientation should feel pressured and coerced by intrapsychic and/or environmental forces to regulate their eating behaviors. Regulation should not represent true choice.

In sum, according to Vallerand's hierarchical model, when people are self-determined towards the different aspects of their life, they initiate regulatory processes that are qualitatively different than those who display a global non self-determined motivational orientation. Thus, although body dissatisfaction is very prevalent in our society, not all women adopt the same regulatory style towards their eating behaviors. A globally self-determined motivational orientation in life may play an important role in the adoption of a particular eating regulatory style.

Can Global Self-Determination Reduce Sociocultural Influences About Body Image

According to Deci and Ryan (1985, 1991), when people are globally self-determined in their life, they display a general tendency to initiate and regulate their behaviors through choice and to act in accordance with their own values. Because regulation through choice is characterized by flexibility instead of rigidity, when exposed to environmental information (e.g., messages about thinness), these people do not feel that they have to submit to this information. Rather, the information is processed in light of their own needs and previous integrated experiences with the idea of choosing the best course of action that can lead them to attain their own selected goals. If inconsistent with previous integrated experience or values, the information will simply be disregarded.

Thus, in agreement with Deci and Ryan's Self-Determination Theory, it is hypothesized that the more globally self-determined women are, the less they should *perceive* sociocultural pressures about body image and the less they should *endorse* society's beliefs about thinness and obesity. These hypotheses have already been supported in one of our previous studies (Dion & Pelletier, 2000b). It will be interesting to see if the results can be replicated with the present sample.

Overview of the Present Study

As mentioned earlier, the purpose of this study is to propose and test an integrative model of the regulation of eating behaviors that could better explain why for some women, body dissatisfaction is associated with dysfunctional eating behaviors and for others it can be associated with healthy eating behaviors. As an attempt to answer this question, two motivational mechanisms (autonomous and controlled regulations) are proposed between body dissatisfaction and eating behaviors (healthy and dysfunctional). Finally, global self-determination, an intrapersonal variable, is also included in the model.

The hypotheses for the model proposed in Figure 1 are the following: First, it is hypothesized that global self-determination will be associated negatively with both sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity. Second, it is hypothesized that sociocultural pressures will be associated positively with endorsement of society's beliefs about thinness and obesity which in turn, will be associated positively with body dissatisfaction. Third, it is hypothesized that body dissatisfaction will be associated positively with both, an autonomous and a controlled form of regulation of eating behaviors. Fourth, it is hypothesized that an autonomous form of regulation will be associated positively with healthy eating whereas a controlled form of regulation will be associated positively with dysfunctional eating behaviors. Fifth, it is hypothesized that global self-determination will have a direct effect on the two global forms of regulation of eating behaviors. More specifically, global self-determination will have a positive effect on autonomous regulation and a negative effect on controlled regulation. Sixth, it is hypothesized that an autonomous regulation of eating behaviors will be associated positively with healthy eating behaviors and associated negatively with bulimic symptomatology. Conversely, it is hypothesized that controlled regulation of eating behaviors will be associated positively with bulimic symptomatology and associated negatively with healthy eating behaviors. Finally, it is hypothesized that autonomous regulation of eating behaviors will be associated positively with psychological adjustment whereas controlled regulation of eating behaviors will be associated negatively with this same construct.

Method

Participants and Procedures

Data were collected from 450 female² students enrolled in different undergraduate (78.2%) and graduate (20%) programs at the University of Ottawa. Approximately 2% of the sample did not report their level of education. Three questionnaires with missing data were eliminated from the analyses. The final sample was comprised of 447 women. The participants' age ranged from 16 to 54 years, ($M=22.5$ years). Participants' income was distributed as follows: 47.9% (less than 12 000\$), 8.5% (12 000\$ to 19 999\$), 8.9% (between 20 000\$ and 39 999\$), 1.6% (between 40 000\$ and 59 999\$). About 33% of the participants did not report their income. With the permission of professors, some women completed the questionnaire at the beginning of a class whereas others completed the questionnaire at home and returned it for the next class in a sealed envelop. Participants received the information that researchers were interested in better understanding women's habits regarding regulation of their eating behaviors and their perception of themselves. Women were informed that their participation was voluntary and anonymous. Finally, researchers ensured that data would remain confidential.

Instruments

The Global Motivation Scale (GMS; Haddad, 1999)

The GMS assesses the reasons why people generally perform the different activities of their lives. The 32 items (4 items/subscales) are divided into 8 subscales which represent the six subtypes of motivation defined by Deci and Ryan (1985): intrinsic motivation (IM), integrated regulation (INTEG), identified regulation (IDEN), introjected regulation (INTRO), external regulation (ER), and amotivation (AMO). There are eight subscales and six regulatory styles because three of the subscales are devoted to the measurement of intrinsic motivation. The intrinsic motivation subscales of the GMS are: intrinsic motivation towards accomplishment (IMA), intrinsic motivation to know (IMK), and intrinsic motivation to experience sensations (IMS). Each of these intrinsic motivation subscales is comprised of four items each. The intrinsic motivation subtype consists of the summation of those three subscales. The six motivational subtypes fall on

a continuum of self-determination and from highest to lowest levels of self-determination are: intrinsic motivation (e.g., in order to feel pleasant emotions; $\alpha=.89$); integrated regulation (e.g., because they reflect what I value most in life; $\alpha=.92$); identified regulation (e.g., in order to help me become the person I aim to be; $\alpha=.83$); introjected regulation (e.g., because I would beat myself up for not doing them; $\alpha=.82$); external regulation (e.g., in order to show others what I am capable of; $\alpha=.83$); and amotivation (e.g., although I do not see the benefit in what I am doing; $\alpha=.77$). Participants are asked to indicate on a 7-point Likert scale ranging from 1 (“Does Not Correspond at All”) to 7 (“Corresponds Exactly”) the extent to which each item corresponds to their own motives for performing different activities.

In light of the high numbers of variables in the model, we decided to reduce the number of latent variables assessing motivation at the *personality* level to only one. This variable, global self-determination, was measured by four separate composite scales reflecting self-determined motivation indices. A self-determined motivation index consists of a summation of specifically weighted scores and is used to integrate the information from the different motivational subscales under one score. Ryan and Connell (1989) reported extensive support for the validity and reliability of such a composite index (see also Blais et al., 1990; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991). In line with previous studies, weights were assigned to each subscale as a function of their position on the self-determination continuum. Thus, intrinsic motivation, integrated regulation, and identified regulation, because they are considered self-determined forms of motivation, were assigned the weights of +3, +2, +1, respectively. On the other hand, amotivation, external regulation, and introjected regulation, because they are conceptualized as non self-determined forms of motivation, were assigned the following respective weights: -3, -2, -1. It should be noted that all three types of intrinsic motivation were given the same weight (+3), and the total for the three types of intrinsic motivation is divided by three to make it comparable to that of the other scales. Thus, the following equation was used: $SDI=3(IM)+2(INTEG)+(IDEN)-(INTRO)-2(ER)-3(AMO)$. As there were four items for each of the motivational subscales, we computed four indices using individual motivational items. The

four indices (GSD1, GSD2, GSD3, GSD4) correspond to the four indicators of the latent construct global self-determination. Haddad (1999) reported that the GSM displays a good factorial structure and good psychometric properties. Cronbach alpha for the current sample was .92.

Sociocultural Pressures About Body Image

In the present study, sociocultural pressures about body image represent a latent variable comprised of five indicators: sociocultural pressures from one's family, one's friends, one's partner, and media to have a thin body, and history of being teased about body image.

Perceived sociocultural pressures for a thin body (Stice et al., 1996b). This scale is comprised of four subscales (2 items/subscale) which represent four different sources of pressure. The 8 items describe the amount of pressure perceived from family, friends, dating partner, and the media to have a thin body. An example of item is: "I've perceived a strong message from my family to have a thin body". Participants are asked to rate, on a 5-point Likert scale ranging from ("1=Do not agree at all") to ("5=Strongly agree") the extent to which they agree with the different items. In another study, Stice and colleagues (1996a) reported a Cronbach alpha of .87 for the scale and a test-retest reliability of .93 over 2-weeks. Also, research with similar measures revealed a good correlation ($r=.51$) between child reports of perceived parental pressure to lose weight and parental self-reports of pressure (Thelen & Cormier, 1995). For the current sample, internal consistency was .84 for the family subscale, .73 for the friends subscale, .85 for the partner subscale, and .77 for the media subscale. Internal consistency for the full scale was .85.

History of being teased about physical appearance (Boyer, 1991). This scale is comprised of 2 subscales (3 items/subscale) assessing recollections of a variety of body teasing experiences. Items were adapted from the Teasing Assessment Scale of Thompson (1990). One of the two subscales refers directly to the experience of having been teased during childhood/ adolescence. An example of item for this subscale is: "When you were a child, or an adolescent, were you the brunt of family jokes because of your weight?" The other subscale refers to the subjective evaluation of the body image during childhood/adolescence. For the present study, only the first

subscale was considered because the latter subscale was not specific enough to teasing experience as an external source of pressure. Participants are asked to rate, on a 6-point Likert scale ranging from (“1=Never”) to (“6=Always”), the extent to which the items reflect their past teasing experience as a child or adolescent. Thus, the total score of the scale (3 items) can vary between 3 and 18, with a higher score indicating recollections of more frequent body teasing experiences. Previous research has shown Cronbach alpha of .75 for the full scale and a test-retest reliability of .87 after one month. Also, the scale has shown good discriminant validity between bulimic and non-bulimic females (Boyer, 1991). Cronbach alpha for the current study was .84 for the teasing experience subscale.

Endorsement of Society’s Beliefs About Thinness and Obesity (Boyer, 1991)

This scale assesses the extent to which an individual endorses society’s beliefs about thinness and obesity. The scale is comprised of two subscales (4 items/subscale). One of the subscales refers to beliefs about thinness whereas the other refers to beliefs about obesity. An example of an item for each subscale is: “Thin people are well liked” and “Fat people don’t have any self-control”. Participants are asked to rate, on a 7-point Likert scale ranging from (“1=Do not agree at all”) to (“7=Strongly agree”), the extent to which they agree with the different items. The scale has been shown to have Cronbach alphas of .80 for the beliefs about thinness and of .81 for the beliefs about obesity. Test-retest reliability after one month was .83 and .77 for the thinness and obesity subscales respectively. Also, the scale has shown to discriminate bulimic from non-bulimic women (Boyer, 1991). Internal consistency for the current sample was .82 and .80 for the thinness and obesity subscales respectively.

Eating Disorder Inventory-2 (EDI-2) - Body Dissatisfaction Subscale (EDI-BD; Garner, 1991)

This scale is comprised of 9 items which assess the level of dissatisfaction with several body areas. The EDI-2 is the most commonly used instrument for measuring body dissatisfaction. Participants are asked to rate, on a 6-point Likert scale ranging from (“1=Never”) to (“6=Always”), the extent to which they agree with the different items that describe body parts. An example of item is: “Do you think your stomach is too big?” The total score of the scale (9 items) can vary

between 9 and 54 with a higher score indicating higher levels of body dissatisfaction. The original version of the EDI revealed a coefficient of internal consistency of .90 for the Body Dissatisfaction Subscale (Garner & Olmstead, 1984). Several authors have also documented good test-retest reliability after one week ($r=.97$; Welch, 1988), after three weeks ($r=.97$; Wear & Pratz, 1987) and after one year ($r=.75$; Crowther, Lilly, Crawford, Shepherd, & Olivier, 1990). Finally, the subscale has shown good convergent and discriminant validity (see Garner, 1991). Internal consistency for the current sample was .92.

The Regulation of Eating Behaviors Scale (REBS; Dion & Pelletier, 2000b)

The REBS assesses different reasons people have for regulating their eating behaviors. The scale is comprised of 28 items (4 items/subscales) which are divided into 6 subscales that represent the six regulatory styles defined by Deci and Ryan (1985): intrinsic motivation (IM), integrated regulation (INTEG), identified regulation (IDEN), introjected regulation (INTRO), external regulation (ER), and amotivation (AMO). These regulatory styles fall on a continuum of self-determination, and from highest to lowest levels are: intrinsic motivation (e.g., *Because it's fun to create meals that are good for my health*; $\alpha=.93$); integrated regulation (e.g., *Because eating healthy is congruent with other important aspects of myself*; $\alpha=.84$); identified regulation (e.g., *Because I believe it's a good thing I can do to feel better about myself in general*; $\alpha=.78$); introjected regulation (e.g., *Because I would be humiliated if people thought I wasn't in control of my eating behaviors*; $\alpha=.85$); external regulation (e.g., *Because other people insist that I do*; $\alpha=.78$); and amotivation (e.g., *I don't know. I can't see how my efforts to eat healthy are helping my health situation*; $\alpha=.83$). Participants are asked to indicate on a 7-point Likert scale ranging from 1 ("Does Not Correspond at All") to 7 ("Corresponds Exactly") the extent to which each item corresponds to their own motives for regulating their eating behaviors. Past research (Dion & Pelletier, 2000b) have shown that the REBS displays a good factorial structure and good psychometric properties. For example, results of an exploratory factor analysis (EFA) conducted on 354 women revealed a six-factor structure for the REBS that is, six subscales corresponding to the six different styles of regulation identified by Deci and Ryan. Cronbach's alphas for the

different subscales ranged between .79 and .91. Results of a confirmatory factor analysis conducted on an independent sample of 350 women corroborated the six-factor structure found in the EFA and revealed Cronbach's alphas ranged between .70 and .90.

In the present study, the intrinsic motivation subscale and the integrated and identified regulation subscales were grouped to form a global score of autonomous regulation. Similarly, the introjected and external regulation subscales as well as the amotivation subscale were grouped to form a global score of controlled regulation. The use of such global scores is often favoured by researchers who hypothesize that the different self-determined regulatory styles should be associated with consequences (e.g., healthy eating behaviors), whereas the different non self-determined regulatory styles should be associated to negative consequences (e.g., bulimic symptomatology). For example, in a previous study (Dion & Pelletier, 2000b), two global scores of regulation of eating behaviors (autonomous and controlled regulations) were found to successfully predict two different types of eating behaviors (healthy vs. dysfunctional). Autonomous regulation was positively associated with healthy eating behaviors whereas controlled regulation was positively associated with dysfunctional eating behaviors. Finally, the use of two global scores as opposed to six for each subscale is also useful when researchers are interested in testing a parsimonious model (Elliot & Sheldon, 1998; Sheldon & Elliot, 1998).

Healthy Eating Habits Scale

This scale developed by Dion and Pelletier (2000b) is comprised of 8 items which represent two types of foods recommended by the Canada Food Guide. One of the types of foods refers to "healthy foods" whereas the other refers to "foods that should be eaten with moderation". An example of item for the healthy foods subscale is: "I eat a variety of foods from each of the four groups recommended by the Canada Food Guide". An example of item for the foods eaten in moderation subscale is: "I eat foods such as chips, chocolate, and candies". Participants are asked to indicate on a 5-point Likert scale ranging from 1 (Not at all) to 5 (All the time) the frequency of their consumption of each type of food. The four items of the subscale "foods eaten in moderation" are recoded such that a high score indicates a low frequency of consumption of the

food item whereas a low score indicates a high frequency of consumption of the food item. Previous research has shown that the scale displays an acceptable factor structure. Confirmatory Factor Analysis revealed an adequate fit, $\chi^2(19, N=339)=50.85$ $p<.001$, CFI=.93, IFI=.94, RMSEA=.07, and PCFI=.60³. All estimated parameters were significant and of acceptable magnitude. More specifically, factor loadings for the subscale "healthy foods" ranged between .36 to .77, whereas the factor loadings for the subscale "foods that should be eaten with moderation" ranged between .32 and .79. Internal consistency for the present sample is acceptable, namely .64⁴ for the "healthy foods" subscale and .61⁴ for the "foods eaten in moderation" subscale. Moreover, two independent samples revealed internal consistencies of .69 and .74 for the "healthy foods" subscale, as well as .66 and .69 for the "foods eaten in moderation" subscale.

Bulimic Symptomatology (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991)

The BULIT-R, a widely used and psychometrically sound measure, was used to assess bulimic symptomatology in accordance with the DSM-III-R criteria. This instrument is comprised of 28 items (34 items in total with 8 filler⁵ items unscored) and is useful to identify individuals who are most likely to be diagnosed as bulimic on the basis of an interview. Prior research has shown that this self-report scale is a valid indicator of bulimia nervosa in both clinical and nonclinical populations. Participants are asked to choose between five answers (1 to 5) the one that applies best to them. The number circled for each item can be summed in order to obtain a total score. The total score (28 items) can vary between 28 and 140. Thelen and colleagues (1991) have suggested that a total score above 104 is possibly indicative of putative⁵ bulimia nervosa. An example of item is: "I am afraid to eat anything for fear that I won't be able to stop". The scale has shown to have high internal consistency ($\alpha=.97$), to discriminate well individuals with bulimia nervosa from non eating disordered individuals, and to correlate with other measures of eating pathology. Also, good test-retest reliability ($r=.95$) has been documented (Thelen et al., 1991). Internal consistency for the current sample was .94. For the purpose of the present study, the 28 items were divided to form three indicators. The first and second indicators comprised of 9 items each, whereas the third one comprised of the last 10 items.

Psychological Adjustment

A psychological adjustment index (PAI) that consists of different variables (depressive symptomatology, self-esteem, and life satisfaction) associated with psychological adjustment and mental health was used in this study.

Center for Epidemiological Studies - Depressed Mood Scale (CES-D; Radloff, 1977). This scale is comprised of 20 items that was originally designed to measure depressive symptomatology in the general population. However, the scale has also been useful in clinical and psychiatric settings. This scale is not intended as a clinical diagnostic tool. The items of the scale represent symptoms associated with depression. It has been shown to have high internal consistency (i.e., .85 for the general population and .90 for the patient sample), acceptable test-retest reliability, and excellent concurrent validity correlating significantly with a number of depression and mood scales. The scale has also been found to discriminate well between psychiatric inpatients and the general population and moderately among levels of severity within patients groups. It also been found to reflect improvements after psychiatric treatment. Finally, the scale has been shown to be a valuable tool to identify groups at high-risk of depression and to study the relationships between symptoms and many other variables. Participants are asked to indicate on a 4-point Likert scale, the frequency of their symptoms (0=Rarely or none of the time; 3=Most or all of the time). An example of item is: "I feel down-hearted, blue and sad". The total score (20 items) can vary between 0 and 60, with a higher score indicating a high frequency of depressive symptoms. Internal consistency for the current sample is .92.

Self-Esteem Scale (SES; Rosenberg, 1965). This unidimensional self-esteem measure is comprised of 10 items. Its reliability and validity are well established. The convergent and discriminant validity of the SES have been documented by a considerable number of studies. In terms of reliability, the SES has revealed satisfying internal consistency and temporal stability. A test-retest of two weeks and 7 months revealed coefficients of .85 and .73 respectively. Participants are asked to indicate on a 5-point Likert scale ranging from 1 ("Do Not Agree at All") to 5 ("Strongly Agree") the extent to which they agree with each item. An example of item is: "I

feel I have a number of qualities". For parsimonious reasons, only five items were kept from the original scale. In this study, the total score (5 items) can vary between 5 and 25, with a higher score indicating higher self-esteem. Internal consistency for the sample of this study is .83.

Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). This scale is comprised of 5 items assessing participants' global perception of their satisfaction with life. Participants are asked to rate, on a 5-point Likert scale 1 ("Do Not Agree") to 5 ("Strongly agree"), to which extent they agree with the different items. An example of item is: The conditions of my life are excellent". The total score (5 items) can vary between 5 and 25, with a higher score indicating higher satisfaction with life. The SWLS has shown to have good internal consistency ($\alpha=.87$) and good test-retest reliability (.82 over 2 months). A correlation coefficient of .68 with interview ratings of global satisfaction has also been found. Finally, the SWLS showed moderately strong correlations with subjective well-being scales (Diener et al., 1985). More recently, the SWLS has demonstrated its validity among Korean (Suh, 1994), mainland Chinese (Shao, 1993), and Russian (Balatsky & Diener, 1993) samples. It has been shown to correlate well with satisfaction with self, family, friends, and finances (Diener & Diener, 1995). Readers can find other information about psychometric properties of the SWLS in Pavot and Diener's article (1993). Internal consistency for the present sample is .91.

Results

Before proceeding with the main analysis of the study (structural equation modeling procedures), preliminary analyses were performed in order to assess departures from a certain number of basic assumptions such as normality, linearity, homoscedasticity, absence of multicollinearity and singularity. The main goal of these preliminary analyses was to assess whether these assumptions held for the sample under study. Values of kurtosis and skewness were first examined. With the exception of three indicators (i.e, external regulation, amotivation, and bulimic symptomatology), all other indicators of the structural equation model to be tested had kurtosis and skewness values below |2|. Values of kurtosis, skewness, means and standard deviations for each indicators of the model are presented in Table 1.

Insert Table 1 about here

Data transformations⁶ were used to correct the variables that had elevated scores of skewness and/or kurtosis. After transformations, values of kurtosis ranged between -1.18 and .74 whereas values of skewness ranged between -.88 and 1.32. These values provided no reason to suspect that the distribution of the variables departed significantly from normality. The univariate distribution was deemed acceptable. Also, from a multivariate point of view, the distribution of standardized residuals appeared approximately normal. Inspection of the means and standard deviations for each indicators of the structural equation model to be tested suggested their values to be in plausible and within theoretical expected range.

Potential departures from linearity were screened for by examining a random selection of bivariate scatterplots. The bivariate distributions revealed acceptable linear configurations for the different variables including those that had been transformed. Bivariate scatterplots were also inspected to identify uneven distributions of the variance between pairs of variables. Scatterplots displayed no evidence of heteroscedasticity. The standardized scores for all indicators of the model were screened to identify univariate outliers. Eight cases (1.8%) revealed standardized scores greater than |3.29|. This number was deemed acceptable since it was less than 5%. As for multivariate outliers, $\chi^2(df=28) \chi^2 > 56.89, p < .001$, 5 cases were identified and subsequently removed from the analyses. No multicollinearity or singularity was present in the sample since all correlations were below .85 (Tabachnick & Fidell, 1996). The final sample comprised of 442 participants.

Sample Characteristics

Descriptive analyses were conducted on different variables included in the present study to identify the main characteristics of the sample. The sample's level of self-determination is positive and of moderate magnitude ($M=12.49$, $SD=8.22$), considering that the theoretical range (TR) is

-36.00 to 36.00. Although participants rarely reported recollections of having been teased in their past ($M=7.06$, $SD=3.91$, $TR=3/18$), they reported perceiving significant pressures from the media to have a thin body ($M=7.46$, $SD=2.44$, $TR=2/10$). Their level of endorsement of society's beliefs about thinness is moderate ($M=14.96$, $SD=5.79$, $TR=4/28$), whereas their level of endorsement of society's beliefs about obesity is lower ($M=11.87$, $SD=4.83$, $TR=4/28$). Their level of self-determination for regulating their eating behaviors is positive and of moderate magnitude ($M=14.33$, $SD=9.72$), considering that the theoretical range is -36.00 to 36.00. Participants reported feeling often dissatisfied about their body image ($M=32.90$, $SD=10.91$, $TR=9/54$). In terms of psychological adjustment, participants generally present with good self-esteem ($M=19.79$, $SD=3.80$, $TR=5/25$), good life satisfaction ($M=17.41$, $SD=4.75$, $TR=5/25$), and few symptoms of depression ($M=14.52$, $SD=10.34$, $TR=0/60$), only experienced little of the time during the previous week of the completion of the questionnaire. The average Body Mass Index (BMI; Kg/m²) for the sample is 22.4⁷ ($SD=4.3$), which is considered about the middle of the healthy range. Using the BULIT-R⁸ cut-off provided by Thelen et al., 1991), 1.6% of the women would be classified as putative bulimics.

Means comparisons between women presenting the highest levels of bulimic symptomatology and women presenting the lowest levels of bulimic symptomatology were performed on the different variables to be included in the structural equation model. Considering the low percentage of putative bulimics in the sample (i.e., women who would likely meet diagnostic criteria of bulimia nervosa if a clinical interview was to be conducted), only participants with scores in the tenth percent lower and higher limits of the BULIT-R were used for the means comparisons. These limits were chosen in order to isolate as best as possible women with no or very few symptoms of bulimia from those having many symptoms of bulimia. This led to a total of 38 participants in the group of women with high bulimic symptomatology and 45 women in the group with low bulimic symptomatology. Results are presented in Table 2.

Insert Table 2 about here

Although analyses were performed on the transformed variables, for easier reading, only the non transformed scores are reported in Table 2. Results show that women who reported high bulimic symptomatology are significantly less self-determined towards the different activities of their lives than women who reported low bulimic symptomatology . Also, women with high bulimic symptoms reported perceiving more sociocultural pressures about body image, endorsing to a greater level society's beliefs about thinness and obesity, feeling more dissatisfied with their bodies, and regulating their eating behaviors for more non self-determined reasons than women with few bulimic symptoms. Finally, women with high bulimic symptomatology reported lower psychological adjustment (more symptoms of depression, lower self-esteem and lower life satisfaction) than did women with low bulimic symptomatology.

Test of the Structural Equation Model

Basic assumptions being satisfied, test of the hypothesized model was performed using structural equation modeling (SEM) by the means of LISREL 8.30 (Jöreskog & Sörbom, 1996). Analyses were based on the covariance matrix using Maximum Likelihood estimation (Bollen, 1989). The model comprised nine factors, one independent factor representing global self-determination, and eight dependent factors representing sociocultural pressures about body image, endorsement of society's beliefs about thinness and obesity, body dissatisfaction, autonomous regulation and controlled regulation of eating behaviors, healthy eating habits, dysfunctional eating behaviors, and psychological adjustment. For identification purposes, the loading between the first indicator and its latent construct was fixed to 1.0.

In light of the current debate regarding the assessment of model fit covariance structure analyses, multiple statistical and practical fit indices were used to evaluate the adequacy of the proposed model. They were: the Likelihood chi-square ratio, the Comparative Fit Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI; Bollen, 1989), the Root Mean Square Error of

Approximation (RMSEA; Steiger & Lind, 1980), and the Parsimony Comparative Fit Index (PCFI; Byrne, 1994). When model fit is adequate, the chi-square likelihood ratio (χ^2) is expected to be nonsignificant. However, because the chi-square is notoriously oversensitive to sample size (Byrne, 1989), we also used the indices mentioned above. Values equal or above .90 for CFI and IFI are generally indicative of a good fit. For the RMSEA, values equal or under .08 represent reasonable errors of approximation in the population. As for PCFI, when goodness-of-fit indices are in the range of .90, it is not unexpected to have a parsimonious-fit index in the range of .50 (Mulaik et al., 1989).

Analyses suggested that, although the initial model displayed a somewhat low fit ($\chi^2(336, N=442)=1143.91, p<.001$; RMSEA=.08; CFI=.89; IFI=.89; PCFI=.79), reestimation of the model after respecifications of some parameters led to an adequate fit. More specifically, examination of the modification indices revealed that two correlations between the error uniqueness values of two indicators of the same latent construct could possibly contribute to an improvement of model fit and was theoretically sound. Post hoc analyses were conducted by first estimating the correlation between the error uniqueness values of two indicators of the body dissatisfaction construct ($\theta_{\epsilon(10,9)}=32.62$). Estimation of the correlation led to a significant drop in the chi-square ($\Delta\chi^2=25.22, p<.001$), as well as a decrease from .08 to .07 in the RMSEA fit index. Finally, estimation of a second correlation between the error uniqueness values of two indicators of the controlled regulation construct ($\theta_{\epsilon(16,15)}=22.23$) led to a significant drop in the chi-square ($\Delta\chi^2=22.84, p<.001$) and satisfactory values for all of the other fit indices ($\chi^2(334, N=442)=1095.85, p<.001$; RMSEA=.07; CFI=.90; IFI=.90; PCFI=.80). This model constituted the chosen model. Table 3 presents the statistics of fit indices for the different models that were obtained following post-hoc analyses. It is important to recognize that although the post hoc analyses were theoretically sound, they remain exploratory in nature because they reflect the detection of misfitting parameters in the originally hypothesized model (Byrne, 1998).

Insert Table 3 about here

All structural regression paths of the model were significant and of acceptable magnitude. For instance, as hypothesized, global self-determination was associated positively with an autonomous form of regulation of eating behaviors ($\gamma=.51$) and associated negatively with a controlled form of regulation of eating behaviors ($\gamma=-.26$). Moreover, global self-determination was negatively associated with both sociocultural pressures about body image ($\gamma=-.32$) and endorsement of society's beliefs about thinness and obesity ($\gamma=-.24$). Sociocultural pressures about body image was positively associated with endorsement of society's beliefs about thinness and obesity ($\beta=.70$), which in turn was associated positively with body dissatisfaction ($\beta=.76$). Considering the above results, there was a possibility that global self-determination could moderate the relationship between sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity. However, because we cannot test for interaction with causal modeling, regression analyses were performed to examine the possible interaction. Analyses revealed no significant interaction suggesting that global self-determination does not constitute a moderator of the relationship between sociocultural pressures and endorsement of society's beliefs. The two forms of regulation of eating behaviors (autonomous and controlled) were found to be good motivational mechanisms to explain the relationship between body dissatisfaction and eating behaviors. More specifically, body dissatisfaction was found to be associated positively with autonomous and controlled regulations ($\beta=.14$). However, the strength of the relationship between body dissatisfaction and controlled regulation was more important ($\beta=.74$). An autonomous regulation was associated positively with healthy eating behaviors ($\beta=.82$) and associated negatively with dysfunctional eating behaviors ($\beta=-.09$). A reverse pattern was found for controlled regulation. That is, a controlled regulation was associated positively with dysfunctional eating behaviors ($\beta=.84$) and associated negatively with healthy eating behaviors

($\beta = -.14$). Finally, healthy eating behaviors were associated positively with psychological adjustment ($\beta = .25$), whereas dysfunctional eating behaviors were associated negatively with this same construct ($\beta = -.58$). These results are shown in Figure 2.

Insert Figure 2 about here

In terms of percentage of variance explained in each dependent variable, global self-determination explained 10% of the variance of sociocultural pressures about body image. Together global self-determination and sociocultural pressures about body image explained 76% of the variance of endorsement of society's beliefs about thinness and obesity. Endorsement of society's beliefs about thinness and obesity explained 57% in body dissatisfaction. Together body dissatisfaction and global self-determination explained 33% of the variance of autonomous regulation eating behaviors whereas these same variables explained 76% of the variance of controlled regulation for eating behaviors. Together autonomous and controlled regulation explained 73% of the variance in healthy eating habits, whereas 75% of the variance of bulimic symptomatology was explained by autonomous and controlled regulation. Finally, together healthy eating habits and bulimic symptomatology explained 49% of the variance of psychological adjustment.

Discussion

The purpose of the present study was to propose and test an integrative model of the regulation of eating behaviors that could help us better understand why for some women, body dissatisfaction is associated with dysfunctional eating behaviors, whereas for others it may be associated with healthy eating behaviors.

Based on Deci and Ryan's (1985, 1991) Self-Determination Theory, we tested a model in which motivational mechanisms (i.e., autonomous and controlled regulation of eating behaviors) were proposed to clarify the nature of the relationships between body dissatisfaction and two types of eating behaviors (healthy versus dysfunctional). In addition to these mechanisms, the model

incorporated determinants of body dissatisfaction (i.e., sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity), as well as indicators of psychological adjustment as consequences of eating behaviors (i.e., self-esteem, life satisfaction, and absence of depressive symptomatology). Finally, global self-determination was included as a determinant of the two forms of regulation of eating behaviors, sociocultural pressures about body image and endorsement of society's beliefs about thinness and obesity.

Structural equation modeling analyses supported all hypotheses of the model. For purposes of clarity, results are discussed by dividing the model into three sections. First, we will discuss the determinants of body dissatisfaction and the impact of global self-determination on these determinants. Second, we will examine the motivational mechanisms responsible for the relationship between body dissatisfaction and eating behaviors, as well as the influence of global self-determination on these mechanisms. Third, we will discuss the consequences of the two global forms of regulation on eating behaviors as well as the impact of eating behaviors on psychological adjustment.

Determinants of Body Dissatisfaction and Global Self-Determination

Structural equation analyses provided support for the proposed determinants of body dissatisfaction tested. As was found in one of our recent studies (Dion & Pelletier, 2000a), the more women perceived sociocultural pressures about body image, the more they endorsed society's beliefs about thinness and obesity. Greater endorsement of these beliefs was associated with greater body dissatisfaction. These findings are also in line with other studies (e.g., Stice et al., 1996a, 1998; Twamley & Davis, 1999) that have examined the influence of sociocultural factors about the thin-ideal on body dissatisfaction.

Analyses also suggested that the more self-determined women are towards the different activities of their lives, the less they perceive sociocultural pressures about body image, and the less they endorse society's beliefs about thinness and obesity. These findings are consistent with Self-Determination Theory which predicts that people who are globally self-determined in their lives are motivated to act in accordance with their own integrated values rather than in response to

controlling forces external to the self. Hence, it seems plausible to believe that self-determined women could be less likely to perceive sociocultural messages about body image as a source of *pressure*. Rather these messages would be perceived as *information* that they are free to use or dismiss. If this information was overly discordant with people's own global value system, it would not be internalized. In the same line, Sheldon, Kasser, and Deci (1997) suggested that because non self-determined individuals lack the solid foundation of a well-integrated self, these individuals may be more vulnerable to internalize extrinsic values strongly (i.e., financial success, physical attractiveness, and social recognition) and to rely heavily on them for self-worth. Conversely, people who have an integrated self (i.e., self-determined people) are more likely to adopt intrinsic values (i.e., personal growth, meaningful relationship, and social responsibility) that are in line with their natural tendency to satisfy basic psychological needs (i.e., competence, autonomy, and relatedness).

Forms of Regulation of Eating Behaviors and Global Self-Determination

After examining determinants of body dissatisfaction (i.e., sociocultural pressures about body image, endorsement of society's beliefs) and the role of global self-determination, we now progress to the central section of the model. This section was aimed at better understanding why in some cases body dissatisfaction is associated with dysfunctional eating behaviors whereas in others, it may be associated with healthy eating behaviors. It had been hypothesized that forms of regulation of eating behaviors (autonomous and controlled) would constitute the mechanisms through which body dissatisfaction would be related to both types of eating behaviors (healthy and dysfunctional). Analyses supported these mechanisms. Body dissatisfaction was found to be associated positively with an autonomous form of regulation as well as a controlled form of regulation and these forms of regulation were differently associated with healthy and dysfunctional eating behaviors. It is important to note that although body dissatisfaction was related to both forms of regulation, it was more importantly associated with a controlled form than an autonomous one. These findings suggest that the majority of women who feel dissatisfied with their bodies regulate their eating behaviors because they feel *pressured* to do so and not because they,

themselves, *choose* to do so. Moreover, the pressure that these women experience seems to be internal (e.g., guilt, shame) more than external (e.g., media, partner, parents) because introjected regulation was the main regulatory style that was endorsed as a controlled form of regulation. Among the women who used an autonomous form of regulation, valuing the activity was the main motive underlying the regulation of eating behaviors.

Another important component of the proposed model concerns the determinants of each of the two global forms of regulation of eating behaviors. In agreement with Vallerand's hierarchical model of motivation (1997), it was hypothesized that a woman's global motivation in life would be a significant predictor of her motivation toward a more specific life domain such as the regulation of eating behaviors. Analyses supported these hypotheses. Women who were globally self-determined in their life were also found to be self-determined (autonomous regulation) in the regulation of their eating behaviors. Conversely, global self-determination was negatively associated with a controlled form of regulation of eating behaviors. These findings provide further support for the influence of motivation at a global level on motivation at the contextual level.

Consequences of the Forms of Regulation of Eating Behaviors on Psychological Adjustment

Moving to the right section of the model, in agreement with Deci and Ryan's Self-Determination Theory, analyses suggested that an autonomous form of regulation of eating behaviors was positively associated with positive consequences (healthy eating behaviors) and negatively associated with negative consequences (bulimic symptomatology). A reverse pattern was obtained for a controlled form of regulation. That is, a controlled form (controlled regulation of eating behaviors) was negatively associated with positive consequences (healthy eating behaviors) and positively associated with negative consequences (dysfunctional eating behaviors). These results are consistent with those obtained in a study by Williams and colleagues (1996) who applied Self-Determination Theory to the context of severely obese patients who participated in a supervised very low calorie weight-loss program. In that study, participants whose motivation for weight loss (i.e., regulation of weight) was more autonomous attended the program more

regularly, lost more weight during the program, and maintained the greatest weight loss at follow-up than those whose motivation for weight loss was less autonomous.

Finally, the two types of eating behaviors (healthy vs. dysfunctional) were found to be differently associated with psychological adjustment. More specifically, the women who reported healthy eating behaviors also reported positive psychological adjustment whereas those who reported bulimic symptoms reported poorer psychological adjustment. These results are in line with the literature on bulimia nervosa which has found that individuals with this pathology or symptoms of it, experience more anxiety and a depressive affect (e.g., Weltzin & Bolton, 1998). Thus, although healthy eating behaviors are certainly not sufficient for experiencing psychological adjustment, our results suggest that they may be a necessary condition for global psychological adjustment.

Although the above findings appear interesting, some limitations of the study should be underlined. First, although our model offers a first test of the idea that body dissatisfaction could be associated with different regulatory styles of eating behaviors and that these styles could lead to different types of eating behaviors or different outcomes, it is important to acknowledge that all the constructs were assessed by self-reported questionnaires. Future studies should focus for example, on more objective measures of successful or unsuccessful eating behavior like the amount of weight loss or gain over a period of time, the maintenance of body weight loss, or variation in body mass index. When assessed independently of the self-regulatory styles, these variables could also give a clearer indication of the model's capacity to predict outcomes over a period of time. Second, because this sample consisted largely of caucasian women who were recruited at the University of Ottawa, it is unknown if the findings can be generalized or not to males and females from other ethnic groups. Replication with men and women randomly selected from different communities and from various socioeconomic backgrounds could increase the generalization of our findings. Third, in the current study, dysfunctional eating behaviors were represented by bulimic symptoms rather than the syndrome of bulimia nervosa. It would be important to investigate if similar results could be obtained with a sample of women meeting full

criteria of bulimia nervosa. In our study, only 1.6% of the sample could be classified as putative bulimics. Moreover, the results may not replicate with other dysfunctional eating behaviors such as anorexia nervosa or binge eating disorder. Future studies could examine more specifically if different regulatory styles are associated with these variables. Fourth, even though sophisticated statistical procedures were used to evaluate the proposed model, the present correlational design prevent us from making any causal attributions for the relationships identified as statistically significant. Longitudinal and experimental designs would allow clarification of the causal directions of the relationships found in the study.

Despite these limitations, we believe that the present study represents a contribution for four main reasons. First, this study was the first to investigate within one integrative model, motivational mechanisms that could help us better understand why in some cases, body dissatisfaction can be associated with dysfunctional eating behaviors while in others, it may be associated to healthy eating behaviors. To the best of our knowledge, in the past, studies had only focused on mechanisms that could explain the relationship between body dissatisfaction and dysfunctional eating behaviors. Thus, if the present findings are replicated in a longitudinal study, clinicians may be in a better position to identify among the many women who are dissatisfied about their body image, those who are at greater risk of developing bulimic symptoms. Second, the proposed model brings a new perspective (i.e., motivational) to the study of eating behaviors as well as an empirical test of the generalizability of Self-Determination Theory to a new domain, the regulation of eating behaviors. Third, in this integrative model, we were able to replicate sequences of variables that had previously been tested in distinct studies (e.g., determinants of body dissatisfaction; Dion & Pelletier 2000a; Stice et al., 1996a, 1998; Twamley & Davis, 1999, consequences of the forms of regulation of eating behaviors; Dion & Pelletier, 2000b). Fourth, the results obtained in this study appear useful to explain the mechanism by which some current interventions are helpful for the prevention and/or treatment of bulimia nervosa. For instance, effective interventions typically focus on helping the client make healthy choices, develop their

own internal cues, and reach their own definition of an acceptable body. These interventions all share one common goal, that is to increase one's self-determination.

In light of these findings, it becomes particularly important to understand the conditions that may facilitate the development of a global self-determined motivation as well as self-determination for the regulation of eating behaviors. Cognitive Evaluation Theory (CET, Deci & Ryan, 1991), a subtheory of the Self-Determination Theory, stipulates that people's motivation and level of self-determination are affected by their perceived levels of competence and agency. Events that bolster these feelings are hypothesized to increase self-determination whereas events that undermine these same feelings are expected to thwart self-determination (see Deci & Ryan, 1987, 1991, for literature reviews). Interpersonal behaviors constitute a class of events that have been extensively studied. Globally, studies conducted in several domains (e.g., education, environment, sports etc.) have shown that when people perceive that their environment (e.g., parents, partner, friends) support their autonomy by letting them make their own choices rather than apply pressure to control them, by providing informational feedback about their competence, and by showing a caring attitude towards them, they feel self-determined. Future research could examine if these determinants could also be applied towards one's motivation for regulating his or her eating behaviors.

References

- American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.
- Attie, I., & Brooks-Gunn, J. B. (1989). Development of eating problems in adolescent girls: A longitudinal study. Developmental Psychology, 25, 70-79.
- Balatsky, G., & Diener, E. (1993). Subjective well-being among Russian students. Social Indicators Research, 28, 225-243.
- Bentler, P. M. (1990). Comparative fit indices in structural models. Psychological Bulletin, 107, 238-246.
- Berscheid, E., Walster, E., & Bohrnstedt, G. (1973, November). The happy American body: A survey report. Psychology Today, 11, 119-131.
- Blais, M. R., Brière, N. M., Lachance, L., Riddle, A. S., & Vallerand, R. J. (1993). L'inventaire des motivations au travail de Blais [Blais' Work Motivations Inventory]. Revue Québécoise de Psychologie, 14, 185-215.
- Blais, M. R., Lacombe, D., Vallerand, R. J., & Pelletier, L. G. (1990). Motivation en contexte de travail: Nature, déterminants et conséquences [Motivation in The Work Context: Nature, Determinants, and Consequences]. Unpublished manuscript, Université du Québec à Montréal.
- Blais, M. R., Sabourin, S., Boucher, C., & Vallerand, R. J. (1990). Toward a motivational model of couple happiness. Journal of Personality and Social Psychology, 59, 1021-1031.
- Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1994). Construction et validation de l'inventaire des motivations interpersonnelles [Contruction and Validation of the Interpersonal Motivations Inventory]. Unpublished manuscript, University of Quebec in Montreal.
- Blanchard, C., Vallerand, R. J., & Provencher, P. (1995). Une analyse des effets bidirectionnels entre la motivation contextuelle et la motivation situationnelle en milieu naturel [An

analysis of the bidirectional effects between contextual and situational motivational in a natural setting]. Paper presented at the annual conference of the Québec Society for Research on Psychology, Ottawa.

Bollen, K. A. (1989a). Structural equations with latent variables. New York: Wiley.

Bollen, K. A. (1989b). A new incremental fit index for general structural models. Sociological Methods & Research, 17, 303-316.

Boyer, H. (1991). Analyses d'équations structurelles des facteurs socio-culturels et cognitifs sous-jacents à la boulimie [Structural Equation Analyses of Cognitive Sociocultural Factors of Bulimia]. Ph.D. Thesis. University of Ottawa.

Brenner, J. B., & Cunningham, J. G. (1992). Gender differences in eating attitudes, body concept, and self-esteem among models. Sex Roles, 27, 7/8, 413-437.

Bruch, H. (1962). Perceptual and conceptual disturbances in anorexia nervosa. Psychosomatic medicine, 24, 187-194.

Byrne, B. M. (1989). A primer of LISREL: Basic applications and programming for confirmatory factor analytic models. New York: Springer-Verlag.

Byrne, B. M. (1994). Structural Equation Modeling with EQS and EQS/Windows. Basic concepts, applications, and programming. Thousand Oaks, CA: Sage.

Byrne, B. M. (1998). Structural equation modeling with LISREL, PRELIS, and SIMPLIS: Basic concepts, applications, and programming. Mahaw, NJ: Erlbaum.

Carver, C. S., & Scheier, M. F. (1981). Attention and self-regulation: A control theory approach to human behavior. New York: Springer-Verlag.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. Psychological Review, 97, 19-35.

Carver, C. S., & Scheier, M. F. (1998). On the self-regulation of behavior. New York: Cambridge University.

Carver, C. S., & Scheier, M. F. (1999). Themes and issues in the self-regulation of behavior. In R. S. Wyer, Jr. (Ed.), Perspective on behavioral self-regulation: Advances in Social Cognition Vol. 12 (pp. 1-105). Mahwah, NJ: Erlbaum.

Carver, C. S., & Scheier, M. F. (2000). Action, emotion, and personality: Emerging conceptual integration. Personality and Social Psychology Bulletin, 26, 741-751.

Cash, T. F., Winstead, B. A., & Janda, L. H. (1986). Body Image Survey report: The great American shape-up, Psychology Today, 24, 30-37.

Chantal, Y., Guay, F., & Vallerand, R. J. (1995, October). Contextes de vie et situations: une analyse portant sur la spécificité de leurs liens motivationnels. [Life contexts and situations: An analysis of the specificity of their motivational relations]. Paper presented at the annual conference of the Québec Society for Research on Psychology, Ottawa.

Crowther, J. H., Lilly, R. S., Crawford, P. A., Shepherd, K. L., & Olivier, L. L. (1990). The stability of the Eating Disorder Inventory. Paper presented at the Annual Meeting of the American Psychological Association, Boston, MA.

Deci, E. L. (1975). Intrinsic motivation. New York: Plenum.

Deci, E. L. (1980). The psychology of self-determination. Lexington, MS: DC Health.

Deci, E. L., Eghari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The Self-Determination Theory perspective. Journal of Personality, 62, 118-142.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), Nebraska Symposium on Motivation: Vol 38. Perspectives on motivation. (pp. 237-288). Lincoln: University of Nebraska.

Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. Educational Psychologist, 26, 325-346.

Diener, E., & Diener, M. (1995). Cross-Cultural Correlates of Life Satisfaction and Self-Esteem. Journal of Personality and Social Psychology, 68, 653-663.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffen, S. (1985). The satisfaction with life scale. Journal of Personality and Assessment, 49, 71-76.

Dion, S. C., & Pelletier, L. G. (2000a). Can Self-Determination Reduce Sociocultural Influences Related to Body Image and Reduce the Risk of Experiencing Bulimic Symptoms? Manuscript submitted for publication. University of Ottawa.

Dion, S. C., & Pelletier, L. G. (2000b). Why do Women Regulate What They Eat? Relationships Between Forms of Regulation, Eating Behaviors, and Psychological Adjustment. Manuscript submitted for publication. University of Ottawa.

Direction générale des services de la promotion de la Santé et du Bien-être social Canada (1988, under review). Le poids et la santé [Weight and Health] [Brochure]. Ottawa, ON: Minister of Supply and Services Canada.

Elliot, A. J., & Sheldon, K. M. (1998). Avoidance of personal goals and the personality-illness relationship. Journal of Personality and Social Psychology, 75, 1282-1299.

Garner, D. M. (1991). Eating Disorder Inventory-2: Professional Manual. Odessa, FL: Psychological Assessment Resources.

Garner, D. M., & Garfinkel, P. E. (1982). The multidetermined nature of anorexia nervosa. In P. E. Garfinkel and D. M. Garner (Eds.), Anorexia nervosa: A multidimensional perspective. New York: Brunner-Mazel.

Garner, D. M., Garfinkel, P. E., Swartz, D., & Thompson, M. (1980). Cultural expectations of thinness in women. Psychological Reports, 47, 483-491.

Garner, D. M., & Olmstead, M. P. (1984). The Eating Disorder Inventory Manual. Odessa, Florida: Psychological Assessment Resources.

Gordon, R. A. (1988). A sociocultural interpretation of the current epidemic of eating disorders. In B. J. Blinder, B. F. Chaiting, & R. Goldstein (Eds.), The eating disorders (pp. 151-163). Great Neck, NY.: PMA.

Grolnick, W. S., Deci, E. D., & Ryan, M. R. (1997). Internalization within the family: The self-determination perspective. In J. E. Grusec, & L. Kuczynski (Eds.), Parenting and

children's internalization of values: A handbook of contemporary theory (pp.135-161). New York: Wiley.

Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. Journal of Educational Psychology, 52, 890-898.

Grolnick, W. S., Ryan, R. M., & Deci, E. L. (1991). Inner resources for school achievement: Motivational mediators of children's perceptions of their parents. Journal of Educational Psychology, 83, 508-517.

Guttman, L. (1954). A new approach to factor analysis: The radex. In Lazarfel (Ed.), Mathematical thinking in the social sciences (pp. 258-348). New York: Free Press of Glencoe.

Haddad, N. K. (1999). When a basic innate need is not met: The case of the impaired proactive self. Unpublished Ph.D. Thesis. University of Ottawa.

Harrisson, K., & Cantor, J. (1997). The relationship between media consumption and eating disorders. Journal of Communication, 47, 40-67.

Health and Welfare Canada (1992). Canada's Food Guide to Healthy Eating: Its Rational [Brochure]. Ottawa, ON: Minister of Supply and Services Canada.

Heinberg, L. J., & Thompson, J. K. (1995). Body image and televised images of attractiveness: A controlled laboratory investigation. Journal of Social and Clinical Psychology, 14, 325-338.

Hudson, J. Pope, H., & Yungelun-Todd, D., Jonas, J. M., & Frankenburg, F. R. (1987). A controlled study of lifetime prevalence of affective and other psychiatric disorders in bulimic outpatients. American Journal of Psychiatry, 144, 1283-1287.

Huon, G. F., (1994). Dieting, binge eating, and some of their correlates among secondary school girls. International Journal of Eating Disorders, 8, 63-74.

Irving, L. M. (1990). Mirror images: Effects of the standard of beauty on the self and body-esteem of women exhibiting varying levels of bulimic symptoms. Journal of Social and Clinical Psychology, 9, 230-242.

Jöreskog, K. G., & Sörbom, D. (1996). Lisrel 8.0: User's reference guide. Chicago: Scientific Software International.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic goals. Personality and Social Psychology Bulletin, 22, 281-288.

Kiemle, G., Slade, P. D., & Dewey, M. E. (1987). Factors associated with abnormal eating attitudes and behaviors: Screening individuals at risk of developing an eating disorder. International Journal of Eating Disorders, 6, 713-724.

Laessle, R. G., Wittchen, H. U., Fitcher, M. M., & Pirke, K. M. (1989). The significance of subgroups of bulimia and anorexia nervosa: Lifetime frequency of psychiatric disorders. International Journal of Eating Disorders, 8, 569-574.

Mazur, A. (1986). U.S. trends in feminine beauty and overadaptation. Journal of Sex Research, 22, 281-303.

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. Psychological Bulletin, 105, 430-445.

O'Conner, B. P., & Vallerand, R. J. (1990). Religious motivation in the elderly: A French-Canadian replication and an extension. The Journal of Social Psychology, 130, 53-59.

Pavot, W., & Diener, E. (1993). Review on the Satisfaction With Life Scale. Psychological Assessment, 5, 164-172.

Pelletier, L. G., Fortier, M., Vallerand, R. J., Tuson, K. M., Brière, N. M., & Blais, M. R. (1995). The Sports Motivation Scale (SMS): A measure of intrinsic motivation, extrinsic motivation, and amotivation in sports. Journal of Sport and Exercise, 17, 35-53.

Pelletier, L. G., Tuson, K. M., Green-Demers, I., Noels, K., & Beaton, A. (1998). Why are you doing things for the environment - or are you?: The motivation toward the environment scale (MTES). Journal of Applied Social Psychology, 28, 437-468.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1995). Loisirs et santé mentale: Les relations entre la motivation pour la pratique des loisirs et le

bien-être psychologique [Leisures and Mental Health: Relationships Between Motivation For Lesires and Well-Being]. Canadian Journal of Behavioural Science, 27, 140-156.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1996). Vers une conceptualisation motivationnelle multidimensionnelle du loisir: construction et validation de l'échelle de motivation vis-à-vis des loisirs (EML) [Towards a Multidimensional Conceptualization. Loisirs et société, 19, 559-585.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement, 1, 385-401.

Rand, C. S. W., & Kuldau, J. M. (1990). The epidemiology of obesity and self-defined weight problem in the general population: Gender, race, age, and social class. International Journal of Eating Disorders, 9, 329-343.

Rand, C. S. W., & Kuldau, J. M. (1992). Epidemiology of bulimia and symptoms in a general population: Sex, age, race, and socioeconomic status. International Journal of Eating Disorders, 11, 37-44.

Raich, R. M., Rosen, J. C., Deas, J., Perez, O., Requena, A., & Gross, J. (1992). Eating disorder symptoms among adolescents in the United States and Spain: A comparative study. International Journal of Eating Disorders, 11, 63-72.

Rodin, J, Silberstein, L. R., & Striegle-Moore, R. H. (1985). Women and weight: A normative discontent. In T. B. Sonderegger (Ed.), Psychology and gender: Nebraska Symposium on motivation, 1984 (pp. 267-307). Lincoln: University of Nebraska Press.

Rosenberg, M. (1965). Society and the adolescent self-image. New Jersey: Princeton University.

Ryan, R. M., & Connell, J. R. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. Journal of Personality and Social Psychology, 57, 749-761.

Ryan, R. M., & Connell, J. R., & Deci, E. L. (1985). A motivational analysis of self-determination and self-regulation in education. In C. Ames & R. E. Ames (Eds.), Research on motivation in education: The classroom milieu. New York: Academic.

Ryan, R. M., & Connell, J. R., & Grolnick, W. S. (1990). When achievement is not intrinsically motivated: A theory of self-regulation in school. In A. K. Boggiano & T. S. Pittman (Eds.), Achievement and motivation: a social-developmental perspective. New York: Cambridge University.

Ryan, R. M., & Deci, E. L. (1999). Approaching and avoiding self-determination: Comparing cybernetic and organismic paradigms of motivation. In R. S. Wyer, Jr. (Eds.), Perspectives on behavioral self-regulation: Advances in social cognition Vol XII. Mahwah, N. J.: Erlbaum.

Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. American Psychologist, 55, 68-78.

Séguin, C., Green-Demers, I., Chantal, Y., Ladouceur, C., & Pelletier, L. G. (1997). Pourquoi les gens ont-ils des relations sexuelles? Une investigation des dimensions de la motivation sexuelle [Abstract]. Proceedings of the Annual Convention of the Canadian Psychological Association, Vol 38: 2a, p.72.

Séguin, C., Green-Demers, I., & Pelletier, L. G. (1994). Construction et validation de l'échelle de motivation envers les relations sexuelles (EMERS) [Abstract]. Proceedings of the XVIIth Annual Convention of the Société Québécoise de Recherche en Psychologie, p. A1.52.

Shao, L. (1993). Multilanguage comparability of life satisfaction and happiness measures in mainland Chinese and American students. Unpublished master's thesis, University of Illinois. Urbana-Champaign.

Sheldon, K. M., & Elliott, A. J. (1998). Not all personal goals are "personal": Comparing autonomous and controlled reasons for goals as predictors of effort and attainment. Personality and Social Psychology Bulletin, 24, 546-557.

Shisslak, C. M., Pazda, S. L., & Crago, M. (1990). Body weight and bulimia as descriptors of psychological characteristics among anorexic, bulimic, and obese women. Journal of Abnormal Psychology, 99, 380-384.

Silverstein, B., Perdue, L., Peterson, B., Vogel, L., & Fantini, D. A. (1986). Possible causes of the thin standard of bodily attractiveness for women. International Journal of Eating Disorders, 5, 907-916.

Silverstein, B., Peterson, B., & Perdue, L. (1986). Some correlates of the thin standard of bodily attractiveness for women. International Journal of Eating Disorders, 5, 895-905.

Steiger, J. H., & Lind, J. C. (1980, June). Statistically based tests for the number of common factors. Paper presented at the Psychometric Society Annual Meeting, Iowa City: IA.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. Clinical Psychology Review, 14, 1-29.

Stice, E., & Agras, W. S. (1998). Predicting the onset and remission of bulimic behaviors during adolescence: A longitudinal grouping analysis. Behavior Therapy, 29, 257-276.

Stice, E., & Shaw, H. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. Journal of Social and Clinical Psychology, 13, 288-308.

Stice, E., Nemeroff, C., & Shaw, H. (1996a). A test of the dual pathway model of bulimia nervosa: Evidence for restrained-eating and affect-regulation mechanisms. Journal of Social and Clinical Psychology, 15, 340-363.

Stice, E., Shaw, H., & Nemeroff, C. (1998). Dual pathway model of bulimia nervosa: Longitudinal support for dietary restraint and affect-regulation mechanisms. Journal of Social and Clinical Psychology, 17, 129-149.

Stice, E., Ziemba, C., Margolis, J., & Flick, P. (1996b). The dual pathways model differentiates bulimics, subclinical bulimics, and controls: Testing the continuity hypothesis. Behavior Therapy, 27, 531-549.

Strieggle-Moore, R. McAvay, G. & Rodin, J. (1986). Psychological and behavioral correlates of feeling fat in women. International Journal of Eating Disorders, 5, 935-947.

Stunkard, A. J., & Burt, V. (1967). Obesity and the body image: II. Age at onset of disturbances in the body image. American Journal of Psychiatry, 123, 1443-1447.

Stunkard, A. J., Sorenson, T. I., & Schulsinger, F. (1983). Use of the Danish Adoption Register for the study of obesity and thinness. In S. Kety, L. D. Rowland, R. L. Sidman, & S. W. Matthysse (Eds.). The genetics of neurological and psychiatric disorders (pp.115-120). New York: Raven.

Suh, E. (1994). Emotion norms, values, familiarity, and subjective well-being: A cross-cultural examination. Unpublished master's thesis, University of Illinois at Urbana-Champaign.

Tabachnick, B. G., & Fidell, L. S. (1996). Using multivariate statistics (3rd. ed.). New York: Harper Collins College Publishers.

Thelen, M. H., & Cormier, J. F. (1995). Desire to be thinner and weight control among children and their parents. Behavior Therapy, 26, 85-99.

Thelen, M., Farmer, J., Wonderlich, S., & Smith, M. (1991). A revision of the Bulimia Test: The BULIT-R. Psychological Assessment, 3, 119-124.

Thompson, J. K. (1990). Body image disturbance: Assessment and treatment. New York: Pergamon.

Thompson, J. K. (1992). Body image: Extent of disturbance, associated features, theoretical models, assessment methodologies, intervention strategies, and a proposal for new DSM-IV diagnostic category-Body image disorder. In M. Hersen, R. M. Eisler, & P. M. Miller (Eds.), Progress in behavior modification (Vol. 28, pp. 3-54). Sycamore, IL: Sycamore.

Thompson, J. K. (1995). Assessment of body image. In D. Allison (Ed.), Handbook of assessment methods for eating behaviors and weight-related problems (pp. 119-148). Thousand Oaks, CA: Sage.

Thompson, J. K., Coovet, M. D., Richards, K. J., Johnson, S., & Cattarin, J. (1995). Development of body image, eating disturbance, and general psychological functioning in female

adolescents: Covariance structure modeling and longitudinal investigations. International Journal of Eating Disorders, 18, 221-236.

Thompson, J. K., & Gray, J. J. (1995). Development and validation of a new-body image assessment tool. Journal of Personality Assessment, 64, 258-269.

Thompson, J. K., & Thompson, C. M. (1986). Body size distortion and self-esteem in asymptomatic normal weight males and females. International Journal of Eating Disorders, 5, 1061-1068.

Twamley, E. W., & Davis, M. C. (1999). The sociocultural model of eating disturbance in young women: The effects of personal attributes and family environment. Journal of Social and Clinical Psychology, 4, 467-489.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), Advances in Experimental Social Psychology Vol 29, (pp.271-360). New York: Academic.

Vallerand, R. J., & Bissonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. Journal of Personality, 60, 599-620.

Vallerand, R. J., Deci, E. L., & Ryan, R. M. (1987). Intrinsic motivation in sport. Exercise and Sport Sciences Review, 15, 389-425.

Vallerand, R. J., Pelletier, L. G., Blais, M. R., Brière, N. M., Sénécal, C., & Vallière, E. F. (1993). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. Educational and Psychological Measurement, 52, 1003-1017.

Wear, R. W., & Pratz, O. (1987). Test-retest reliability for the Eating Disorder Inventory. International Journal of Eating Disorders, 6, 767-769.

Welch, G. (1988). Selected multivariate statistical techniques and eating disorders. Unpublished doctoral dissertation, University of Otago, New Zealand.

Weltzin, T. E., & Bolton, B. G. (1998). Bulimia Nervosa. In I. B. Weiner (Ed), Personality and Clinical Psychology Series (pp.435-465). New Jersey: Erlbaum.

Whitaker, A., Johnson, J., Shaffer, D., Rapaport, J. L., Kalikow, K., Walsh, B. T., Davies, M., Braiman, S., & Dolinsky, A. (1990). Uncommon troubles in young people: Prevalence estimates of selected psychiatric disorders in a nonreferred adolescent population. Archives of General Psychiatry, *47*, 487-496.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students. Journal of Personality and Social Psychology, *70*, 767-779.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. Journal of Personality and Social Psychology, *70*, 115-126.

Williamson, D. A., Davis, C. J., Bennett, S. M., Goreczny, A. J., & Gleaves, D. H. (1989). Development of a simple procedure for assessing body image disturbances. Behavioral Assessment, *11*, 433-446.

Williamson, D. A., Gleaves, D. H., Watskin, P., & Schlundt, D. G. (1993). Validation of self-ideal body size discrepancy as a measure of body dissatisfaction. Journal of Psychopathology & Behavioral Assessment, *15*, 57-68.

Wiseman, C. V., Gray, J. J., Mosiman, J. E., & Ahrens, A. H. (1992). Cultural expectations of thinness in women: An update. International Journal of Eating Disorders, *11*, 85-89.

Authors Note

This paper was prepared while the first author was supported by a doctoral scholarship from the Social Sciences and Humanities Research Council of Canada (SSHRC), and the second author was supported by a grant from the Social Sciences and Humanities Research Council of Canada (SSHRC).

Footnotes

¹ TOTE is the acronym used to describe the sequence of a feedback loop (Test-Operate-Test-Exit).

² Statistics suggest that Bulimia Nervosa occurs almost exclusively among females (Rand & Kuldau, 1992; Whitetaker et al., 1990). The Diagnostic and Statistical Manual of Mental Disorders suggest that the rate of occurrence of this disorder in males is approximately one-tenth of that in females (APA, 1994; p.548). For that reason, only women were included in the study.

³ Although internal consistency could be improved, the likely consequence of having a scale with a low consistency would be to weaken the structural links of the model to be tested, not to invalidate it. Statistically, we would be less likely to find significant links between the Healthy Eating Behaviors Scale and other constructs.

⁴ The initial model fit was below acceptable range ($\chi^2(18, N=339)=81.67$ $p<.001$, CFI=.88, IFI=.88, RMSEA=.10, PCFI=.60). However, examination of the modification indices ($\theta\delta(6,5)=30.89$) suggested that the estimation of one correlated error between two indicators of the same factor would lead to an important increase in the fit of the model.

⁵ In the BULIT-R, eight of the items pertaining to specific means of radical weight control (two items each concerning laxatives, diuretics, fasting, and exercise) were found not to discriminate well between bulimic individuals and non eating disordered individuals. Thus, Thelen and their colleagues (1991) decided that these items would not be scored but would be retained to provide information about weight control behaviors. The eight items are called filler items.

⁶ The transformation ($\log_{10}X$) was used to correct for the kurtosis and/or skewness that were higher than 2.

⁷ According to Health and Welfare Canada (1988, under revision), a Body Mass Index (BMI) below 20 may be associated with health problems for some people, a BMI between 20-25 is a good weight for most people, a BMI between 25-27 may lead to health problems in some people, and a BMI over 27 represents an increased risk of developing health problems.

⁸The BULIT-R cutoff score of 104 was used to identify participants (putative bulimics) whom are most likely to be diagnosed with bulimia nervosa on the basis of an interview. This cutoff score has shown to discriminate well between a group of bulimic individuals ($M=117.95$) and a group of non eating disordered individuals ($M=57.50$), $t(46)=16.41$, $p<.0001$ (Thelen et al., 1991).

Table 1

Means and Standard Deviations for the Indicators Included in the Structural Equation Model

	M	SD	Kurtosis	Skewness	Range
Global Self-Determination (GSD1)	14.58	9.15	-.08	-.36	-14/36
Global Self-Determination (GSD2)	12.05	10.08	-.11	-.15	-22/36
Global Self-Determination (GSD3)	10.92	8.86	.01	-.08	-21/36
Global-Self-Determination (GSD4)	12.22	8.86	.05	-.29	-17/36
Body Teasing Experience (TEASE)	7.11	3.97	.18	.98	3/18
Sociocultural pressures from ...					
FAMILY	3.78	2.20	.41	1.17	2/10
FRIENDS	3.40	1.77	.87	1.22	2/10
PARTNER	3.88	2.19	.65	1.19	2/10
MEDIA	7.47	2.45	-.52	-.69	2/10
Endorsement of ...					
THINNESS beliefs	15.01	5.85	-.73	.08	4/28
OBESITY beliefs	11.95	4.94	-.39	.40	4/28
Body Dissatisfaction (DISAT1)	10.92	3.88	-.83	-.00	3/18
Body Dissatisfaction (DISAT2)	11.62	3.89	-.50	-.32	3/10
Body Dissatisfaction (DISAT3)	10.43	4.03	-.71	.14	3/18
Intrinsic Motivation (IM)	16.26	6.20	-.85	-.11	4/21
Integrated Regulation (INTEG)	16.65	6.34	-.75	-.23	4/28
Identified Regulation (IDEN)	20.57	5.15	.65	-.88	7/28
Introjected Regulation (INTRO)	12.73	6.33	-.82	.34	4/28
External Regulation (ER)	7.68	4.53	2.13	1.53	4/28
Amotivation (AMO)	5.94	3.20	6.10	2.24	4/25
Healthy Food1 (HF1)	14.50	2.94	-.52	-.21	7/20
Healthy Food2 (HF2)	13.47	2.97	-.13	-.52	5/20
Bulimic Symptomatology (BULIT1)	18.31	6.79	.63	.89	9/43
Bulimic Symptomatology (BULIT2)	15.98	5.68	2.14	1.41	9/42
Bulimic Symptomatology (BULIT3)	17.29	6.91	2.51	1.52	10/50
Depressive Symptomatology (DEPRE)	14.63	10.39	.47	.93	0/52
Self-Esteem (EST)	19.77	3.83	.19	-.80	7/25
Life Satisfaction (LIFE SAT)	17.43	4.75	-.44	-.43	5/25

Note. The theoretical range for GSD1, GSD2, GSD3, and GSD4 is -36 to 36, for TEASE, FAMILY, FRIENDS, PARTNER, and MEDIA is 2 to 10, for THINNESS and OBESITY is 4 to 28, for DISAT1, DISAT2, and DISAT3 is 3 to 18, for IM, INTEG, IDEN, INTRO, ER, and AMO is 4 to 28, for HF1 and HF2 is 4 to 20, for BULIT1 and BULIT2 is 9 to 45, for BULIT3 is 10 to 50, for EST and LIFE SAT is 5 to 25, and for DEPRE is 0 to 60.

Table 2

Comparison of the Means for the Different Constructs to be Included in the Model Between Women With the Least Bulimic Symptoms and Women With the Most Bulimic Symptoms

Constructs	Mean (SD)		t-Value (df=81)	Probability
	Women with the least bulimic symptomatology (N=38)	most bulimic symptomatology (N=45)		
Self-Determination Index	19.14 (7.26)	3.80 (8.07)	9.03	.000
*Sociocultural Pressures About Body Image	13.11 (3.53)	24.82 (5.73)	-11.40 (df=74.58)	.000
Endorsement of Society's Beliefs About Thinness and Obesity	16.95 (8.36)	34.07 (8.56)	-9.17	.000
Body dissatisfaction	19.05 (7.11)	43.58 (8.71)	-13.88	.000
*Autonomous Regulation of Eating Behaviors	14.59 (3.56)	12.47 (3.15)	2.85 (df=74.56)	.006
*Controlled Regulation of Eating Behaviors	4.21 (1.35)	9.19 (2.67)	-10.98 (df=67.28)	.000
Healthy Eating Behaviors	29.79 (4.40)	26.51 (4.79)	3.23	.002
*Psychological Adjustment	37.66 (8.54)	3.47 (16.54)	12.09 (df=68.10)	.000

Note. The Levene's test for equality of variance revealed no significant differences for the pairs of means compared above, except for Sociocultural Pressures, Controlled and Autonomous Regulation, and Psychological Adjustment which are identified by an asterisk. Consequently, a t-test for groups with unequal variances was utilized for these four constructs. T-tests for groups with equal variances were performed for all other constructs. The Bonferroni correction was employed to control for the number of comparisons ($p \leq .05/8$ t-tests $p \leq .006$). All the pairs of means compared above showed significant differences.

Table 3

Goodness-of-fit statistics for competing models

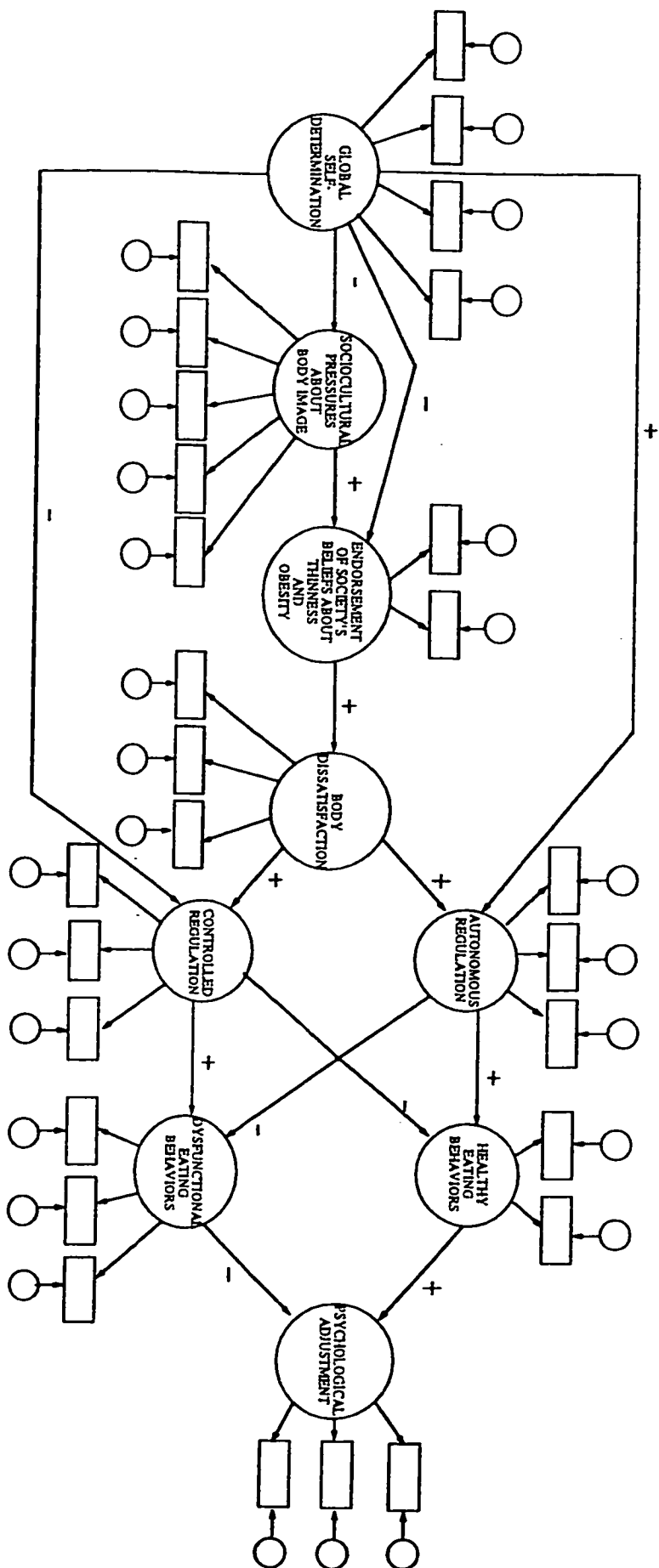
Competing Models	df	χ^2	Δ df	$\Delta \chi^2$	RMSEA	CFI	IFI	PCFI
Initial Model	335	1143.91			.08	.89	.89	.79
Second Model	334	1118.69	1	25.22	.07	.89	.89	.79
Chosen Model	333	1095.85	1	22.84	.07	.90	.90	.80

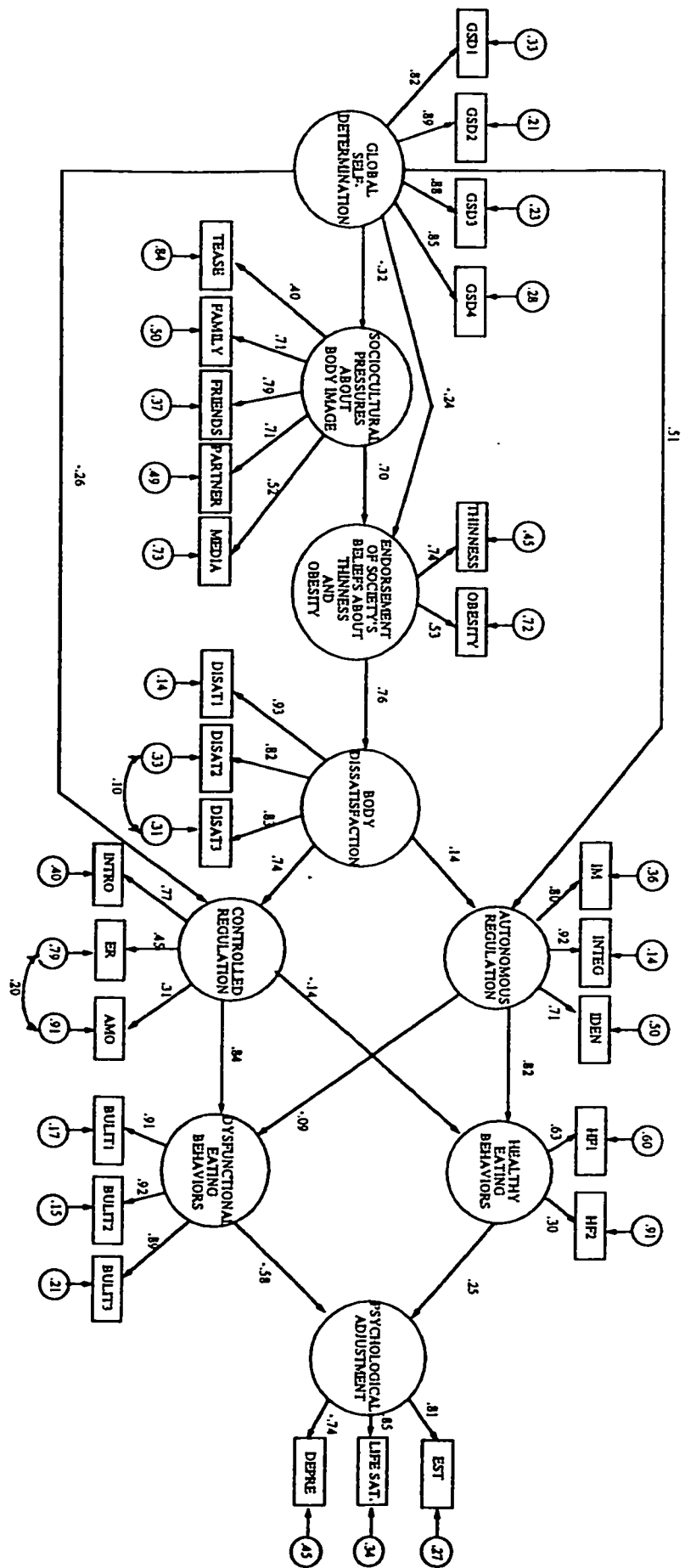
Note. $\Delta \chi^2$ are all significant at .001

Figure Captions

Figure 1. Hypothesized model of the regulation of eating behaviors.

Figure 2. Relationships between global self-determination, sociocultural pressures about body image, endorsement of society's beliefs about thinness and obesity, body dissatisfaction, forms of regulation of eating behaviors, types of eating behaviors, and psychological adjustment.





DISCUSSION GÉNÉRALE

L'objectif principal de cette thèse était d'utiliser la théorie de l'autodétermination (Deci & Ryan, 1985, 1991) afin de mieux comprendre pourquoi certaines femmes, bien qu'insatisfaites de leur image corporelle, présentent des comportements alimentaires sains alors que d'autres manifestent des comportements alimentaires dysfonctionnels (symptômes de boulimie).

Au total, quatre études ont été effectuées. Les trois premières études avaient pour but de tester des portions spécifiques du modèle final, lequel était présenté dans la quatrième et dernière étude de cette thèse. Plus spécifiquement, la première étude portait principalement sur les déterminants de l'insatisfaction corporelle ainsi que le rôle de la motivation globale autodéterminée face à ceux-ci. Le rôle de la motivation globale autodéterminée a aussi été évaluée face à la symptomatologie boulimique. La deuxième étude de même que la première partie de la troisième étude, portaient sur les formes de régularisation du comportement alimentaire. La deuxième partie de la troisième étude, portait sur les conséquences des formes de régularisation du comportement alimentaire. Finalement, la quatrième étude consistait en un modèle intégratif de la régularisation alimentaire. Dans ce modèle, les formes de régularisation du comportement alimentaire étaient proposées comme des mécanismes permettant de mieux comprendre la nature de la relation entre l'insatisfaction et les comportements alimentaires. En plus des mécanismes motivationnels, ce modèle comprenait certains déterminants de l'insatisfaction corporelle et des formes de régularisation alimentaires, ainsi que des conséquences des comportements alimentaires.

Dans la présente thèse, l'influence de la motivation a été évaluée à deux niveaux: un niveau global et un niveau spécifique. Le niveau global correspondait à la motivation globale des femmes à s'engager dans les différentes activités de leur vie alors que le niveau spécifique correspondait à la motivation des femmes à régulariser une activité en particulier, soit l'alimentation. Il était postulé que la motivation globale autodéterminée contribuerait à réduire l'influence des pressions socioculturelles à l'égard de l'image corporelle, qu'elle réduirait l'endossement des croyances véhiculées dans la société concernant la minceur et l'obésité et qu'elle diminuerait la susceptibilité des femmes aux symptômes de boulimie. De plus, en accord avec le modèle hiérarchique de la

motivation de Vallerand (1997), il était postulé que la motivation globale autodéterminée représenterait un prédicteur significatif de la motivation contextuelle, c'est-à-dire la motivation des femmes à régulariser leur comportement alimentaire.

Survol des résultats

Dans la première étude, nous étions principalement intéressés à comparer deux modèles. Le premier modèle, basé sur l'approche socioculturelle, représentait la séquence de variables généralement identifiées dans les écrits pour expliquer l'insatisfaction corporelle et la symptomatologie boulimique. Le deuxième modèle était constitué des variables du premier modèle avec l'ajout d'une variable motivationnelle globale, soit la motivation autodéterminée. Dans ce modèle, l'influence de la motivation autodéterminée sur: 1) la perception des pressions socioculturelles à l'égard de l'image corporelle, 2) l'endossement des croyances véhiculées dans la société concernant la minceur et l'obésité et 3) la symptomatologie boulimique était examinée.

Globalement, les résultats ont suggéré que le niveau global de motivation autodéterminée pourrait à un certain degré, faire contre-poids aux facteurs socioculturels reliés à l'image corporelle. En fait, bien que la plupart des femmes soient, à un certain niveau, exposées aux facteurs socioculturels, les résultats semblent suggérer que celles qui sont globalement motivées de façon autodéterminée perçoivent moins de pressions socioculturelles à l'égard de l'image corporelle et endossent à un plus faible degré les croyances véhiculées par la société concernant la minceur et l'obésité. À son tour, un plus faible endossement des croyances de la société était relié à moins d'insatisfaction corporelle. Les résultats ont aussi révélé que bien qu'elles puissent être insatisfaites de leur image corporelle, les femmes qui sont globalement motivées de façon autodéterminée rapportent moins de symptômes de boulimie. Finalement, les résultats ont suggéré que le niveau d'autodétermination global pouvait avoir un effet direct sur la symptomatologie boulimique en ce sens que dans cette étude, plus les femmes étaient globalement motivées de façon autodéterminée face aux diverses activités de leur vie, moins elles présentaient de symptômes de boulimie.

Dans la deuxième étude, nous avons procédé au développement d'une version expérimentale d'une échelle mesurant les raisons pour lesquelles les femmes régularisent leur comportement alimentaire. Il s'agit de l'Échelle de Régularisation des Comportements Alimentaires (ERCA). Les cohérences internes des sous-échelles ont aussi été évaluées.

Les résultats de l'analyse factorielle exploratoire ont suggéré que la régularisation du comportement alimentaire, comme celle de plusieurs autres comportements, est un concept multidimensionnel. Tel que proposé, une structure à six facteurs a été identifiée. Ces facteurs correspondent aux six différents styles de régularisation comportementale proposés par Deci et Ryan (1985) dans leur théorie de l'autodétermination. Ainsi, ces résultats viennent préciser et nuancer la perspective de Carver et Scheir (1981, 1990, 1998, 1999, 2000) selon laquelle la régularisation représente un processus où la motivation à s'engager dans une activité a pour unique but de réduire un écart entre un état actuel et un état désiré (comportement d'approche) ou encore, d'augmenter un écart entre un état actuel et redouté (comportement d'évitement). Selon Deci et Ryan (1985, 1991), le phénomène de régularisation ne peut être réduit aux comportements d'approche et d'évitement puisque ces deux types de comportement peuvent chacun être plus ou moins autodéterminés c'est-à-dire plus ou moins choisis ou contrôlés. Selon ces auteurs, il est essentiel de tenir compte du niveau d'autodétermination qui sous-tend le comportement puisque les conséquences qui en découleront sont fonction de ce niveau d'autodétermination.

La troisième étude comprenait deux parties. Dans la première partie, nous avons procédé à l'analyse factorielle confirmatoire de l'ERCA, à l'évaluation de ses propriétés psychométriques et à l'évaluation de sa validité de contenu. Dans la deuxième partie de cette étude, nous avons examiné, à l'aide d'analyses par équations structurelles, les relations entre deux formes globales de régularisation alimentaire (autonome et contrôlée), deux types de comportements alimentaires (sains et dysfonctionnels) et le bien-être psychologique.

A l'aide de l'analyse factorielle confirmatoire, il a été possible de reproduire la structure à six facteurs obtenue lors de l'analyse factorielle exploratoire. Aussi, l'examen des corrélations entre les sous-échelles de l'ERCA a révélé la présence d'une structure dite simplex supportant la

présence du continuum d'autodétermination et ce, dans le domaine de l'alimentation. Ce patron de type simplex a permis de valider l'existence du continuum puisqu'il reflète l'influence théorique des dimensions fondamentales qui définissent ce continuum. Globalement, les sous-échelles adjacentes sur le continuum d'autodétermination ont démontré les corrélations les plus positives et les plus élevées. Au fur et à mesure que la distance entre les sous-échelles a augmenté, les corrélations ont diminué pour éventuellement devenir négatives pour les sous-échelles les plus éloignées.

La validité de contenu a également été supportée. Globalement, les variables à caractère négatif (ex., symptomatologie boulimique, symptomatologie dépressive) ont généralement démontré des corrélations positives avec les styles de régularisation non autodéterminée (amotivation, régularisation externe et introjectée) et négatives avec les styles de régularisation autodéterminée (régularisation identifiée et intégrée, motivation intrinsèque). Pour leur part, les variables à caractère positif (ex., estime de soi, satisfaction envers la vie) ont démontré des patrons de corrélations inverses à ceux des variables à caractère négatif. Ainsi, les variables à caractère positif (ex., estime de soi, satisfaction envers la vie) ont globalement présenté des corrélations négatives avec les styles de régularisation non autodéterminée (amotivation, régularisation externe et introjectée) et positives, avec les styles de régularisation autodéterminée (régularisation identifiée et intégrée, motivation intrinsèque).

Egalement, d'autres corrélations ont permis d'observer que les femmes qui ont un style de régularisation autodéterminée et celles qui ont un style de régularisation non autodéterminée trouvent *important* de régulariser leur alimentation, sont préoccupées par la *quantité* et la *qualité* des aliments, investissent des *efforts* dans la régularisation de leur comportement alimentaire et ont l'*intention* de continuer à régulariser leur alimentation dans le futur. Cependant, les femmes qui ont un style de régularisation alimentaire autodéterminé considèrent avoir davantage de *succès* dans la régularisation de leur comportement alimentaire que celles qui ont un style de régularisation alimentaire non autodéterminé. De plus, il a été observé que les femmes qui régularisent leur comportement alimentaire pour des motifs autodéterminés mettent principalement l'accent sur la

qualité des aliments alors que celles qui régularisent leur comportement alimentaire pour des motifs non autodéterminés mettent surtout l'accent sur la quantité des aliments.

Quant au modèle d'équations structurelles concernant les relations entre deux formes globales de régularisation alimentaire (autonome et contrôlée), deux types de comportements alimentaires (sains et dysfonctionnels), et le bien-être psychologique, les résultats ont supporté l'hypothèse selon laquelle les conséquences de la régularisation du comportement alimentaire varient en fonction du degré d'autodétermination qui sous-tend celle-ci. Ainsi, les analyses structurelles ont révélé que seules les femmes qui utilisaient une forme de régularisation autonome (librement choisie) ont rapporté des comportements alimentaires sains alors que celles qui utilisaient une forme de régularisation contrôlante (non choisie) ont rapporté des comportements alimentaires dysfonctionnels (symptomatologie boulimique). De plus, une forme de régularisation contrôlante était associée négativement avec des comportements alimentaires sains. Finalement, les comportements alimentaires sains étaient positivement associés avec le bien-être psychologique alors que les comportements alimentaires dysfonctionnels étaient négativement associés avec celui-ci.

Dans la quatrième et dernière étude de cette thèse, nous avons élaboré un modèle intégratif de la régularisation alimentaire dans le but de mieux comprendre pourquoi certaines femmes, bien qu'insatisfaites de leur image corporelle, présentent des comportements alimentaires sains alors que d'autres, démontrent des comportements alimentaires dysfonctionnels. En accord avec la théorie de l'autodétermination de Deci et Ryan (1985), des mécanismes motivationnels ont été proposés dans le but de clarifier la nature des relations entre l'insatisfaction corporelle et deux types de comportements alimentaires (sains et dysfonctionnels). Le modèle comprenait également certains déterminants de l'insatisfaction corporelle (pressions socioculturelles reliées à l'image corporelle, endossement des croyances de la société par rapport à la minceur et l'obésité) ainsi que certaines conséquences des comportements alimentaires (estime alimentaire, satisfaction envers la vie et dépression). Finalement, la motivation globale autodéterminée était incluse comme déterminant des deux formes de régularisation alimentaire, des pressions socioculturelles à l'égard de l'image

corporelle et de l'endossement des croyances de la société concernant la minceur et l'obésité. Ce modèle représentait, en quelque sorte, une intégration des trois études précédentes.

Les analyses structurelles ont révélé que les femmes qui étaient globalement motivées de façon autodéterminée face aux diverses activités de leur vie percevaient moins de pressions socioculturelles concernant l'image corporelle. Ceci contribuait à une réduction de l'endossement des croyances de minceur et d'obésité véhiculées dans la société, qui à son tour entraînait moins d'insatisfaction corporelle. L'insatisfaction corporelle quant à elle, pouvait entraîner l'utilisation de l'une ou l'autre forme de régularisation alimentaire: une régularisation dite autonome et l'autre dite contrôlante. Les analyses ont révélé que lorsque les femmes étaient globalement autodéterminées dans leur vie, elles avaient tendance à l'être aussi dans un domaine spécifique comme la régularisation de leur comportement alimentaire, c'est-à-dire qu'elles utilisaient une forme de régularisation autonome. L'utilisation d'une forme de régularisation autonome face à son alimentation entraînait des comportements alimentaires sains, lesquels étaient associés au bien-être psychologique. À l'inverse, moins une femme était globalement motivée de façon autodéterminée face aux diverses activités de sa vie, plus elle utilisait une forme de régularisation contrôlante face à son alimentation, laquelle était associée à des comportements alimentaires dysfonctionnels. Ces comportements alimentaires dysfonctionnels étaient à leur tour, négativement associés au bien-être psychologique.

Limites de la thèse

Bien que les résultats obtenus dans la présente thèse soient intéressants, il est important de reconnaître que ceux-ci comportent certaines limites. Tout d'abord, une première limite a trait à la nature de nos échantillons qui étaient exclusivement composés de femmes, majoritairement caucasiennes et inscrites dans divers programmes sous-gradués à l'Université d'Ottawa. Une minorité de femmes étaient des étudiantes graduées provenant de la Faculté d'Éducation. Bien que les écrits (APA, 1994, Rand & Kulda, 1992) suggèrent que la symptomatologie boulimique se retrouve principalement chez les femmes et que les milieux universitaires et collégiaux aient été identifiés comme comportant un taux élevé de femmes avec symptômes de boulimie (Johnson &

Conners, 1987), il n'en demeure pas moins que le choix de nos échantillons limitent la portée généralisable de nos résultats. Par exemple, puisque seulement des femmes ont été recrutées, nos résultats ne peuvent être généralisés aux hommes. Il est possible que des facteurs différents que ceux identifiés dans nos modèles soient impliqués dans la symptomatologie boulimique pour les hommes. Une réplication de nos résultats avec des hommes et des femmes provenant de diverses communautés, d'âges variés, de différentes ethnies et de divers niveaux socioéconomiques permettrait une meilleure généralisation des résultats. Egalement, il est important de reconnaître que dans la présente recherche, c'est la symptomatologie boulimique qui a été évaluée et non pas le syndrome de boulimie. Ainsi, les résultats de cette recherche peuvent ne pas s'appliquer à une population de personnes présentant un diagnostic de boulimie. Des recherches futures effectuées en milieux hospitaliers auprès de personnes rencontrant les critères diagnostiques de boulimie permettraient de vérifier si le modèle intégratif de la régularisation alimentaire proposé dans cette thèse peut se généraliser aux personnes souffrant de boulimie.

Une deuxième limite découle de la méthode par questionnaire qui fut utilisée pour les études de cette thèse. D'un côté, cette méthode, bien qu'elles présentent l'avantage de permettre le recueil de données d'un grand nombre de personnes en même temps, n'inclus pas d'indices comportementales. Bien que nous ayons mis l'accent sur la confidentialité des données et que nous ayons pris soins d'expliquer aux étudiantes que les données recueillies suite à leur participation seraient analysées en groupe et non individuellement, on ne peut être certain de l'honnêteté des réponses. Par exemple, on ne peut éliminer la possibilité que les répondants aient voulu présenter une image positive empreinte de désirabilité sociale ou à l'inverse, qu'elles aient tenté de présenter une image négative d'elles-mêmes. La nature "personnelle" de certaines des questions laissent présager que certaines femmes peuvent ne pas avoir répondu avec honnêteté (ex. poids, image corporelle, estime de soi, symptomatologie dépressive, symptomatologie boulimique etc). Egalement, lorsqu'on utilise la méthode par questionnaire, on ne peut écarter la possibilité que certaines questions aient été mal comprises et donc, répondues de façon inadéquate.

D'un autre côté, bien que nous reconnaissons les avantages de la méthode expérimentale au point de vue de la validité interne, certaines variables à l'étude (ex. symptomatologie boulimique) rendaient difficiles voire même impossibles l'utilisation de cette méthode sur le plan éthique. En effet, étant donné que la symptomatologie boulimique était étudiée comme variable dépendante, la manipulation de variables indépendantes dans le but d'observer leurs effets sur la variable dépendante aurait en quelque sorte encourager les épisodes de gavage et de vomissement provoqué (ou tout autre comportement compensatoire). Des études futures pourraient utiliser la méthode d'entrevue structurée afin de voir si des résultats similaires, à ceux observés dans cette thèse à l'aide de la méthode par questionnaires, pourraient être obtenus. Les études qui tenteraient de répliquer les résultats de la présente thèse à l'aide d'une méthode par questionnaires pourraient obtenir les réponses d'un ou des deux parents en plus de celles des participants et ce, pour les mesures les plus sujettes au biais (ex. symptomatologie boulimique). Ceci contribuerait possiblement à augmenter la confiance face à la validité des résultats.

Une troisième limite a trait au devis corrélationnel qui fut utilisé dans cette thèse. Puisque toutes les données ont été recueillies en même temps, il est difficile d'affirmer avec certitude que les relations identifiées entre les variables par le biais d'analyses d'équations structurales représentent réellement des liens de causalité. En effet, bien que la méthode d'analyse d'équation structurelles représente une méthode puissante pour la vérification de la correspondance d'un modèle hypothétique aux données, il n'en demeure pas moins que d'autres modèles alternatifs qui postulent des séquences différentes entre les variables mesurées pourraient possiblement offrir une représentation de données tout aussi acceptable sur le plan statistique. Seule une étude expérimentale et/ou longitudinale permettrait d'améliorer l'interprétation de liens causaux (Breckler, 1990). Aussi, avec un devis corrélationnel, les chercheurs ne peuvent éliminer la possibilité qu'un effet observé entre deux variables puisse être relié à l'intervention d'une troisième variable qui n'aurait pas été mesurée par les chercheurs. Finalement, bien que les effets directs et indirects obtenus dans le modèle final suggèrent que les formes de régularisation alimentaire puissent représenter des médiateurs entre l'insatisfaction corporelle et les comportements alimentaires, une

telle affirmation ne peut être effectuée sur la base du seul modèle testé. Des modèles alternatifs devraient être testés. Par exemple, un premier modèle impliquerait de tester les relations entre l'insatisfaction corporelle et les comportements alimentaires (sains et dysfonctionnels). Finalement, un deuxième modèle servirait à tester les relations entre l'insatisfaction et les formes de régularisation (autonome et contrôlante), entre les formes de régularisation et les comportements alimentaires (sains et malsains), et finalement, entre l'insatisfaction corporelle et les comportements alimentaires (sains et malsains). Si les relations du premier modèle se révélaient significatives et que toutes les relations du deuxième modèles à l'exception des relations entre l'insatisfaction corporelle et les comportements alimentaires (sains et dysfonctionnels), une médiation complète serait obtenue entre l'insatisfaction corporelle et les comportements alimentaires.

Une quatrième limite découle des instruments qui furent utilisés dans la présente thèse. Dans l'ensemble, les instruments présentaient des propriétés psychométriques acceptables. Cependant, certains instruments pourraient être améliorés. Entre autres, l'échelle des comportements alimentaires qui a été développée pour les besoins de la thèse, demeure très préliminaire. Bien que des analyses confirmatoires ait été effectuée sur cette échelle, une évaluation plus complète de ses propriétés psychométriques (ex., fidélité test-retest) s'avère nécessaire. Par ailleurs, il est important de reconnaître que dans cette thèse, les comportements alimentaires dysfonctionnels ont été mesurés à l'aide du BULIT-R (symptomatologie boulimique). Or, cet instrument, en plus de comprendre des items spécifiques à l'alimentation tels comportements de gavage (binge eating), comporte également des comportements compensatoires (ex., vomissement provoqué, utilisation de diurétiques etc) qui représentent des conséquences du gavage. Ceci dit, il est difficile de savoir si la variance expliquée dans la symptomatologie boulimique correspond principalement à la portion gavage, à la portion comportements compensatoires ou les deux. La construction d'un instrument qui réussirait à isoler les comportements alimentaires dysfonctionnels des conséquences de ceux-ci permettrait une différenciation plus juste des facteurs qui sont reliés aux comportements alimentaires sains versus dysfonctionnels. Finalement, l'échelle des

comportements alimentaires sains qui fut développée pour les besoins de cette thèse mériterait une évaluation plus approfondie de ses propriétés psychométriques. D'autres études devraient tenter de répliquer la structure bidimensionnelle obtenue, mesurer sa validité convergente et divergente, évaluer sa cohérence interne et sa fidélité test-retest.

Une cinquième limite vient du fait que certaines modifications post-hoc ont été apportées à certains des modèles de cette thèse. Bien que ces modifications soient justifiables d'un point de vue théorique, il n'en demeure pas moins que dans le futur, il serait important d'effectuer une validation croisée afin de vérifier la validité des résultats. Ceci permettrait de vérifier si un modèle modifié (ex. notre modèle de l'article 3), peut représenter adéquatement et de façon stable, les données d'un autre échantillon comparable au nôtre.

Finalement, bien que le modèle final se veut être un modèle intégratif de la régularisation alimentaire, il demeure que pour des raisons de parcimonie nous n'avons pu inclure certaines variables identifiées antérieurement dans les écrits comme susceptibles de jouer un rôle face au comportement alimentaire. Par exemple, bien que les pourcentages de variance expliquée dans la symptomatologie boulimique et les comportements alimentaires sains soient relativement élevés (75% et 73% respectivement), il est important de reconnaître la contribution potentielle de variables additionnelles. Entre autre, des facteurs familiaux, développementaux, et biologiques ont été identifiés dans les écrits comme ayant un rôle face à la symptomatologie boulimique. D'autres variables (ex., famille dysfonctionnelle, abus sexuel dans le passé) pourraient donc faire l'objet de recherches futures.

Implications théoriques

Sur le plan théorique, la présente recherche a des implications importantes pour deux domaines en particulier: le domaine de la motivation et celui de l'alimentation. Premièrement, la validation conceptuelle du cadre théorique proposé par Deci et Ryan (1985, 1991) dans le contexte de l'alimentation permet d'élargir notre compréhension des phénomènes régis par la motivation. Par exemple, dans cette thèse, les six styles de régularisation du comportement proposés par Deci et Ryan ainsi que le continuum d'autodétermination ont été supportés et ce, dans le contexte de

l'alimentation. Deuxièmement, la présente recherche nous a permis de vérifier un postulat important du modèle hiérarchique de la motivation de Vallerand (1997). Il a été possible de reproduire l'effet "top-down" selon lequel la motivation à un niveau supérieur de la hiérarchie (motivation globale) a un effet sur le niveau inférieur adjacent (contexte de l'alimentation). Plus spécifiquement, les résultats ont suggéré que les femmes qui sont globalement autodéterminées dans leur vie ont un style de régularisation qui est également autodéterminé face à la régularisation de leur comportement alimentaire. Troisièmement, le cadre théorique de Deci et Ryan nous a permis de vérifier la proposition théorique selon laquelle les styles de régularisation comportementale sont associées à différentes conséquences selon le niveau d'autodétermination qui sous-tend le comportement. Cette proposition a été supportée et ce, dans le contexte de l'alimentation. Globalement, les résultats ont suggéré que les styles de régularisation les plus autodéterminés étaient associés à des conséquences positives alors que les styles de régularisation les moins autodéterminés étaient associés à des conséquences négatives.

Finalement, la présente thèse a également des implications théoriques importantes pour le contexte de l'alimentation. En effet, bien que plusieurs approches (socioculturelle, biologique, familiale) aient été proposées pour tenter de mieux comprendre l'étiologie de la symptomatologie boulimique (dysfonctions alimentaires), aucune de ces approches n'a examiné à l'intérieur du même modèle, les facteurs responsables de comportements alimentaires sains versus ceux responsables de comportements alimentaires dysfonctionnels. Par l'intermédiaire du cadre théorique motivationnel de Deci et Ryan, il a été possible de faire des distinctions entre différents styles de régularisation alimentaire ce qui rend maintenant possible une meilleure compréhension des raisons pour lesquelles certaines personnes présentent des comportements alimentaires sains alors que d'autres non. Globalement les résultats ont suggéré que la motivation autodéterminée représente une variable qui gagnerait à être davantage étudiée dans le contexte de l'alimentation et plus spécifiquement, face aux problèmes de régularisation alimentaire.

Implications pratiques

Dans l'éventualité où les résultats obtenus dans cette thèse seraient répliqués, ceux-ci pourraient s'avérer utiles pour plusieurs intervenants en matière de soins de santé (prévention/traitement) qui travaillent auprès de personnes avec un trouble de l'image corporelle et/ou alimentaire.

Tout d'abord, les résultats obtenus dans cette thèse semble suggérer qu'encourager le développement d'un profil motivationnel *global* autodéterminé pourrait réduire, du moins en partie, de l'effet négatif des influences socioculturelles à l'égard de l'image corporelle. Ceci s'expliquerait par le fait qu'un plus haut niveau de motivation autodéterminée favoriserait chez la personne, une prise de décision en fonction de ses propres critères et valeurs plutôt qu'en fonction des valeurs préconisées par la société. En fait, bien que plusieurs études reconnaissent la forte influence des pressions environnementales concernant l'idéal corporel, les résultats de cette thèse font ressortir le fait que les personnes ont, à l'intérieur d'elle-mêmes, la capacité de choisir de se conformer ou non à ces pressions. Il devient donc particulièrement important de travailler à faciliter le développement d'un profil motivationnel global autodéterminé tôt à l'enfance afin que les jeunes filles qui parviennent à l'adolescence, puissent traverser cette période avec des sentiments de compétence et d'autonomie plutôt que de simplement dépendre de l'opinion d'autrui. Ainsi, alors que plusieurs stratégies d'interventions proposées à ce jour visent à boycotter les médias, les résultats de la présente thèse suggèrent qu'augmenter la résistance de la personne qui est sujette aux pressions concernant la minceur, pourrait également s'avérer bénéfique.

Deuxièmement, au niveau du comportement alimentaire, les résultats suggèrent qu'il est important de comprendre les raisons pour lesquelles les femmes régularisent leur comportement alimentaire puisque ces raisons sont associées à des conséquences alimentaires différentes. En effet, bien qu'une femme puisse être grandement motivée à régulariser son comportement alimentaire, d'après les résultats obtenus dans cette thèse, les conséquences de cette régularisation seront positives seulement si les raisons qui sous-tendent la régularisation sont autodéterminées. Dès lors, il est impératif que les efforts des intervenants ne soient pas simplement confinés à

encourager la régularisation alimentaire mais bien à encourager l'utilisation d'un style de régularisation autodéterminé. Les facteurs interpersonnels qui contribuent à faciliter le développement d'un style de régularisation autodéterminées ont fait l'objet de plusieurs études (voir Deci & Ryan, 1987, 1991, pour recension des écrits). Globalement, les résultats de ces études ont démontré que lorsque l'entourage de la personne encourage et supporte son autonomie, valide ses sentiments, minimise la pression à se conformer, lui fournit de l'information structurée tout en lui laissant la liberté de choisir, le développement d'un style de régularisation autodéterminé est facilité. Par opposition, lorsque l'entourage fournit des rétroactions négatives à la personne, lui impose ses propres valeurs et lui démontre un faible engagement cela est susceptible de favoriser un style de régularisation non autodéterminé. Diverses interventions spécifiques à la régularisation du comportement alimentaire pourraient être développées sur la base de ces résultats.

Par ailleurs, les professionnels de la santé ne sont pas les seules personnes susceptibles de jouer un rôle face à la régularisation alimentaire. Par exemple, un partenaire qui démontre son implication envers la personne, lui procure de l'information structurée sur la façon de régulariser efficacement son alimentation et qui lui explique l'importance de ce comportement d'une façon non menaçante et non contrôlante, pourrait aider la personne à progresser vers une plus grande autodétermination face à la régularisation de son comportement alimentaire.

Pistes de Recherches Futures

À la lumière des présents résultats, certaines pistes de recherche future peuvent être proposées. Tout d'abord, il serait important que d'autres chercheurs tentent de répliquer les résultats obtenus dans cette thèse. Par exemple, bien que l'Echelle de régularisation des comportements alimentaires ait démontré des propriétés psychométriques acceptables, la validation de cette échelle n'en demeure pas moins à un stade préliminaire. La validation devrait se poursuivre et ce, auprès de populations autres qu'universitaires. L'échantillon devrait autant que possible être constitué d'hommes et de femmes, de niveaux socioéconomiques variés et de différentes ethnies. La fidélité test-retest de l'instrument devrait également être évaluée.

Deuxièmement, une étude longitudinale permettrait de vérifier si la direction des relations qui ont été postulées dans les divers modèles de cette thèse est exacte ou si au contraire, la direction de certaines relations devraient être révisées. Par exemple, dans le cadre du modèle intégratif de la régularisation alimentaire, nous avons postulé que les comportements alimentaires sains prédiraient positivement le bien-être psychologique. Bien que les résultats aient supporté cette hypothèse, il demeure possible que la causalité réelle soit la relation inverse c'est-à-dire que le bien-être psychologique représente la variable indépendante et les comportements alimentaires sains, la variable dépendante. Des études futures pourraient tester cette relation inverse à celle qui fut proposée dans notre modèle.

Troisièmement, des études expérimentales en laboratoire pourraient être effectuées dans le but de vérifier de façon isolée, certaines des relations qui ont été obtenues par le biais des équations structurelles. Par exemple, des chercheurs pourraient évaluer l'effet du niveau global de motivation autodéterminée sur l'endossement des croyances de minceur véhiculées par la société en manipulant expérimentalement les sources de pressions socioculturelles. Plus spécifiquement, deux groupes (haut niveau de motivation autodéterminée vs. bas niveau de motivation autodéterminée) pourraient être formés sur la base du niveau d'autodétermination des individus. Des mesures du niveau d'endossement des croyances de la société pourraient être obtenues chez les deux groupes de participants. Par la suite, les participants de chacun des deux groupes seraient assignés aléatoirement à deux conditions. Dans la condition expérimentale, des images de jeunes modèles reflétant l'idéal de minceur seraient présentées aux participants alors que dans la condition contrôle, des stimuli neutres (ex. animaux) leurs seraient présentés. Des mesures du niveau d'endossement des croyances de la société seraient à nouveau obtenues chez les deux groupes de participants afin de vérifier si oui ou non l'autodétermination permet aux individus de mieux résister aux influences socioculturelles. Cette résistance serait mesurée par un plus faible endossement des croyances socioculturelles chez ces individus.

Quatrièmement, il serait intéressant dans des études futures d'examiner l'influence concomitante de facteurs situationnels et des styles de régularisation alimentaire sur les

comportements alimentaires. Plusieurs travaux récents portant sur les échecs d'autorégularisation suggèrent que des facteurs externes (ex., manger devant le téléviseur, être sous l'effet de l'alcool) sont susceptibles d'affecter la capacité des gens à régulariser leur comportement alimentaire (voir Baumeister, Heatherton, & Tice, 1994). Plus spécifiquement, ces facteurs sont responsables d'une diminution de la capacité de monitoring c'est-à-dire d'une diminution d'attention face au comportement que l'on doit contrôler (ex. manger). A la lumière de la théorie de l'autodétermination, la question que l'on peut se poser est: "est-ce que ces facteurs externes ont autant d'effet chez une personne qui présente un haut niveau d'autodétermination face à la régularisation de son comportement alimentaire que chez celle qui présente un faible niveau d'autodétermination?" Autrement dit, l'autodétermination pourrait-elle être une variable modératrice de l'effet des facteurs externes sur les comportements alimentaires? Une étude en laboratoire pourrait s'avérer utile pour tester une telle hypothèse.

Finalement, d'autres pistes intéressantes pour des recherches futures seraient d'examiner le rôle de facteurs interpersonnels (ex. conjoint et autres membres de la famille) comme sources d'influences des *déterminants* de la motivation à régulariser son comportement alimentaire. Par exemple, qu'arrive-t-il aux *perceptions de compétence et d'autonomie* d'une femme qui régularise son comportement alimentaire lorsque son conjoint lui procure du feedback contrôlant vis-à-vis de ses habitudes alimentaires? Ceci peut-il entraîner un changement du niveau de motivation autodéterminée chez sa conjointe? Si oui, quelles en sont les *conséquences* sur certains domaines de sa vie (ex., santé physique, relations conjugales, satisfaction sexuelle, rendement au travail)?

Conclusion

La présente thèse représente une contribution autant pour le domaine de la motivation que celui de l'alimentation. Du point de vue motivationnel, cette thèse procure un support additionnel à la théorie de l'autodétermination et permet d'élargir son application à un nouveau domaine: celui de la régularisation du comportement alimentaire. Plus spécifiquement, la thèse offre un support pour les six styles de régularisation du comportement proposés par Deci et Ryan et le continuum de

motivation autodéterminée qui spécifie une disposition particulière de ces styles de régularisation en fonction du niveau d'autodétermination qui sous-tend le comportement.

Du point de vue alimentaire, la présente thèse constitue un premier effort théorique vers une meilleure compréhension des raisons qui incitent les femmes à régulariser leur comportement alimentaire. De plus, elle représente une première tentative d'intégrer, dans un seul modèle, diverses variables susceptibles de contribuer à une meilleure compréhension de pourquoi certaines femmes, bien qu'insatisfaites de leur image corporelle, présentent un comportement alimentaire dysfonctionnel alors que d'autres non. En effet, les études antérieures, bien qu'elles aient reconnu et testé la relation entre l'insatisfaction corporelle et la symptomatologie boulimique, ont rarement examiné le pourquoi d'une telle relation. Egalement, aucune étude ne s'est intéressé au fait que plusieurs personnes bien qu'insatisfaites de leur image corporelle démontrent des comportements alimentaires "normaux". Ainsi, parce que cette thèse considère différents styles de régularisation alimentaire, il est maintenant possible de mieux comprendre dans quelles circonstances l'insatisfaction corporelle peut être associée à des comportements alimentaires sains versus des comportements alimentaires dysfonctionnels. Bien que nous reconnaissons que les résultats demeurent préliminaires, nous espérons qu'ils constituent un point de départ pour des études futures intéressées à mieux comprendre le rôle de la motivation face aux difficultés qu'éprouvent plusieurs personnes à régulariser leur comportement alimentaire.

RÉFÉRENCES

(INTRODUCTION ET DISCUSSION GÉNÉRALE)

American Psychiatric Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, DC: Author.

Beneke, W. M., Vander Tuig, J. G. (1996). Contemporary issues in behavior therapy: Improving the human condition. In J. R. Cautela and W. Ishaq (Eds.), Improving eating behaviors: A stimulus-control approach to lifestyle change (pp. 105-121). New York: Plenum.

Black, S. J., & Weiss, M. R. (1992). The relationship among perceived coaching behaviors, perceptions of ability, and motivation in competitive age-group swimmers. Journal of Sport and Exercise Psychology, 14, 309-325.

Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1994). Construction et validation de l'inventaire des motivations interpersonnelles. Unpublished manuscript, University of Quebec in Montreal.

Breckler, S. J. (1990). Applications of covariance structure modeling in psychology: Cause for concern? Psychological Bulletin, 107, 260-273.

Brownell, K. D. (1991). Dieting and the search for the perfect body: Where physiology and culture collide. Behavior Therapy, 22, 1-12.

Carver, C. S., & Scheier, M. F. (1981). Attention and self-regulation: A control theory approach to human behavior. New York: Springer-Verlag.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. Psychological Review, 97, 19-35.

Carver, C. S., & Scheier, M. F. (1998). On the self-regulation of behavior. New York: Cambridge University Press.

Carver, C. S., & Scheier, M. F. (1999). Themes and issues in the self-regulation of behavior. In R. S. Wyer, Jr. (Ed.), Perspective on behavioral self-regulation: Advances in Social Cognition Vol. 12 (pp. 1-105). Mahwah, NJ: Erlbaum.

Carver, C. S., & Scheier, M. F. (2000). Action, emotion, and personality: Emerging conceptual integration. Personality and Social Psychology Bulletin, 26, 741-751.

Centers for Disease Control and Prevention. (1991). Body weight perceptions and selected weight-management goals and practices of high school students. Journal of the American Medical Association, 266, 2811-2812.

Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. Educational Psychologist, 26, 325-346.

Deci, E. L., & Ryan, R. M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), Nebraska Symposium on Motivation: Vol 38. Perspectives on motivation. (pp. 237-288). Lincoln: University of Nebraska.

Foreyt, J. P., Mikhail, (1997). Anorexia nervosa and bulimia nervosa. In E. J., Mash & L. G. Terdal (Eds.), Assessment of childhood disorders (pp. 683-716). New York: Guilford.

Garner, D. M., & Wooley, S. C. (1991). Confronting the failure of behavioral and dietary treatments for obesity. Clinical Psychology Review, 11, 729-780.

Heatherton, T. F., Baumeister, R. F., & Tice, D. M. (1994). Losing control: How and why people fail at self-regulation. San Diego, CA: Academic.

Heinberg, L. J. (1996). Theories about body image: Perceptual, developmental, and sociocultural factors. In J. K. Thompson (Ed.), Body image, eating disorders, and obesity: An integrative guide for assessment and treatment (pp.27-48). Washington DC: American Psychological Association.

Johnson, C., & Connors, M. E. (1987). The etiology and treatment of bulimia nervosa: A biopsychosocial perspective. New York: Basic Books.

Kuczmarski, R. J., Flegal, K. M., Campbell, S. M., & Johnson, C. L. (1994). Increasing prevalence of overweight among US adults: The National Health and Nutrition Examination Surveys, 1960 to 1991. Journal of the American Medical Association, 272, 205-211.

Mazur, A. (1986). U.S. trends in feminine beauty and overadaptation. Journal of Sex Research, 22, 281-303.

Nitcher, M., & Nitcher, M. (1991). Hype and weight. Medical Anthropology, 13, 249-284.

Pelletier, L. G., Tuson, K. M., Green-Demers, I., Noels, K., & Beaton, A. (1998). Why are you doing things for the environment - or are you?: The motivation toward the environment scale (MTES). Journal of Applied Social Psychology, 28, 437-468.

Pelletier, L. G., Vallerand, R. J., Green-Demers, I., Blais, M. R., & Brière, N. M. (1996). Vers une conceptualisation motivationnelle multidimensionnelle du loisir: construction et validation de l'échelle de motivation vis-à-vis des loisirs (EML) [Toward a Multidimensional Conceptualization of Motivation For Leisure: Construction and Validation of the Motivation Scale for Leisures (MSL)] . Loisirs et société, 19, 559-585.

Polivy, J., & Herman, C. P. (1985). Dieting and bingeing: A causal analysis. American Psychologist, 40, 193-201.

Rand, C. S. W., & Kuldau, J. M. (1992). Epidemiology of bulimia and symptoms in a general population: Sex, age, race, and socioeconomic status. International Journal of Eating Disorders, 11, 37-44.

Rodin, J, Silberstein, L. R., & Strieggle-Moore, R. H. (1985). Women and weight: A normative discontent. In T. B. Sonderegger (Ed.), Psychology and Gender: Nebraska Symposium on Motivation, 1984 (pp. 267-307). Lincoln: University of Nebraska.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. Clinical Psychology Review, 14, 1-29.

Stice, E., Shaw, H., & Nemeroff, C. (1998). Dual pathway model of bulimia nervosa: Longitudinal support for dietary restraint and affect-regulation mechanisms. Journal of Social and Clinical Psychology, 17, 129-149.

Thompson, J. K., Coovert, M. D., Richards, K. J., Johnson, S., & Cattarin, J. (1995). Development of body image, eating disturbance, and general psychological functioning in female

adolescents: Covariance structure modeling and longitudinal investigations. International Journal of Eating Disorders, 18, 221-236.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), Advances in experimental social psychology Vol 29, (pp.271-360). New York: Academic.

Vallerand, R. J., Deci, E. L., & Ryan, R. M. (1987). Intrinsic motivation in sport. Exercise and Sport Sciences Review, 15, 389-425.

Vallerand, R. J., Fortier, M. S., & Guay, F. (1997). Self-determination and persistence in a real life setting: Toward a motivational model of high-school dropout. Journal of Personality and Social Psychology, 72, 1161-1176.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students. Journal of Personality and Social Psychology, 70, 767-779.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. Journal of Personality and Social Psychology, 70, 115-126.

ANNEXE A

Instructions lues et présentées aux participantes

Instruction for completing the questionnaire

A study is presently being conducted at the University of Ottawa under the Direction of Dr. Luc G. Pelletier, School of Psychology, concerning the relationships between women's beliefs or habits regarding their eating behaviors, their perceptions of themselves and their reasons for trying to regulate their eating behaviors. We would be very pleased to have your participation in this research. Participation involves filling out a questionnaire.

You are under no obligation to participate in this research. Completion of the questionnaire is entirely voluntary and the decision to participate, or not, is yours. You may immediately refuse, or you may elect to discontinue at any time.

In order to ensure anonymity, we ask that you don't put your name on the questionnaire. Your identity will then remain unknown and your answers will be anonymous. The answers will be coded and combined with those of others who have participated. They will be analysed as a group, rather than on an individual basis. In addition, answers will be kept confidential. No one other than the involved researchers will have access to your responses and these responses will be kept in a locked cabinet in Dr. Pelletier's research laboratory at the University of Ottawa. Only the collective results of the study will be presented in the final report. This report will be comprised of global information for the complete sample of subjects completing the questionnaires.

If you agree to participate in this study, your participation will involve completing this questionnaire package. While the time varies among the people, the questionnaire takes about 30 to 40 minutes to complete. When answering the items, we ask that you try to answer them as accurately as possible. It is important to remember that these questionnaires are neither tests nor examinations. There are no right and wrong answers, we are simply interested in your honest opinion. Also, we encourage you not to leave any items unanswered, but instead pick the response that best describes your thoughts and feelings for the item. Of course, you are not obligated to answer any question you do not feel comfortable in responding to, and you are free to withdraw from the study at any time without penalty. Some of the questions concern your feelings, views about your body, your childhood experiences, and other aspects of a personal nature. It is possible that some individuals may experience mild discomfort when filling them out. Should you have any concerns or questions following the completion of the questionnaire, please do not hesitate to phone us at (613) 562-5800 ext.4179, and we will assist you in identifying the appropriate course of action to address your concerns.

If you wish to receive a copy of the report on this study, you can contact us by phone or by mail at the phone number or the address indicated below (you can detach this page from the questionnaire and keep it if you decide to contact us later).

We would like to extend our appreciation for your co-operation in this research project

Sincerely,

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ANNEXE B

Diverses mesures utilisées dans la présente thèse

GENERAL QUESTIONS ABOUT EATING BEHAVIORS

Self-regulation refers to an individual's ability to exert control over oneself. For example, many people try to regulate their eating behaviors by controlling the amount of food they consume or by choosing healthy food. For each of the following questions, please use the scale provided below each of them and circle the appropriate number.

1. To what extent do you **find important** to regulate your eating behaviors?

Not important at all						
1	2	3	Moderately important	4	5	6
						Very important 7

2. To what extent are you **trying to regulate** your eating behaviors?

Not trying at all						
1	2	3	Moderately trying	4	5	6
						Trying a lot 7

3. To what extent are you concerned by the **quantity** of food you're eating?

Not concerned at all						
1	2	3	Moderately concerned	4	5	6
						Very concerned 7

4. To what extent are you concerned by the **quality** of food you're eating?

Not concerned at all						
1	2	3	Moderately concerned	4	5	6
						Very concerned 7

5. To what extent do you **intend to regulate** your eating behaviors in the future?

Do not intend at all						
1	2	3	Moderately intend	4	5	6
						Very much intend 7

6. To what extent do you **consider yourself successful** in the way you regulate your eating behaviors?

Not at all successful						
1	2	3	Moderately successful	4	5	6
						Very successful 7

THE REGULATION OF EATING BEHAVIORS SCALE (Dion & Pelletier, 2000)

(ITEMS USED FOR THE EFA)

Listed below are several statements concerning **possible reasons why people might try to regulate their eating behaviors**. Using the scale from 1-7 below, please indicate the degree to which the proposed reasons **correspond to your reasons for regulating your eating behaviors** (*i.e.*, "try to eat healthy" or "pay attention to your eating habits"). Circle the appropriate number to the right of the item.

Why are you trying to regulate your eating behaviors?

	Does not Correspond at all		Corresponds Moderately			Corresponds Exactly	
1. For the pleasure of making good healthy food choices	1	2	3	4	5	6	7
2. Because somebody told me it would be good for me.	1	2	3	4	5	6	7
3. For the pleasure I experience while I'm mastering a good diet.	1	2	3	4	5	6	7
4. I don't know why I bother.	1	2	3	4	5	6	7
5. Because it seems to me that taking care of myself and eating healthy are inseparable.	1	2	3	4	5	6	7
6. Because eating healthy is something that I highly value for myself.	1	2	3	4	5	6	7
7. Because I care about my physical appearance.	1	2	3	4	5	6	7
8. Because a health professional (e.g., nurse, physician, dietetician) has advised me to.	1	2	3	4	5	6	7
9. Because I like the feeling I have when I eat healthy.	1	2	3	4	5	6	7
10. Because I take pleasure in fixing healthy meals.	1	2	3	4	5	6	7
11. Because it is expected of me.	1	2	3	4	5	6	7
12. Because eating healthy is important to me.	1	2	3	4	5	6	7
13. Because I enjoy eating healthy.	1	2	3	4	5	6	7
14. Because I like to find new ways to create meals that are good healthy.	1	2	3	4	5	6	7
15. Because eating healthy is a way to ensure long-term health benefits.	1	2	3	4	5	6	7

Why are you trying to regulate your eating behaviors?

	Does not Correspond at all		Corresponds Moderately			Corresponds Exactly	
16. Because I like the feeling I have when I eat healthy.	1	2	3	4	5	6	7
17. I don't know. I can't see how my efforts to eat healthy are helping my health situation.	1	2	3	4	5	6	7
18. Because I feel I must absolutely be thin.	1	2	3	4	5	6	7
19. Because I don't want to be ashamed of how I look.	1	2	3	4	5	6	7
20. I think I'd feel bad later if I did not.	1	2	3	4	5	6	7
21. Because other people insist that I do.	1	2	3	4	5	6	7
22. Because eating healthy helps me to make valuable changes in other important aspects of my life.	1	2	3	4	5	6	7
23. Because eating healthy is an integral part of my lifestyle.	1	2	3	4	5	6	7
24. For the satisfaction of eating healthy.	1	2	3	4	5	6	7
25. I once had good reasons for regulating my eating behaviors, however, I now wonder whether I should continue.	1	2	3	4	5	6	7
26. Because I would feel ashamed of myself if I was not eating healthy.	1	2	3	4	5	6	7
27. So other won't criticize how I look.	1	2	3	4	5	6	7
28. Because other people close to me (e.g., my partner or parents) will be upset if I don't.	1	2	3	4	5	6	7
29. Honestly, I don't know, I can't see what I'm getting out of it.	1	2	3	4	5	6	7
30. Because people around me nag me to do it.	1	2	3	4	5	6	7
31. Because I think it's a good idea to try to regulate my eating behaviors.	1	2	3	4	5	6	7
32. Because eating healthy is part of the way I've chosen to live my life.	1	2	3	4	5	6	7
33. I wonder why I'm trying to eat better, my physical appearance is not improving.	1	2	3	4	5	6	7

Why are you trying to regulate your eating behaviors?

	Does not Correspond at all		Corresponds Moderately			Corresponds Exactly	
34. Because I would be humiliated if people thought I wasn't in control of my eating behaviors.	1	2	3	4	5	6	7
35. I really don't understand what I can get from regulating my eating behaviors.	1	2	3	4	5	6	7
36. Because I feel I have to.	1	2	3	4	5	6	7
37. I don't really know; I truly have the impression that I'm wasting my time trying to regulate my eating behaviors.	1	2	3	4	5	6	7
38. Because regulating my eating behaviors allows me to have a thin body.	1	2	3	4	5	6	7
39. Because I value the way it makes me feel.	1	2	3	4	5	6	7
40. Because regulating my eating behaviors has become a fundamental part of who I am.	1	2	3	4	5	6	7
41. Because eating healthy is congruent with other important aspects of myself.	1	2	3	4	5	6	7
42. Because I believe that eventually it will allow me to feel better.	1	2	3	4	5	6	7
43. To avoid being fat.	1	2	3	4	5	6	7
44. Because I believe it's a good thing I can do to feel better about myself in general.	1	2	3	4	5	6	7
45. Because eating healthy is positively perceived by others.	1	2	3	4	5	6	7
46. Because it's fun to create meals that are good for my health.	1	2	3	4	5	6	7

THE REGULATION OF EATING BEHAVIORS SCALE (Dion & Pelletier, 2000)

(ITEMS USED FOR THE CFA)

Listed below are several statements concerning possible reasons why people might try to regulate their eating behaviors. Using the scale from 1-7 below, please indicate the degree to which the proposed reasons correspond to your reasons for regulating your eating behaviors (i.e., "try to eat healthy" or "pay attention to your eating habits"). Circle the appropriate number to the right of the item.

Why are you trying to regulate your eating behaviors?

	Does not Correspond at all		Corresponds Moderately			Corresponds Exactly	
1. I don't know why I bother.	1	2	3	4	5	6	7
2. Because I take pleasure in fixing healthy meals.	1	2	3	4	5	6	7
3. Because it is expected of me.	1	2	3	4	5	6	7
4. Because I like to find new ways to create meals that are good healthy.	1	2	3	4	5	6	7
5. Because eating healthy is a way to ensure long-term health benefits.	1	2	3	4	5	6	7
6. I don't know. I can't see how my efforts to eat healthy are helping my health situation.	1	2	3	4	5	6	7
7. Because I feel I must absolutely be thin.	1	2	3	4	5	6	7
8. Because I don't want to be ashamed of how I look.	1	2	3	4	5	6	7
9. Because other people insist that I do.	1	2	3	4	5	6	7
10. Because eating healthy is an integral part of my lifestyle.	1	2	3	4	5	6	7
11. For the satisfaction of eating healthy.	1	2	3	4	5	6	7
12. Because I would feel ashamed of myself if I was not eating healthy.	1	2	3	4	5	6	7
13. Because other people close to me (e.g., my partner or parents) will be upset if I don't.	1	2	3	4	5	6	7
14. Honestly, I don't know, I can't see what I'm getting out of it.	1	2	3	4	5	6	7
15. Because people around me nag me to do it.	1	2	3	4	5	6	7

Why are you trying to regulate your eating behaviors?

	Does not Correspond at all		Corresponds Moderately			Corresponds Exactly	
16. Because I think it's a good idea to try to regulate my eating behaviors.	1	2	3	4	5	6	7
17. Because eating healthy is part of the way I've chosen to live my life.	1	2	3	4	5	6	7
18. Because I would be humiliated if people thought I wasn't in control of my eating behaviors.	1	2	3	4	5	6	7
19. I don't really know; I truly have the impression that I'm wasting my time trying to regulate my eating behaviors.	1	2	3	4	5	6	7
20. Because regulating my eating behaviors has become a fundamental part of who I am.	1	2	3	4	5	6	7
21. Because eating healthy is congruent with other important aspects of myself.	1	2	3	4	5	6	7
22. Because I believe that eventually it will allow me to feel better.	1	2	3	4	5	6	7
23. Because I believe it's a good thing I can do to feel better about myself in general.	1	2	3	4	5	6	7
24. Because it's fun to create meals that are good for my health.	1	2	3	4	5	6	7

THE GLOBAL MOTIVATION SCALE (GMS; Haddad, 1999)

In general, I do things...

	Does not correspond at all		Corresponds moderately			Corresponds completely	
1. ..in order to feel pleasant emotions	1	2	3	4	5	6	7
2. ..because I do not want to disappoint certain people	1	2	3	4	5	6	7
3. ..in order to help myself become the person I aim to be	1	2	3	4	5	6	7
4. ..because I like making interesting discoveries	1	2	3	4	5	6	7
5. ..because I would beat myself up for not doing them	1	2	3	4	5	6	7
6. ..because they reflect the essence of who I am	1	2	3	4	5	6	7
7. ..because of the pleasure I feel as I become more and more skilled	1	2	3	4	5	6	7
8. ..although I do not see the benefit in what I am doing	1	2	3	4	5	6	7
9. ..because of the sense of well-being I feel while I am doing them	1	2	3	4	5	6	7
10. ..because I want to be viewed more positively by certain people	1	2	3	4	5	6	7
11. ..because I chose them as means to attain my objectives	1	2	3	4	5	6	7
12. ..for the pleasure of acquiring new knowledge	1	2	3	4	5	6	7
13. ..because otherwise I would feel guilty for not doing them	1	2	3	4	5	6	7
14. ..because by doing them I am living in line with my deepest principles	1	2	3	4	5	6	7
15. ..for the pleasure I feel mastering what I am doing	1	2	3	4	5	6	7
16. ..although it does not make a difference whether I do them or not	1	2	3	4	5	6	7
17. ..for the pleasant sensations I feel while I am doing them	1	2	3	4	5	6	7
18. ..in order to show others what I am capable of	1	2	3	4	5	6	7
19. ...because I chose them in order to attain what I desire	1	2	3	4	5	6	7

In general, I do things...

	Does not correspond at all		Corresponds moderately			Corresponds completely	
20. ..for the pleasure of learning new, interesting things	1	2	3	4	5	6	7
21. ..because I force myself to do them	1	2	3	4	5	6	7
22. ..because of the satisfaction I feel in trying to excel in what I do	1	2	3	4	5	6	7
23. ..even though I do not have a good reason for doing them	1	2	3	4	5	6	7
24. ..because they are an extension of me	1	2	3	4	5	6	7
25. ..for the enjoyable feelings I experience	1	2	3	4	5	6	7
26. ..in order to attain prestige	1	2	3	4	5	6	7
27. ..because I choose to invest myself in what is important to me	1	2	3	4	5	6	7
28. ..for the pleasure of learning different interesting facts	1	2	3	4	5	6	7
29. ..because I would feel bad if I do not do them	1	2	3	4	5	6	7
30. ..because by doing them I am fully expressing my deepest values	1	2	3	4	5	6	7
31. ..because of the pleasure I feel outdoing myself	1	2	3	4	5	6	7
32. ..even though I believe they are not worth the trouble	1	2	3	4	5	6	7
33. ..because they reflect what I value most in life	1	2	3	4	5	6	7

HISTORY OF BEING TEASED ABOUT PHYSICAL APPEARANCE (Boyer, 1991)

Please answer each question using the scale provided below:

	Never	Rarely	Sometimes	Often	Very often	Almost always
1. When you were a child, or an adolescent, were you ever teased about being too fat?	1	2	3	4	5	6
2. Were you ever the brunt of family jokes because of your weight?	1	2	3	4	5	6
3. Did other kids call you names that related to your size or weight?	1	2	3	4	5	6

HEALTHY EATING HABITS SCALE (Dion & Pelletier, 2000)

Please indicate to what extent you do the different things described in the items listed below. Use the scale provided below:

	Not at all	Sometimes	Most of the time	Often	All of the time
1. I eat vegetables, fruits and grain products (e.g., pastas, cereals, and grain mixtures).	1	2	3	4	5
2. I eat foods that are low in fat, saturated fat, and cholesterol	1	2	3	4	5
3. I use white sugar.	1	2	3	4	5
4. I use salt.	1	2	3	4	5
5. I eat a variety of foods from each of the four groups recommended by the Canadian Food Guide (cereals, fruits and vegetables, milk products, and meats and substitutes).	1	2	3	4	5
6. I eat foods such as chips, chocolate and candies .	1	2	3	4	5
7. I drink water	1	2	3	4	5
8. I eat fried food	1	2	3	4	5

ENDORSEMENT OF SOCIETY'S BELIEFS ABOUT THINNESS AND OBESITY (Boyer, 1991)

Please indicate what you personally believe to be true. Answer each question using the scale provided below:

	Do not agree at all		Agree moderately			Strongly agree	
1. People who are thin are well liked.	1	2	3	4	5	6	7
2. To be honest, I don't think very highly of people who can't keep their weight down.	1	2	3	4	5	6	7
3. Women who have nice bodies are popular.	1	2	3	4	5	6	7
4. Having a thin body makes a person sexually desirable.	1	2	3	4	5	6	7
5. People who are fat don't have any self-control.	1	2	3	4	5	6	7
6. Being thin is extremely important.	1	2	3	4	5	6	7
7. When you think about it, being fat is really unattractive.	1	2	3	4	5	6	7
8. Deep down, those who are fat are not well adjusted.	1	2	3	4	5	6	7

**EATING DISORDER INVENTORY-2 - BODY DISSATISFACTION SCALE
(EDI-BD; GARNER, 1991)**

Please answer each question using the scale provided below:

	Never	Rarely	Sometimes	Often	Very often	Almost always
1. Do you think that your stomach is too big.	1	2	3	4	5	6
2. Do you think that your thighs are too large.	1	2	3	4	5	6
3. Do you feel satisfied with the shape of your body.	1	2	3	4	5	6
4. Do you like the shape of your buttocks.	1	2	3	4	5	6
5. Do you think that your hips are just the right size.	1	2	3	4	5	6
6. Do you think that your stomach is just the right size?	1	2	3	4	5	6
7. Do you think your hips are too big?	1	2	3	4	5	6
8. Do you think that your thighs are just the right size?	1	2	3	4	5	6
9. Do you think your buttocks are too large?	1	2	3	4	5	6

**PERCEIVED SOCIOCULTURAL PRESSURES FOR A THIN BODY
(Stice, Ziemba, Margolis, & Flick, 1996)**

Please indicate to what extent you agree with each of the statements listed below. Please use the scale provided below:

	Not agree at all		Moderately agree		Strongly agree
1. I've felt pressure from my friends to lose weight.	1	2	3	4	5
2. I've perceived a strong message from my friends to have a thin body.	1	2	3	4	5
3. I've felt pressure from my family to lose weight.	1	2	3	4	5
4. I've perceived a strong message from my family to have a thin body.	1	2	3	4	5
5. I've felt pressure from people I've dated to have a thin body.	1	2	3	4	5
6. I've perceived a strong message from people I've dated to lose weight.	1	2	3	4	5
7. I've felt pressure from the media (e.g., TV, magazines) to lose weight.	1	2	3	4	5
8. I've noticed a strong message from the media to have a thin body.	1	2	3	4	5

SELF-ESTEEM SCALE (SES; Rosenberg, 1965)

Please indicate to what extent you agree with each of the item listed below. Use the scale provided below:

	Do not agree at all agree		Moderately agree	Strongly agree	
1. I feel I have a number of qualities.	1	2	3	4	5
2. On the whole, I am satisfied with myself.	1	2	3	4	5
3. At times I think I am no good at all.	1	2	3	4	5
4. I take a positive attitude toward myself.	1	2	3	4	5
5. I feel I do not have too much to be proud of.	1	2	3	4	5

SATISFACTION WITH LIFE SCALE (SWLS; Diener, Emmons, Larsen, & Griffin, 1985)

Please indicate to what extent you agree with each of the item listed below. Use the scale provided below:

	Do not agree at all agree		Moderately agree	Strongly agree	
1. In most ways my life is close to my ideal.	1	2	3	4	5
2. The conditions of my life are excellent.	1	2	3	4	5
3. I am satisfied with my life.	1	2	3	4	5
4. So far I have gotten the important things I want in life.	1	2	3	4	5
5. If I could live my life over, I would change almost nothing.	1	2	3	4	5

CENTER FOR EPIDEMIOLOGICAL STUDIES - DEPRESSED MOOD SCALE
(CES; Radloff, 1977)

Please indicate to what extent you agree with each of the item listed below. Use the scale provided below.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)
During the past week:				
1. I was bothered by things that ususally don't bother me.	0	1	2	3
2. I did not feel like eating; my appetite was poor.	0	1	2	3
3. I felt that I could not shake off the blues even with the help from my family or friends.	0	1	2	3
4. I felt that I was just as good as other people .	0	1	2	3
5. I had trouble keeping my mind on what I was doing.	0	1	2	3
6. I felt depressed.	0	1	2	3
7. I felt that everything I did was an effort.	0	1	2	3
8. I felt hopeful about the future.	0	1	2	3
9. I thought my life had been a failure.	0	1	2	3
10. I felt fearful.	0	1	2	3
11. My sleep was restless.	0	1	2	3
12. I was happy.	0	1	2	3
13. I talked less than usual.	0	1	2	3
14. I felt lonely.	0	1	2	3
15. People were unfriendly.	0	1	2	3
16. I enjoyed life.	0	1	2	3
17. I had crying spells.	0	1	2	3
18. I felt sad.	0	1	2	3
19. I felt that people dislike me.	0	1	2	3
20. I could not get "going".	0	1	2	3

BULIMIC SYMPTOMATOLOGY (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991)

Read each question carefully and circle the number that applies best to you.

1. I am satisfied with my eating patterns.
 1. Agree
 2. Neutral
 3. Disagree a little
 4. Disagree
 5. Disagree strongly
2. Would you presently call yourself a "binge eater"?
 1. Yes, absolutely
 2. Yes
 3. Yes, probably
 4. Yes, possibly
 5. No, probably not
3. Do you feel you have control over the my body.
 1. Most or all the time
 2. A lot of the time
 3. Occasionally
 4. Rarely
 5. Never
4. I am satisfied with the shape and size of amount of food you consume?
 1. Frequently or always
 2. Sometimes
 3. Occasionally
 4. Rarely
 5. Seldom or never
5. When I feel that my eating behavior is out of control, I try to take rather extreme measures to get back on course (strict dieting, fasting, laxatives, diuretics, self-induced vomiting or vigorous exercise).
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Never or my eating is never out of control
6. I use laxatives or suppositories to help control my weight.
 1. Once a day or more
 2. 3-6 times a week
 3. Once or twice a week
 4. 2-3 times a month
 5. Once a month or less (or never)
7. I am obsessed about the size and shape of my body.
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Seldom or never
8. There are times I rapidly eat a very large amount of food.
 1. More than twice a week
 2. Twice a week
 3. Once a week
 4. 2-3 times a month
 5. Once a month or less (or never)
9. How long have you been binge eating (eating uncontrollably to the point of stuffing yourself)?
 1. Not applicable; I don't binge eat
 2. Less than 3 months
 3. 3 months to 1 year
 4. 1-3 years
 5. 3 or more years
10. Most people I know would be amazed if they knew how much food I can consume at one sitting.
 1. Without a doubt
 2. Very probably
 3. Probably
 4. Possibly
 5. No
11. I exercise in order to burn calories.
 1. More than 2 hours per day
 2. About 2 hours per day
 3. More than 1 but less than 2 hours per day
 4. One hour or less per day
 5. I exercise but not to burn calories or don't exercise
12. Compared with women your age, how preoccupied are you about your weight and body shape?
 1. A great deal more than average
 2. Much more than average
 3. More than average
 4. A little more than average
 5. Average or less than average

Read each question carefully and circle the number that applies best to you.

13. I am afraid to eat anything for fear that I won't be able to stop.
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Seldom or never
14. I feel tormented by the idea that I am fat or might gain weight.
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Seldom or never
15. How often do you intentionally vomit after eating? hungry.
 1. 2 or more times a week
 2. Once a week
 3. 2-3 times a month
 4. Once a month
 5. Less than once a month or never
16. I eat a lot of food when I'm not even hungry.
 1. Very frequently
 2. Frequently
 3. Occasionally
 4. Sometimes
 5. Seldom or never
17. My eating patterns are different from the eating patterns of most people.
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Seldom or never
18. After I binge eat I turn to one of several strict methods to try to keep from gaining weight (vigorous exercise, strict dieting, fasting,, self-induced vomiting, laxatives, or diuretics)
 1. Never or I don't binge eat
 2. Rarely
 3. Occasionally
 4. A lot of the time
 5. Most or all of the time
19. I have tried to lose weight by fasting or going on strict diets.
 1. Not in the past year
 2. Once in the past year
 3. 2-3 times in the past year
 4. 4-5 times in the past year
 5. More than 5 times in the past year
20. I exercise vigorously and for long periods of time in order to burn calories.
 1. Average or less than average
 2. A little more than average
 3. More than average
 4. Much more than average
 5. A great deal more than average
21. When engaged in an eating binge, I tend to eat foods that are high in carbohydrates (sweets and starches).
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Seldom or I don't binge
22. Compared to most people, my ability to control my eating behavior seems to be:
 1. Greater than others' ability
 2. About the same
 3. Less
 4. Much less
 5. I have absolutely no control
23. I would presently label myself a "compulsive eater" (one who engages in episodes of uncontrolled eating).
 1. Absolutely
 2. Yes
 3. Yes, probably
 4. Yes, possibly
 5. No, probably not
24. I hate the way my body looks after I eat too much.
 1. Seldom or never
 2. Sometimes
 3. Frequently
 4. Almost always
 5. Always

Read each question carefully and circle the number that applies best to you.

25. When I am trying to keep from gaining weight, I feel that I have to resort to vigorous exercise, strict dieting, fasting, self-induced vomiting, laxatives, or diuretics.
 1. Never
 2. Rarely
 3. Occasionally
 4. A lot of the time
 5. Most or all of the time
26. Do you believe that it is easier for you to vomit than it is for most people?
 1. Yes, it's no problem at all for me
 2. Yes, it's easier
 3. Yes, it's a little easier
 4. About the same
 5. No, it's less easy
27. I use diuretics (water pills) to help control my weight.
 1. Never
 2. Seldom
 3. Sometimes
 4. Frequently
 5. Very frequently
28. I feel that food controls my life.
 1. Always
 2. Almost always
 3. Frequently
 4. Sometimes
 5. Seldom or never
29. I try to control my weight by eating little or at no food for a day or longer.
 1. Never
 2. Seldom
 3. Sometimes
 4. Frequently
 5. Very frequently
30. When consuming a large quantity of food, what rate of speed do you usually eat?
 1. More rapidly than most people have ever eaten in their lives
 2. A lot more rapidly than most people
 3. A little more rapidly than most people
 4. About the same rate as most people
 5. More slowly than most people (or not applicable)
31. I use laxatives or suppositories to help control my weight.
 1. Never
 2. Seldom
 3. Sometimes
 4. Frequently
 5. Very frequently
32. Right after I binge I feel:
 1. So fat and bloated I can't stand it
 2. Extremely fat
 3. Fat
 4. A little fat
 5. OK about how my body looks or I never binge eat
33. Compared to other people of my sex, my ability to always feel in control of how much I eat is: uncontrollably
 1. About the same or greater
 2. A little less
 3. Less
 4. Much less
 5. A great deal less
34. In the last three months, on average how often did you binge eat (eat to the point of stuffing yourself)?
 1. Once a month or less (or never)
 2. 2-3 times a month
 3. Once a week
 4. Twice a week
 5. More than twice a week
35. Most people I know would be surprised at how fat I look after I eat a lot of food.
 1. Yes, definitely
 2. Yes
 3. Yes, probably
 4. Yes, possibly
 5. No, probably not or I never eat a lot of food
36. I use diuretics (water pills) to help control my weight.
 1. 3 times a week or more
 2. Once or twice a week
 3. 2-3 times a month
 4. Once a month
 5. Never

GENERAL INFORMATION

1. Age: ____
2. Height: ____ (ft. and in.) or ____ (cm.)
3. Weight: ____ (lbs.) or ____ (kg.)
4. Income: What was your individual annual income in the last year? _____
If different, what was your household income? _____
5. Highest level of education completed: _____
6. Employment:

☐ student	☐ family benefits
☐ disability	☐ unemployed
☐ employed	☐ homemaker
☐ retired	
7. Relationship status:

☐ partnered	☐ separated or divorced
☐ single	☐ widow/widower

ANNEXE C

Matrices des covariances

Covariance Matrix for the Indicators of the Two Models of Bulimic Symptomatology (Study 1)

Covariance Matrix to be Analyzed

	TAQUIN	FRIEND	FAM	PART	MEDIA	THIN
TAQUIN	1.61					
FRIEND	.27	.67				
FAM	.58	.42	1.17			
PART	.48	.52	.63	1.30		
MEDIA	.15	.36	.50	.55	1.40	
THIN	.47	.51	.68	.70	.78	2.17
FAT	.17	.32	.38	.32	.40	.92
DISATC	.41	.44	.68	.56	.67	.80
DISATA	.50	.42	.71	.57	.80	.95
DISATB	.51	.39	.64	.53	.60	.70
BULIMIA1	.37	.25	.41	.35	.40	.60
BULIMIA3	.33	.24	.39	.33	.35	.53
BULIMIA2	.32	.23	.37	.32	.35	.55
SDI1	-.15	-.23	-.27	-.23	-.19	-.74
SDI2	-.23	-.26	-.32	-.21	-.38	-.87
SDI3	-.36	-.21	-.27	-.14	-.17	-.57
SDI4	-.30	-.35	-.32	-.20	-.22	-.63

Covariance Matrix to be Analyzed

	FAT	DISATC	DISATA	DISATB	BULIMIA1	BULIMIA3
FAT	1.38					
DISATC	.44	1.80				
DISATA	.50	1.34	1.67			
DISATB	.43	1.36	1.30	1.57		
BULIMIA1	.35	.57	.63	.54	.62	
BULIMIA3	.30	.46	.52	.45	.48	.49
BULIMIA2	.32	.45	.51	.43	.45	.41
SDI1	-.29	-.50	-.47	-.53	-.38	-.34
SDI2	-.49	-.53	-.57	-.52	-.45	-.39
SDI3	-.30	-.37	-.41	-.43	-.37	-.29
SDI4	-.37	-.47	-.44	-.51	-.39	-.33

Covariance Matrix to be Analyzed

	BULIMIA2	SDI1	SDI2	SDI3	SDI4
BULIMIA2	.44				
SDI1	-.30	2.22			
SDI2	-.36	1.64	2.55		
SDI3	-.24	1.38	1.64	2.10	
SDI4	-.30	1.41	1.72	1.50	2.16

Covariance Matrix for the Indicators of the Measurement Model of the Regulation of Eating Behaviors Scale (Study 2)

Covariance Matrix to be Analyzed

	IM2	IM3	IM5	IM6	INTEG1	INTEG2
IM2	.07					
IM3	.04	.07				
IM5	.02	.02	.03			
IM6	.05	.05	.02	.08		
INTEG1	.02	.02	.01	.02	.04	
INTEG2	.02	.01	.02	.02	.02	.04
INTEG3	.03	.03	.02	.03	.02	.03
INTEG4	.03	.02	.02	.03	.02	.03
IDEN2	.01	.01	.01	.01	.01	.01
IDEN3	.01	.01	.01	.01	.01	.01
IDEN5	.01	.01	.01	.01	.01	.01
IDEN6	.01	.01	.01	.01	.01	.01
INTRO1	.00	-.01	.00	-.01	.00	.00
INTRO2	.00	.00	.00	-.01	.00	.00
INTRO3	.01	.01	.01	.00	.01	.01
INTRO4	.01	.01	.01	.01	.01	.01
ER3	.01	.02	.00	.01	.00	.00
ER4	.00	.00	.00	.00	.00	.00
ER6	.00	.00	.00	.00	.00	.00
ER7	.00	.00	.00	.00	.00	.00
AMO1	.00	.00	.00	.00	.00	.00
AMO2	.00	.00	.00	.00	.00	.00
AMO4	.00	.00	-.01	-.01	-.01	-.01
AMO5	.00	.00	-.01	.00	-.01	-.01

Covariance Matrix to be Analyzed

	INTEG3	INTEG4	IDEN2	IDEN3	IDEN5	IDEN6
INTEG3	.08					
INTEG4	.04	.05				
IDEN2	.01	.01	.02			
IDEN3	.01	.01	.00	.01		
IDEN5	.02	.01	.01	.00	.04	
IDEN6	.02	.02	.01	.01	.02	.03
INTRO1	.01	.00	.00	.00	.01	.01
INTRO2	.01	.01	.00	.01	.02	.02
INTRO3	.02	.01	.00	.00	.02	.01
INTRO4	.02	.01	.00	.00	.02	.01
ER3	.02	.01	.00	.00	.01	.01
ER4	.01	.00	.00	.00	.00	.01
ER6	.01	.01	.00	.00	.01	.01
ER7	.00	.00	.00	.00	.00	.00
AMO1	.00	.00	.00	.00	.00	.00
AMO2	.00	.00	.00	.00	.00	.00
AMO4	-.01	-.01	-.01	.00	.00	.00
AMO5	.00	.00	.00	.00	.00	.00

Covariance Matrix to be Analyzed

	INTRO1	INTRO2	INTRO3	INTRO4	ER3	ER4
INTRO1	.13					
INTRO2	.09	.10				
INTRO3	.06	.06	.10			
INTRO4	.06	.06	.06	.13		
ER3	.04	.04	.05	.05	.12	
ER4	.03	.03	.03	.04	.05	.09
ER6	.03	.03	.04	.05	.05	.05
ER7	.03	.03	.03	.04	.04	.06
AMO1	.01	.01	.01	.02	.02	.02
AMO2	.02	.01	.01	.03	.03	.03
AMO4	.02	.01	.01	.02	.02	.03
AMO5	.02	.01	.02	.03	.02	.02

Covariance Matrix to be Analyzed

	ER6	ER7	AMO1	AMO2	AMO4	AMO5
ER6	.11					
ER7	.06	.09				
AMO1	.02	.02	.07			
AMO2	.01	.02	.03	.07		
AMO4	.02	.02	.03	.04	.07	
AMO5	.02	.02	.03	.04	.04	.07

Covariance Matrix for the Indicators of the Model Examining the Relationships
Between Forms of Regulation, Eating Behaviors, and Psychological Adjustment (Study 2)

Covariance Matrix to be Analyzed

	GOOD	BAD	BULIMI1	BULIMI2	BULIMI3	DEPRES
GOOD	.00					
BAD	.00	.01				
BULIMI1	.00	.00	.04			
BULIMI2	.00	.00	.03	.04		
BULIMI3	.00	.00	.04	.04	.05	
DEPRES	.01	.00	-.06	-.05	-.06	.31
EST	-.01	.00	.08	.07	.07	-.25
SAT	-.01	.00	.09	.07	.08	-.29
IM	.00	.00	.00	.00	.00	.01
INTEG	.01	.01	.00	.00	.00	.01
IDEN	.00	.00	.00	.00	.00	.01
INTRO	.00	.00	.04	.03	.04	-.01
ER	.00	.00	.02	.02	.02	-.06
AMO	.00	.00	.01	.01	.01	-.04

Covariance Matrix to be Analyzed

	EST	SAT	IM	INTEG	IDEN	INTRO
EST	.57					
SAT	.43	.82				
IM	-.02	-.02	.04			
INTEG	-.01	-.02	.02	.03		
IDEN	.00	.00	.01	.01	.01	
INTRO	.09	.06	.00	.01	.01	.08
ER	.07	.05	.00	.00	.00	.04
AMO	.04	.03	.00	.00	.00	.02

Covariance Matrix to be Analyzed

	ER	AMO
ER	.06	
AMO	.02	.04

Covariance Matrix for the Indicators of the Integrative Model
of the Regulation of Eating Behaviors (Study 4)

Covariance Matrix to be Analyzed

	FAM	TEASEA	FRIENDS	PART	MEDIA	CROYA
FAM	1.21					
TEASEA	.55	1.70				
FRIENDS	.57	.28	.76			
PART	.57	.43	.57	1.20		
MEDIA	.40	.17	.42	.50	1.48	
CROYA	.55	.48	.50	.61	.76	2.09
CROYB	.30	.19	.31	.30	.30	.82
DISATA	.58	.45	.46	.54	.79	.69
DISATB	.53	.42	.42	.54	.58	.77
DISATC	.58	.34	.45	.58	.66	.82
IM	-.01	-.02	.00	.00	-.01	-.03
INTEG	-.01	-.02	.01	.01	.01	.00
IDEN	.02	.01	.02	.02	.03	.02
INTRO	.09	.06	.09	.10	.14	.21
ER	.10	.06	.07	.09	.05	.09
AMO	.02	.02	.02	.02	.00	.03
CHOICEA	-.01	-.01	-.01	.00	.00	-.01
CHOICEB	.00	-.01	.00	.00	.01	.01
BULIT1	.07	.05	.05	.06	.08	.11
BULIT2	.06	.05	.05	.05	.07	.11
BULIT3	.06	.05	.05	.06	.08	.11
SAT	-.32	-.29	-.18	-.31	-.20	-.38
EST	-.22	-.16	-.14	-.23	-.22	-.38
DEPRES	.16	.12	.12	.15	.12	.20
SDI1	-1.78	-1.06	-1.87	-1.82	-1.22	-3.85
SDI2	-2.26	-1.31	-2.05	-2.13	-1.73	-4.36
SDI3	-1.81	-1.53	-1.52	-1.66	-.96	-3.79
SDI4	-2.13	-1.09	-1.91	-1.79	-1.38	-4.06

Covariance Matrix to be Analyzed

	CROYB	DISATA	DISATB	DISATC	IM	INTEG
CROYB	1.38					
DISATA	.45	1.68				
DISATB	.41	1.30	1.66			
DISATC	.43	1.37	1.36	1.82		
IM	-.02	-.03	-.03	-.02	.04	
INTEG	.00	-.02	-.02	-.02	.03	.04
IDEN	.02	.03	.02	.03	.02	.02
INTRO	.11	.19	.15	.17	.00	.01
ER	.06	.08	.07	.08	.00	.00
AMO	.02	.03	.03	.03	-.01	-.01
CHOICEA	-.01	-.01	-.02	-.01	.01	.01
CHOICEB	.00	.01	.01	.01	.00	.01
BULIT1	.06	.13	.11	.11	-.01	-.01
BULIT2	.06	.11	.08	.10	-.01	.00
BULIT3	.05	.11	.09	.10	.00	.00
SAT	-.15	-.49	-.53	-.49	.03	.05
EST	-.19	-.41	-.40	-.39	.03	.03
DEPRES	.11	.21	.24	.22	-.02	-.02
SDI1	-2.15	-2.94	-3.43	-3.22	.66	.69
SDI2	-3.01	-3.65	-3.59	-3.40	.80	.86
SDI3	-2.36	-2.65	-2.67	-2.53	.60	.69
SDI4	-2.77	-2.87	-3.06	-2.78	.56	.57

Covariance Matrix to be Analyzed

	IDEN	INTRO	ER	AMO	CHOICEA	CHOICEB
IDEN	.02					
INTRO	.01	.06				
ER	.00	.02	.05			
AMO	-.01	.01	.01	.03		
CHOICEA	.00	.00	.00	.00	.01	
CHOICEB	.00	.00	.00	.00	.00	.01
BULIT1	.00	.02	.01	.01	.00	.00
BULIT2	.00	.02	.01	.01	.00	.00
BULIT3	.00	.02	.01	.01	.00	.00
SAT	.01	-.06	-.04	-.04	.02	.00
EST	.01	-.06	-.03	-.03	.02	.00
DEPRES	.00	.03	.03	.02	-.01	-.01

SDI1	.30	-.68	-.62	-.58	.25	.07
SDI2	.31	-.77	-.62	-.75	.31	.07
SDI3	.26	-.51	-.57	-.67	.24	.08
SDI4	.24	-.72	-.55	-.62	.21	.10

Covariance Matrix to be Analyzed

	BULIT1	BULIT2	BULIT3	SAT	EST	DEPRES
BULIT1	.02					
BULIT2	.02	.02				
BULIT3	.02	.02	.02			
SAT	-.07	-.06	-.06	.90		
EST	-.06	-.05	-.05	.51	.58	
DEPRES	.04	.03	.03	-.29	-.24	.27
SDI1	-.49	-.37	-.46	3.62	3.11	-1.76
SDI2	-.62	-.49	-.56	4.11	3.51	-1.96
SDI3	-.54	-.41	-.47	3.28	2.94	-1.79
SDI4	-.51	-.46	-.52	3.11	2.89	-1.65

Covariance Matrix to be Analyzed

	SDI1	SDI2	SDI3	SDI4
SDI1	81.80			
SDI2	66.28	100.55		
SDI3	57.95	69.04	78.23	
SDI4	53.33	66.26	58.68	76.88