

Avoiding Conflicting Health Promotion Messages between Eating Disorders and Obesity Prevention.

Can Systems Thinking Act as a Mediator, and How?

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Abstract

Body shape and weight concerns and more extreme clinical conditions such as Eating Disorders (ED) and Obesity (OB) are considered serious health problems. Despite evidence of shared risk factors between ED and OB, the two fields of prevention appear to work independently with little or no interaction. Can systems thinking act as a mediator between the ED and OB field? Using Jackson's System of Systems Methodologies as a theoretical framework, this article starts by discussing the unitary and then moves to pluralist and coercive approaches, to show how different methodologies can help to further understand the spectrum of weight-related problems. Systems thinking can act as a third party to connect the fields of ED and OB. It can help to capture the complexity of weight-related problems, as well as further explore shared prevention strategies. Furthermore, it helps to ensure fairness and diversity within the fields when implementing prevention interventions.

Key words: eating disorders, obesity, weight-related problems, prevention, system thinking, System of Systems Methodologies.

1. Introduction

In the present health climate, Eating Disorders (ED) and Obesity (OB) are considered serious medical and public health problems (Treasure, Schmidt, & Furth, 2003). However, a topic of potentially greater concern is that some of the behaviours and attitudes, such as body dissatisfaction, body shape and weight concerns, which precede these clinical issues are in and of themselves major social-cultural problems affecting youth, especially young women. Eating Disorders such as anorexia nervosa, bulimia nervosa, and binge eating disorder affect between 1-3% of the adolescent population (Treasure et al., 2003). Based on world data, 23.2% of the adult population was overweight (24.0% in men and 22.4% in women), and 9.8% was obese (7.7% in men and 11.9% in women) (Wadden & Stunkard, 2004). Beyond this, clinical ED and OB are part of a spectrum of weight-shape related problems (e.g. negative body image, weight/shape concerns, etc.) that produce significant morbidity even though they do not meet the full ED and/or OB clinical criteria (Levine & Smolak, 2005).

A Canadian study found that 30% of female and 25% of male students in grades 6-8 (age 10-14) engaged in weight loss and muscle-gaining behaviours; girls were more likely to use skipping meals as a way to lose weight, whereas boys increased the amount of protein in their meals and time spent lifting weights in order to increase their body muscle (McVey & Davis, 2002; McVey, Davis, Tweed, & Shaw, 2004; McVey, Pepler, Davis, Flett, & Abdolell, 2002). In a U.S. study, negative body image, defined as the discontent with some aspect of one's physical appearance, has been self-identified in 48% of young adult females (Cash & Pruzinsky, 2002). A further study by Cash and Fleming (2002) found that 20% of the 116 American college women interviewed felt that body image negatively affected their satisfaction with life: 35% reported frustration at their inability to control their weight and 7% indicated that their body image had a negative effect on their relationships with friends.

Empirical studies have suggested that ED and OB can be experienced simultaneously, and that individuals may cross over between the two conditions (Fairburn & Brownell, 2002; Neumark-Sztainer et al., 2007). Furthermore, there is substantial evidence to show how weight-related teasing by family, personal weight concerns, and dieting/unhealthy weight-control behaviours are shared risk factors between these two conditions (Neumark-Sztainer et al., 2007). Despite this understanding, prevention interventions are nonetheless conducted under, and informed by, two separate silos of knowledge and practices (McVey et al., 2008).

Indeed, the fields of ED and OB appear to work independently with little or no communication, interaction, shared knowledge, or common practices (McVey et al., 2008; Neumark-Sztainer, 2009) This often generates inconsistency in the health promotion messages delivered to the general public, a consequence of the different views of the "health problem" at hand (O'Dea, 2000, 2005). For example, some practitioners/researchers are concerned with undereating (or excessive exercise) and its effect on the emotional, physical, and social functioning of individuals—not to mention an increased risk for the development of ED. Others are concerned about overeating (and under-exercising) and its potential contribution to obesity (Neumark-Sztainer, 2009).

At one extreme is a concern raised by experts that attempts to prevent one problem might trigger the onset of the other health issue; for example, size acceptance might promote complacency about weight, whereas an overemphasis on weight/size might trigger ED. Furthermore, the promotion of healthy weights, although warranted, can be misunderstood by the public, especially children and young women, and might involuntarily promote dieting and dangerous weight-loss techniques (e.g. vomiting, diet pills, laxatives, and diuretics) (O'Dea, 2000, 2005). Other potential consequences include an increase in prejudice, stigmatization, and discrimination towards "fat people," as well as the creation of more distance between those who may need help and their health care providers (O'Dea, 2000, 2005).

An additional problem may have been caused by the media, and some professionals, who have oversimplified ED and OB conditionsⁱ, blaming the individual for not *eating healthy, exercising regularly, or properly controlling weight*, as well as for bad lifestyle choices and a lack of willpower (McVey et al., 2008). Weight-shape related issues are complex problemsⁱⁱ that encompass a variety of physiological, psychological, socio-economical, and socio-cultural factors. No simple or single solution will be able to resolve all problems related to ED and OB conditions; rather, collaboration across the two fields, incorporating the knowledge and insights from a wide array of disciplines, is needed. This paper seeks to answer to the question: How can systems thinking help ED and OB prevention fields to further understand weight-shape related problems? How can systems thinking foster communication and shared knowledge between the two fields of prevention? This article aims to understand how systems thinking can help in unpacking the complexity of the system involved in both causing (e.g. shared factors) as well as solving both ED and OB health problems (e.g. relationships between actors/stakeholders, settings, activities etc.). Can systems thinking be the mediator between these two fields of prevention, which have seemingly opposite views of the problem and seemingly opposed goals?

After a short introduction, briefly describing the key characteristics of system thinking using Jackson's System of Systems Methodologies (Jackson, 2003), defined in the next section, this paper will first cover the *unitary approach* (Jackson, 2003), focusing on Complexity Theory and Systems Dynamics to explain how those two methodologies can help to further understand the spectrum of weight-shape related problems in a way that supports heterogeneity within and between ED and OB prevention fields. Specifically, the *pluralist* and *coercive approaches*, based on critical and postmodern systems thinking, will be used to show how those approaches can promote *fairness and diversity* (Jackson, 2003) within ED and OB prevention interventions so that the prevention of weight-shape problems does not involuntarily harm the more vulnerable members of the target population (for instance, young girls/women struggling with weight and shape issues), and does not increase prejudice, stigmatization, and discrimination towards "fat people" (O'Dea, 2005).

2. Systems thinking: A new way of thinking of and acting on weight-shape related problems

Systems are generally considered to be a collection of parts that, through their interactions, function as a whole (Foster-Fishman, Nowell, & Yang, 2007, p. 198); indeed, what can be referred to as "*the system*" is *the set of actors, activities, and settings that are directly or indirectly perceived to have influence in or be affected by a given problem situation* (Foster-Fishman et al., 2007, p. 198). Multiple, and sometimes contrasting, definitions of the term "systems thinking" are present in the literature (Cabrera, Colosi, & Lobdell, 2008). For the purpose of this article, I define systems thinking as a paradigm, or way of thinking about the nature of reality, ontologically grounded in systems and epistemologically defined by multiple methodologies. In particular, to understand complex problems, such as weight-shape related issues, it may be more appropriate to combine different parts of methodologies rather than embrace one methodology in its entirety (Jackson, 2003).

According to Jackson (2003) to fully understand a system, we need to move away from the reductionist approach, which aims to investigate the different parts of a whole and/or explore how each of them work. Instead, focusing on understanding the interconnectedness of the various parts and their relationship to the whole—we should embrace a holistic approach. Different methodologies can be appropriate in different contexts (Jackson, 2003).

As Jackson explained, in a problem situation, no single systems methodology can usefully capture all relevant issues: all methodologies have their strengths and weaknesses, and, at the same time, all can be useful in the right setting. It is important that the methodologies are used in a way that complements each other as appropriate to fully understand the context of the situation. According to the System of Systems Methodologies (SOSM), two dimensions can be used to understand problem situations. The first dimension is concerned with the nature of systems (running from simple to complex), while the second dimension is concerned with the relationship between participants, defined as unitary (hard systems approach), pluralist (soft systems approach) and coercive (critical approach) approaches. Table 1 is an adaptation of the SOSM matrix in relation to weight-shape related problems. As the table shows, the conceptualization of weight-shape related problems can range from complex-unitary to complex-coercive.

Both ED and OB are complex health issues falling along the spectrum of weight-shape related problems (e.g. negative body image, weight/shape concerns, etc.). Furthermore, each of these fields is governed by a variety of disciplinary knowledge (e.g. genetics, biochemistry, pharmacology, behavioural-social sciences, public health, etc.) that often work in silos. Each of those disciplines has been, to some extent, successful in understanding parts of those problems. However, to date, little attention has been devoted to exploring the interconnectedness of the various parts in the research literature, and the relationships among them (e.g. from generics to food production and distribution). Furthermore, actors, such as families, schools, communities, and agencies, each with different experiences/history, values, agendas, and goals, are involved in intervention aimed at preventing ED and/or OB. No simple or linear solution is likely to be successful in resolving these complex health issues. A multiple methodologies approach is needed to explore the different contexts in which weight-shape related problems are taking place. By nature, systems thinking provides a suitable and desirable paradigm for thinking about, understanding, and acting on the spectrum of weight-shape related problems. Furthermore, it provides multiple methodologies able to unpack how knowledge is generated, used, exchanged, and integrated between fields, disciplines, settings, and stakeholders, and can also help to develop models and projections that can help policymakers.

2.1 Looking to complex systems to support heterogeneity within and between the Eating Disorders and Obesity prevention fields

Several valuable studies have been able to identify similarities, as well as overlapping and shared risk factors, between the ED and OB fields; however, the majority of those studies follow a linear way of thinking using retrospective and/or prospective methods. For example, in a community-based sample of women, a much higher percentage of women with bulimia nervosa had been overweight as children (40%) (Fairburn, Welch, Doll, Davies, & O'Connor, 1997). Project EAT (Eating Among Teens), a longitudinal study of 2,516 adolescents (mean age = 12.8 years at baseline) from 1998-1999 to 2003-2004, identified weight-related teasing by family, personal weight concerns, and dieting/unhealthy weight-control behaviours (e.g. vomiting, use of diet pills, laxatives, and diuretics) as strong predictors of overweight status, binge eating, and extreme weight-control behaviours after 5 years (Neumark-Sztainer et al., 2007). Weight-related problems were identified in more than 40 of the youth population sample (44% in girls and 29% in boys). Both overweight girls (40%) and overweight boys (20%) engaged in at least one of the disordered eating behaviors (binge eating and/or extreme weight control) (Neumark-Sztainer et al., 2007).

Using the Project EAT data, Irving and Neumark-Sztainer (Irving & Neumark-Sztainer, 2002) suggested that *personal* (e.g. genetics, body image and weight/shape preoccupations, self-esteem/self-efficacy, etc.), *socioenvironmental* (e.g. family/peer norms, media, and food access, etc.), and *behavioral factors* (e.g. binge eating, unhealthy weight control practices, etc.) should be included in an integrated approach for the prevention of weight-shape related problems. This model is useful in defining a preliminary common ground between ED and OB prevention. However, it still provides a simple-unitary solution to the problem (Jackson, 2003). It assumes that the problem contexts are simple-unitary in character and that the different stakeholders share the same beliefs, values, and intervention strategies regarding ED, OB and the broad spectrums of weight-shape related problems.

Unfortunately, in reviewing ED (N=39) and OB (N=32) intervention studies several theoretical differences between the two fields of prevention were found, which result in different and, in some cases, conflicting practices (Ferrari & McVey, 2010). Most prominently, the two fields of prevention appeared to have opposing goals. Whereas ED interventions seemed to focus on helping to prevent weight-control behaviours (e.g. vomiting or taking laxatives, diet pills, powders, and/or liquids to lose weight); and minimizing body dissatisfaction,

OB interventions were focused on the goal of promoting weight loss, as well as increasing physical activity, promoting “healthy” eating, and reducing food intake through dieting. As such, certain behaviours that are considered very problematic—even “pathological” —among ED prevention specialists (e.g. weight loss behaviors, dieting, body dissatisfaction, or excessive exercise) appear to be considered desirable among those leading OB prevention studies (see also Irving & Neumark-Sztainer, 2002). A look at the outcome measures used in the two fields reveals that OB interventions focus on physical indices such as blood pressure, body fat/composition, Body Mass Index, cholesterol levels, and nutritional intake. ED interventions, on the other hand, appear to have outcome measures that encompass psychosocial functioning in addition to common eating attitudes and behaviours (e.g. dietary restriction, eating disorders, weight concerns, shape concerns, body image, self-esteem, and self-efficacy). This disparity confirms that ED and OB researchers often do not share the same beliefs and values about ED and/or OB, and that they often utilize conflicting prevention strategies and practices.

Complexity theory and the system dynamics approach can help to capture this complexity and assist in unravelling some of the interrelationships of various determinants. Both of these methodologies provide a dynamic, creative, and intuitive view of the world to replace the traditional “reduce and resolve” approaches to ED and OB problems (Hammond, 2009). Complexity theory, often associated with the study of disorder/chaos, argues that systems are too complex to predict their future; nevertheless, underlying patterns/models can be identified that can help to better understand the complexity of our world (Jackson, 2003). Similarly, the system dynamics approach understands systems through feedback loops diagrams generated through the positive and negative relationship between the elements of the bounded system (Jackson, 2003). The two approaches share some characteristics: they both acknowledge multiple actors, social groups, and/or sub-systems that interact amongst each other, and that there is heterogeneity (e.g. values, beliefs) between the different actors who form the system. Furthermore, both are based on the concept of the “tipping” effect, which states that the cumulative effects caused by small changes can have a large impact in the system (Hammond, 2009).

This is extremely important for policymakers, for example, because different policy options can generate different changes in the systems; however, it is also true that simple policy changes may lead to massive changes/repercussions in the system. System dynamics modeling can help to visualize and communicate current relationships and constraints that may influence the future behaviour of a system at a particular moment in time and/or provide a tool to guide decision-making for interventions in the modeled system (Hammond, 2009; Hirsch, Levine, & Miller, 2007). Although not a lot of attention has been devoted to complexity sciences in the ED field, important preliminary work has been conducted within the OB field (Hammond, 2009). For example, through a multi-stakeholder process, the UK Government Office for Science Foresight Programme (2007) developed an obesity system map. At the center of the map is “energy balance.” The core of the map is surrounded by 108 variables that directly or indirectly influence energy balance (energy intake vs. energy expenditure), some of which are quantifiable/measurable (e.g., the ambient temperature of the indoor environment), while other variables are not measurable (e.g., desire to differentiate food offerings).

The relationships between the variables are illustrated with more than 300 positive relationships (indicated with solid lines) and negative relationships (indicated with dashed lines). Furthermore, all the variables are interconnected, and the connections between the variables generate different feedback loops. The Foresight Programme also identified that all variables were clustered in seven major themes: social psychology, individual psychology, individual physical activity, physical activity environment, physiology, food production, and food consumption. The Foresight Programme was used to develop different scenarios to inform different policy strategies for preventing OB in the UK; as the final documents concluded: “Alignment with other issues is crucial if the prospect of 60% of the UK population being obese in less than 50 years, with its attendant costs, is to be prevented from becoming reality. The UK has the opportunity to build on existing action and pioneer a new long-term integrated approach that sets a global standard for success.” (p. 18)

Drawing from the Foresight data, Finewood and colleagues (2010) reproduced the Foresight map using social network analysis software. The seven clusters defined in the Foresight map were used to develop a reduced map. The connections between the new variables were identified by counting the number of connections in the original Foresight mapⁱⁱⁱ; furthermore, as in the original map, variables were connected through arrows, where the arrow's width is proportional to the number of underlying connections identified in the Foresight map. The reduced map underlines several interesting points.

As described by the authors: “For example, the reduced map illustrates that within this model there are many variables relevant to food production that have an impact on food consumption, but no variables in food consumption that act directly on food production. The reduced map also suggests that biological variables are highly interconnected and that relationships within the food domain are more complex than in the physical activity domain.” Although, as Finegood pointed out, those conclusions may just be stakeholders’ perceptions of the problems, the map still provides an important starting point for further discussion and research.

As defined by Finegood (2010), climate change, war, food safety, and obesity, are “wicked” problems or complex problems. As mentioned in the introduction, simple and/or single solutions will not be able to resolve complex issues such as these. However, if we recognize them as complex problems in need of complex solutions, we can move forward within and between the two fields of prevention in unpacking settings, defining actors, goals, and strategies related to weight-shape preoccupations, as well as in exploring common solutions to these health problems. This section shows how unitary analytic approaches (e.g., differential equations, agent-based modeling, system-dynamics modeling) can help develop models and projections in order to improve strategic decision-making. Both the original and reduced Foresight maps provide us with an interesting starting point for exploring the issue's complexity and projecting possible solutions to the ED/OB problem.

Furthermore, the two fields of prevention can share their knowledge in an attempt to develop a model for weight-shape related problems. Systems thinking can encourage relationship-building among and between individuals across traditional disciplines and fields in order to achieve progress towards shared goals and objectives (Leischow et al., 2008). However, if we develop a map for weight-shape problems that combine both ED and OB knowledge and practices, should energy balance be kept at the center of the map, or should something different be the start and end point of this model? Can this model assure equity and fairness between the two fields, protecting individuals at risk? If so, how can it do so?

2.2 Moving forward: Ensuring fairness and diversity within weight-shape prevention intervention

To ensure that health promotion messages are not misunderstood by the public, to make sure that they do not accidentally promote harmful behaviours, and to guarantee fairness, diversity, and equity within any prevention interventions, we need to consider that the spectrum of weight-shape related problems is strongly gendered (Levine & Piran, 2001; D. Neumark-Sztainer et al., 2006). The female-to-male ratio of clinical Anorexia Nervosa is about 11:1, and the female-to-male ratio of clinical Bulimia Nervosa is about 27:1 (Treasure et al., 2003). The discrepancy between the female-to-male ratio of ED prevalence tells us that weight-shape related issues are closely related to the experience of being female in our society. In girls, body dissatisfaction, weight-control behaviors, and EDs increase during and following puberty (Katzman, 2005). Those experiences interfere with girls’ development of self-esteem and mood, as well as the development of brought self/identity (Piran & Cormier, 2005). The female-to-male ratio of BED seems to be less extreme than that of clinical ED, at about 1.5:1 (Piran & Cormier, 2005). Although, to date, less research is available regarding boys (Levine & Smolak, 2005), existing studies have shown how boys are more inclined to experience body-image issues tied with becoming more muscular and losing fat (McVey et al., 2004). Girls and boys grow up with a different understanding of the meaning of their bodies: physically active and strong/muscular for boys, and pleasant to look at/sexy and tiny/skinny for girls/women (Smolak & Murnen, 2001) (Piran, 2001, 2010).

Furthermore, their different body experiences are shaped not only by gender, but also by biological weight/shape, sexual orientation, race, and class (Smolak & Murnen, 2001) (Piran, 2001, 2010). As a result, it is extremely important that etiological models for weight-shape related problems recognize gender as a key factor (Smolak & Murnen, 2001) (Piran, 2001, 2010). Drawing from critical and postmodern systems thinking, the *pluralist* and *coercive approaches* can help to promote *fairness and diversity* (Jackson, 2003) within ED and OB prevention interventions. According to Jackson (Jackson, 2003), the *pluralist approach* aims “to support those disadvantaged by present systemic arrangements so that they can make their full contribution to systems design and receive the benefits to which they are entitled from the operation of the system of concern.” (p. 27) Class, race, gender, sexual orientation, disability or any other conscious or unconscious discriminatory attitudes may be root causes for the lack of stakeholder participation in decision making. Meanwhile, the *coercive approach* takes a step forward in promoting diversity in the decision-making process. To achieve this aim, dominant discourses need to be recognized, unpacked, and changed in order to ensure a safe space for the unheard voices to be heard.

Although both ED and OB have been well studied using the critical and postmodern lenses (Bordo, 2003) (M. Gard & Wright, 2001; Michael Gard & Wright, 2005) (Rice, 2007), to date, the literature does not provide any example of how systems thinking, under the *pluralist* and *coercive approaches*, can inform ED, OB, and broadly weight-shape related problems. Using theoretical frameworks (e.g. feminist and post-structuralist theory), empirical research, and personal knowledge, I used conceptual map software to develop a visual representation of current knowledge of weight-shape problems (see Image 1). With the "human body" at its center, it is based on the assumption that the body and the individual's embodiment experiences collectively form the nucleus in which ED, OB, and weight-shape related issues can be understood. Around this center is a peripheral set of 115 variables, most of them based on empirical data, that directly or indirectly influence the human body with respect to weight-shape related issues. In some cases, these variables are clustered in themes.

An interactive map is available online at <http://www.xmind.net/share/manuelaferri/body/> to help researchers and health care providers to review the empirical evidence and theoretical knowledge identified in 115 variables associated with both ED and OB prevention. Its primary purpose is to be used as a reference to inform future work in the area, while at the same time, the weight-shape map is dynamic, allowing new knowledge, or variables, to be changed or added when new theoretical and empirical data becomes available. Researchers and health care providers working in ED and OB prevention can use the map in their research area (e.g. risk factors research, individual physiology, genetic, etc.), identify their role (see actors/stakeholders), discipline, paradigm, etc. to see how it relates to the complexity of both the ED and OB problem. Furthermore, this map seeks to understand ED and OB as social and health problems in a different way; for example, finding the overlap between ED and OB shared risk factors and/or see their sociopolitical meanings.

The weight-shape map provides an alternative way to think about weight-related problems, body, weight, and shape. The map emphasizes genetics, ethnicity, gender, class, and self-identity as key factors in understanding body experiences and embodiment. For example, Bourdieu (Bourdieu, 1984) sees the human body in the form of *physical capital*. In conforming to societal norms, individuals learn to talk, walk, dress, and like/dislike things that are strongly related to specific social class statuses. Similarly, according to Bordo (Bourdieu, 1984), thinness is associated with control, wealth, health, and high social class. Under the feminist lens, gender, body, body size and weight are embodied with sociopolitical meanings that cannot be disentangled from each other; these are the keys to understanding weight-shape related issues (Levine & Smolak, 2005; Smolak & Murnen, 2001). Furthermore, this map acknowledges the presence of different paradigms, disciplines, and stakeholders/actors involved in the process of knowledge generation, as well as in managing, exchanging, and disseminating knowledge related to weight-shape related problems.

In sum, the weight-shape map provides interesting insights into the issue that bear further investigation. Among those insights, the map provides a new framework for understanding weight-related problems, one that emphasizes individual body subjectivity. Individual bodily experiences are essential in understanding ED and OB. Those experiences must be explored in relation to gender, class, ethnicity, sexual orientation, disability, and any other element that determines individual self-identity. Acknowledging this can be a way to prevent possible harm when prevention interventions are implemented, as well as preventing prejudice, stigmatization, and discrimination towards "fat people" or further increasing the number of young girls/women struggling with weight and shape issues. Furthermore, all actors/stakeholders need to be aware of how knowledge is produced, used, and disseminated, as well as the role they play in the knowledge production process. It must also be recognized that weight-shape related problems are not fixed; rather, they change over time and in the context of different social, economic, and political circumstances. Both the *pluralist* and *coercive approaches* are based on the assumption that each stakeholder should be able to express their opinion and view of the problem. In order to assess the multivalent aspects of the ED/OB health sphere, multiple conceptual maps, like the weight-shape map, should be developed, compared, and contrasted.

3. Conclusion

At this point, the provocative title of this article deserves an answer. Can systems thinking act as a mediator between the ED and OB field, and how? The answer is yes; systems thinking can indeed act as a third party to connect the fields of ED and OB. Systems thinking, as a paradigm supported by a variety of methodologies, can help to capture the complexity of weight-shape related problems, as well as further explore shared prevention strategies. Furthermore, it can help to ensure *fairness and diversity* within the fields when implementing prevention interventions.

Moving from *unitary* to *pluralist* and *coercive approaches*, this article shows some important strengths of systems thinking approaches. Systems thinking can: (1) provide a new way of thinking about the ED and OB problem that can encourage relationship-building among the ED and OB fields and disciplines in order to achieve relevant shared objectives and goals; (2) explore a way of developing models and projections that can inform policy change; (3) develop awareness about how knowledge is collected, interpreted, integrated, and disseminated within and between the two fields of prevention; and (4) ensure that all voices, especially those of members of more vulnerable and marginalized groups, are heard.

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Table 1

Participants

| | Unitary Participants shared same values, beliefs, interests, and goals. | Pluralistic Participants have different values, beliefs, interests, and goals. | Coercive Participants hold conflicting values and beliefs, and have few interests in common. |
|----------------|---|---|---|
| Systems | Simple Systems that have a few sub-systems with minimal interaction among them | EDs develop in a linear pathway and a solution can be found through a “one model fits all” approach to prevention. OB develops in a linear pathway and a solution can be found through a “one model fits all” approach to prevention. | ED and OB are part of a spectrum of weight-shape related problems. Furthermore, weight-shape related problems are gendered issues; gendering needs to be explored and taken into account. Indeed, in exploring shared prevention practices between the two fields, important questions need to be answered. For example: Which standpoints are not yet represented in the current research and practice arena? Which voices need to be heard? How can we prevent further discrimination towards “fat people,” or avoid increasing the number of young girls/women with disordered eating when prevention interventions are implemented? |
| | Complex Systems that have many sub-systems that are interacting with each other | EDs are caused by a complex of biological, psychological, and social factors that interact amongst each other; a solution can be found by exploring positive and negative feedback loops between the different factors. OB is caused by a complex of biological, psychological, and social factors that interact amongst each other; a solution can be found by exploring positive and negative feedback loops between the different factors. Two discrete fields of research and prevention interventions are maintained. This often generates inconsistency in the health promotion messages delivered to the general public. | ED and OB are part of a spectrum of weight-shape related problems. Agreement can be found between the two fields of prevention on how to operate. |

ⁱ ED are often associated with the image of girls seeking thinness in order to emulate their favourite movie/TV stars or the latest fashion trend. Girls' concern with their physical appearance is often considered a normal life stage; it is assumed that they will outgrow it. For its part, OB is often understood and defined as an imbalance between the energy ingested in food and the energy expended.

ⁱⁱ Complicated problems can be resolved by following a specific protocol and/or formula; on the other hand, complex problems can not be resolved by any rigid protocol because there is a close relationship between each part of the system and all the relationship must be take into account.

ⁱⁱⁱAs define by the author: “The thickest arrow goes from Food Production to Food Consumption and reflects that there are 22 direct influences from variables in the Food Production cluster on variables in the Food Consumption cluster in the original map. The thick border around Physiology reflects that there are 33 interconnections among the variables in this cluster, whereas the thin border around Physical Activity Environment reflects only eight interconnections among the variables in this cluster on the original Foresight map” (p. S14)