The role of interpersonal functioning in the maintenance of eating psychopathology: A systematic review and testable model

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1. Introduction

The term 'interpersonal' encompasses not only the patterns of interaction between the individual and significant others, but also the process by which these interactions are internalized and form part of the self-image (Sullivan, 1953). Interpersonal functioning is considered crucial to good mental health. According to Klinger (1977), when people are asked what makes their lives meaningful, most will mention their close relationships with others. Being involved in secure and fulfilling relationships is perceived by most individuals as critical to wellbeing and happiness (Berscheid & Peplau, 1983).

It is, therefore, not surprising that interpersonal difficulties are strongly associated with many psychiatric disorders; such as depression (Petty, Sachs-Ericsson, & Joiner, 2004), anxiety (Montgomery, Haemmerlie, & Edwards, 1991), schizophrenia (Sullivan & Allen, 1999), autistic spectrum disorders (Travis & Sigman, 1998) and eating disorders (Fairburn, 1997, Hinrichsen and Clougherty, 2006 and Hoffart et al., 2007). The important role of interpersonal problems in psychiatric disorders, including eating disorders, has been highlighted by the relative success of treatments, such as Interpersonal Psychotherapy (IPT), which focuses on maladaptive interactional patterns (e.g., Fairburn, 1997, Fairburn et al., 1993, Fairburn et al., 1991, Hinrichsen and Clougherty, 2006, Hoffart et al., 2007, McIntosh et al., 2000, Roth and Ross, 1988, Weissman et al., 2000, Whight et al., 2011, Wilfley et al., 1993 and Wilfley et al., 2002). The premise of this treatment is that those who suffer from certain psychiatric disorders do so in response to interpersonal disturbances or that the disorder is maintained by interpersonal problems (Klerman et al., 1984 and Markowitz, 1998). Clinicians argue that by improving the individual's ability to utilize social support networks and manage interpersonal deficits, symptomatology will improve (Fairburn, 1997 and Weissman et al., 2000).

Despite the growing availability of IPT for the treatment of eating disorders (Roth and Ross, 1988, Whight et al., 2011, Wilfley et al., 1993 and Wilfley et al., 2002) there is a lack of research that focuses on how IPT benefits patients and which specific interpersonal problems it targets. With this in mind, the aim of this review is to systematically evaluate the empirical literature that has investigated the relationships between interpersonal functioning and eating psychopathology. First, an outline of the review methodology will be presented. Next, the studies reviewed are described and evaluated methodologically. Finally, a preliminary model within which to conceptualize these associations is presented.

2. Search method

A comprehensive three-stage literature search was used. First, Web of Science, PubMed, PsycInfo, Science Direct, EBSCO, OVID and SCOPUS electronic search engines were used. Second, key eating disorder journals were subjected to individual on-line searches using the same search terms. Finally, reference lists of relevant review papers, as well as reference lists of identified articles, were systematically explored to ensure that any further articles missed by the database and on-line journal searches were also identified and included in the review. The search date was from 1966 to March 2012 therefore no papers published after this date were sourced.

As a wide variety of terms have been used to describe interpersonal problems, the following search terms were used: interpersonal problems, interpersonal functioning, interpersonal deficits, social skills deficit, social maladjustment, and social anxiety. For each database search, all of the above search components were combined with terms defining eating disorders and eating concerns (Eating Problems, Eating Disorders, Disordered Eating, Anorexia Nervosa, Bulimia Nervosa) using the "OR" operator, and the same components were then combined

together by using the “AND” operator. Relevance was determined by screening titles and abstracts. Reference lists of relevant articles were screened for further potentially relevant studies, and citation searches were conducted.

As eating disorders were restricted to anorexia nervosa (AN), bulimia nervosa (BN), and eating disorder not otherwise specified (EDNOS), studies on obesity were excluded, as were studies that simply investigated body image or body dissatisfaction, without any further assessment of eating pathology. Qualitative studies were included, but individual case studies were not. Finally, studies were excluded if they focused solely on treatment outcome.

2.1. Results of the systematic review

After accounting for duplications, and using the exclusion and inclusion criteria stipulated, 42 studies were indentified. Out of the 42 papers, two were not in English, and two were not available, therefore 38 articles were retained for closer inspection. Following the procedures outlined in Berkman, Lohr, and Bulik (2007) and Atlantis and Baker (2008), these 38 articles were graded according to relevance, from ‘0’ representing irrelevance, through to ‘4’, which represented high relevance. Three articles were defined as irrelevant for this review, therefore, overall, 35 papers were included in this systematic review.

2.2. Methodological quality

While there are NICE checklists for cohort studies, case–control studies and qualitative studies, there is currently no checklist to evaluate the methodology for cross-sectional studies. Gilbert (2009) developed a checklist for cross sectional studies based on the NICE checklists (NICE, 2007). Due to the lack of consensus in the literature regarding the methodological review of cross-sectional studies, this review employed the checklist employed by Gilbert (2009) (see Table 1) and then used the NICE rating system for methodological quality of studies (NICE, 2007, see Table 2). The NICE rating system rates the studies from good quality (when all or most of the criteria have been fulfilled) (++), to reasonable quality (when some of the criteria have been fulfilled) (+) to poor quality (when few or no criteria are fulfilled (−)).

Table 1. - Checklist for rating methodological quality in cross sectional studies (Gilbert, 2009).

Study (author, title, reference, year of publication)			
Section 1: internal validity			
In a well conducted cross-sectional or before–after design:			In this study the criterion is:
1.1	The study addresses an appropriate and clearly focused question.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
Selection of subjects			
1.2	Recruitment is appropriate to the aims of the research.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.3	Representative cases from relevant population.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.4	The study indicates how many of the people asked to take part did so.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.5	Comparison is made between participants and non-participants to establish their similarities or differences.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.6	Inclusion criteria made explicit and sample characteristics sufficiently described	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.7	Were subjects recruited over the same period of time?	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable

Data collection			
1.8	Confidence in the quality of individual responses (e.g., telephone questionnaires might produce better quality answers than postal).	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.9	Outcome is measured in an objective, standard, valid and reliable way.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.10	Reliance on current info rather than recall/hypothetical scenarios.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
Confounding			
1.11	The main potential confounders are identified and taken into account in the design and analysis.	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
1.12	Minimization of bias — participant bias, observer bias, halo effects	Well covered	Not addressed
		Adequately addressed	Not reported
		Poorly addressed	Not applicable
Statistical analysis			
1.13	Appropriate use of statistical analysis?		Appropriate
			Not appropriate
			Not clear
1.14	Actual p values reported (e.g., 0.037 rather than < 0.05) for the main outcome except when p value is < 0.001		Yes
			No
Section 2: overall assessment of the study			
2.1	How well does the study minimize the risk of bias or confounding, and meet its aims?		++
			+
			–
2.2	Taking into account clinical considerations, your evaluation of the methodology used and the statistical power of the study are you certain that the findings could be replicated		Yes
			No

3. Results

3.1. Study characteristics

The characteristics of the participants from the 35 studies varied considerably. The oldest study included in this review took place in 1980 (Thompson & Schwartz, 1980) and the most recent one was published in 2012 (Levinson & Rodebaugh, 2012). Twenty-four studies included patients with eating disorders: 11 of them included both diagnoses within the same study and compared interpersonal problems between AN and BN; ten described interpersonal problems exclusively in patients with BN and three included a sample exclusively of patients with AN (Geller et al., 2000, O'Mahony and Hollwey, 1995 and Thompson and Schwartz, 1980). From the 35 studies, eleven included an exclusively non-clinical population, mainly university students. Twenty-five studies included control or comparison groups, 18 compared patients with eating disorders with a nonclinical group; 5 compared patients with eating disorders with psychiatric cases (Geller et al., 2000, Hartmann et al., 2010, Johnson and Berndt, 1983, Norman and Herzog, 1984 and Suzuki et al., 2003) and 2 used historical data from previous studies (Johnson and Berndt, 1983 and Norman and Herzog, 1984). The majority of studies (28 in total) used nonclinical samples (exclusively or as a control), 4 being community samples and the rest university students. From these nonclinical samples, those who reported high eating psychopathology were studied as a sub-sample. All studies were cross-sectional in design, with 34 studies employing questionnaires and 1 study involving observations (Van den Broucke, Vandereycken, & Vertommen, 1995).

The sample sizes of the studies varied with 16 papers having over 100 participants, 12 having 50–100 participants and 7 having less than 50 participants. Out of the 21 studies with more than one participant group, no studies had a sample size of over 100 participants per group, 3 studies had 50–100 participants per group and 18 studies had less than 50 participants per group. Employing the NICE rating system described above, no studies were rated as poor (−), twenty-one studies were rated as reasonable (+), and the rest of the studies (n = 14) were rated as good (++). However, the number of participants included in the majority of the clinical studies was small, which is an important limitation of many of the studies.

3.2. Interpersonal problems and eating disorders: systematic evaluation of the empirical literature

Most of the research studies included in this review have demonstrated a clear link between eating disorders and general interpersonal problems (i.e. Ambwani and Hopwood, 2009, Ansell et al., 2012, Hopwood et al., 2007 and O'Mahony and Hollwey, 1995, all with quality ratings of ++). For example O'Mahony and Hollwey (1995) report a significant relationship between eating disorder symptomatology and general interpersonal problems in patients with AN. The majority of studies investigating interpersonal problems have employed the Inventory of Interpersonal Problems (IIP; Horowitz, Rosenburg, Baer, Ureno & Vallasenor, 1988). There are currently sixteen versions of the questionnaire (see Hughes & Barkham, 2005 for a review). A commonly used version of the IIP is the IIP-64 (Alden, Wiggins, & Pincus, 1990), which is a 64-item self-report measure that assesses problems which correspond to the eight octants of the interpersonal circumplex proposed by Horowitz & Vitkus (1986). It measures interpersonal problems in relation to hostility-dominance (Vindictive, Domineering and Intrusive subscales) and friendliness-submission (Overly Accommodating, Self-sacrificing and Nonassertive subscales). Hopwood et al. (2007) used this version and found that BN symptoms and interpersonal problems were moderately correlated. Ambwani and Hopwood (2009) used a shorter version of the IIP (IIP-SC; Soldz, Budman, Demby, & Merry, 1995) and found wide variability in interpersonal problems in a group of 110 women with subclinical BN. They concluded that differences in interpersonal problems may indicate different etiological pathways between BN symptoms and interpersonal functioning. Studies examining specific relationships between interpersonal problems and eating psychopathology have presented mixed findings, as discussed below.

3.2.1. Assertiveness

Hartmann et al. (2010) compared a sample of 113 patients with AN and 95 patients with BN to a sample of 154 psychiatric patients without eating disorders (ED) (Brähler, Horowitz, Kordy, Schumacher, & Strauß, 1999). They found that the ED patients had a non-assertive interpersonal style compared to psychiatric controls and the difference was significant. Similarly, ED patients had significantly higher levels of social inhibition and over-nurturance compared to controls. They also found that patients with eating disorders were less domineering than the control psychiatric population. This study confirmed the findings of Troop, Allan, Treasure, and Katzman (2003), who reported higher levels of submissive behavior in women with eating disorders than their matched student controls. However, an earlier study assessing 23 women with BN and 20 controls (Mizes, 1989), using different measurements, found only slightly lower level of assertiveness in those with BN compared to a population without eating disorders. Mizes reported that women with BN tended to avoid using problem-focused coping strategies in interpersonal situations. Finally, Williams, Power, Millar, and Freeman (1993) recruited 32 women with AN, 20 with BN, 31 obese dieters, 29 dieters and 35 controls, and found that the AN and BN groups had significantly lower levels of assertiveness than the dieting and control groups. Overall, most of the literatures have identified a strong relationship between low levels of assertiveness and eating disorders psychopathology which could be related to the lack of social skills reported in this population as described next.

3.2.2. Social skills

Research focusing specifically on the social skills of individuals with eating disorders has found more conclusive results. There have been several research studies suggesting that individuals with eating disorders experience greater social skill difficulties than controls (Grissett and Norvell, 1992, Suzuki et al., 2003 and Wagner et al., 1987). Wagner et al. (1987) found that individuals with BN were more likely to report a sense of social ineffectiveness than controls. However, their study only had a sample of 4 individuals with BN and therefore power was poor. This finding was replicated by Grissett and Norvell (1992), who confirmed that 21 patients with BN reported less 'social competence' than controls in a variety of situations and the difference between the two groups was statistically significant and they were also rated as less socially effective by observers unaware of their diagnosis. Social competence has been defined as 'socially effective behavior and its cognitive, affective and conative antecedents' (Schneider, Ackerman, & Kanfer, 1996). Socially effective behavior is further defined as 'behavior that is instrumental in helping people achieve personal goals that are social in nature' (Schneider et al., 1996). One Japanese study, goes as far as to say that those with eating disorders have similar social skills to those who meet diagnostic criteria for schizophrenia, according to both subjects' self-report measures and researcher observations (Suzuki et al., 2003). It is, therefore, not surprising that several studies have found higher levels of social anxiety and social maladjustment in patients with ED.

3.2.3. Social adjustment

Studies exploring the close, meaningful relationships, social support networks and interpersonal interactions in individuals with eating disorders have described higher levels of social maladjustment and social anxiety compared to controls (Grissett and Norvell, 1992, Herzog et al., 1986, Johnson and Berndt, 1983, Norman and Herzog, 1984, Rorty et al., 1999, Striegel-Moore et al., 1993 and Thompson and Schwartz, 1980). All of these studies had a rating of + except for the one by Striegel-Moore et al. (1993) rated ++, who compared 24 patients with BN with 33 people with subclinical features of eating disorders, and 54 with no eating disorder psychopathology. This study found that individuals with BN showed greater social anxiety compared to controls.

Most of the above-mentioned studies unanimously report that social maladjustment is a chronic and enduring problem that is rarely adequately treated by therapeutic interventions (Grissett and Norvell, 1992 and Rorty et al., 1999). However, there are still outstanding discrepancies in the role of social maladjustment in the development of ED. The question is whether eating disorder attitudes and behaviors are predictive of social maladjustment or whether social maladjustment causally predicts vulnerability towards developing disordered eating psychopathology. The absence of longitudinal studies in this field exacerbates this confusion. In spite of this, social

maladjustment is repeatedly found to be linked to ED, which explains the relationships with poor social networks (Tiller et al., 1997).

3.2.4. Social support

Patients with BN have reported receiving less emotional and practical support from friends and family, compared to controls, and this is believed to create vulnerability towards developing eating disorder symptoms as a coping mechanism (Grissett & Norvell, 1992). Although this was first described in a small sample (N = 21), the findings have since been replicated by other larger studies (Tiller et al., 1997). Tiller et al. (1997) found that 125 patients with eating disorders (44 AN, 81 BN) had less structural support than nonclinical controls, with less emotional and practical support. When comparing both diagnostic groups the authors of this study found that patients diagnosed with AN were less likely to identify having a partner as a source of support than those diagnosed with BN. Interestingly, women with BN reported significantly more discrepancy between their ideal and actual support. Similarly, it has been found that women with BN (N = 15) endorse fewer social support seeking methods than control women in response to stressful situations, even after controlling for depression and anxiety (Koo-Loeb, Pederson, & Girdler, 1998). This indicates that not only do people with eating disorders have a smaller social support network, but they could also have difficulties utilizing this network.

Many of the above studies concerning interpersonal functioning in eating disorders have not accounted for commonly comorbid effects of depressive symptomatology. For example, both Norman and Herzog (1984) and Herzog et al. (1986) found elevated levels of social impairment related to BN and concluded that patients demonstrated wide ranging and persistent maladaptive social adjustment. However, having failed to control for levels of depression, they did not acknowledge its potential as a mediator variable in the relationship between eating disorder symptomatology and social maladjustment.

3.3. The etiological factors of interpersonal problems in people with eating disorders: the development of a preliminary model

From the studies reviewed for this article there appear to be five main pathways to explain the relationships between interpersonal problems and eating disorders, these include a) interpersonal problem solving difficulties; b) negative attitudes towards emotional expression; c) fear of negative evaluation; d) fear of intimacy and interpersonal distrust, and e) negative social comparisons. The literature supporting each of these pathways is reviewed below in turn:

3.3.1. Interpersonal problem solving difficulties

Troop, Holbrey, and Treasure (1998) found that there were similar rates of practical problem solving skills between women with AN (n = 19), BN (n = 38) and women without ED's (N = 33), but that women with BN were less likely to seek information about their problems. They also found that women with eating disorders, particularly those with BN, were more likely than women without eating disorders to be pessimistic and to ruminate about problems. Two years later, Espelage, Quittner, Sherman, and Thompson (2000) confirmed these results, they found that even after controlling for depression women with eating disorders had less effective interpersonal problem solving skills than control women. This was an interesting study, as it is one of the very few that controlled for comorbid psychopathology. The results of these studies may explain the social anxiety commonly found in patients with eating disorders (Grissett and Norvell, 1992, Herzog et al., 1986, Johnson and Berndt, 1983, Norman and Herzog, 1984, Rorty et al., 1999, Striegel-Moore et al., 1993 and Thompson and Schwartz, 1980).

3.3.2. Negative attitude towards emotional expression

Two studies have examined attitudes towards emotional expression in people with eating psychopathology (Geller et al., 2000 and Meyer et al., 2009). In a nonclinical sample, Meyer et al. (2009) reported that high levels of eating, shape, and weight concerns, were associated with the belief that displaying emotions is a sign of weakness, that emotional expression leads to social rejection, and that emotions are things that should be controlled ($p < .05$). These findings were replicated using a different measure in a clinical sample of patients with AN by Geller et al. (2000). Even after controlling for depression, self-esteem, and global assessment of functioning they found that

those with AN were more likely to avoid expressing their emotions and had higher levels of suppressed anger. When the thoughts and feelings of those with AN conflicted with those of others, they were more likely to avoid expressing them and they were more likely to give priority to others' feelings over their own. The findings of this study suggest that negative attitudes towards the expression of emotions is frequently found in people with eating disorders, particularly those with AN. This may be explained by the fear that people with eating disorders often have about being evaluated negatively by others as discussed below.

3.3.3. Fear of negative evaluation

Two studies have looked at the concerns or the fear that people with eating disorders often have about being evaluated or judged by others. Interestingly and supporting previous findings, both restrictive eating attitudes and bulimic attitudes have been associated with a heightened fear of negative evaluation (Atlas, 2004 and Hinrichsen et al., 2003). Hinrichsen et al. (2003) compared AN, BN and control groups on fear of negative evaluation and found that both eating disorder groups reported more fears of negative evaluation with BN attitudes in the BN and comparison groups being linked to fear of negative evaluation, and fear of negative evaluation in the restrictive AN group being linked to dissociation. These findings were replicated by Gilbert and Meyer, 2003, Gilbert and Meyer, 2005a and Gilbert and Meyer, 2005b in a non-clinical population. For example, Gilbert and Meyer (2003) found that in a population of young undergraduates, social anxiety predicted restrictive eating attitudes, and social comparison predicted bulimic attitudes. Fear of negative evaluation has also been studied in a recent study by Levinson and Rodebaugh (2012) who found that social appearance anxiety and fear of negative evaluation were significantly correlated with eating disorder symptoms.

These findings may mean that people with AN give priority to others' feelings over their own and similarly are more likely to avoid expressing thoughts and feelings when they conflict with those of others, predisposing the interpersonal characteristics of lack of assertiveness, submissiveness, and over-nurturance found in this clinical population (Hartmann et al., 2010).

3.3.4. Fear of intimacy and interpersonal distrust

Fear of intimacy has been defined as the inability of an individual to exchange thoughts and feelings of personal significance with another individual who is highly valued (Descutner & Thelen, 1991). Bruch (1973) suggests that women with BN often have difficulty in establishing intimate relationships with men as they idealize romantic relationships because their need for love and acceptance was not met by their family. The assessment of fear of intimacy is not easy as this term encapsulates many relationship difficulties. Descutner and Thelen (1991) developed the Fear of Intimacy Scale (FIS), a 35-item questionnaire that assesses individuals' anxiety about close relationships. This scale has adequate test–retest reliability (r = .89) and internal consistency (alpha = .93), and is significantly correlated with other established measures, subjects' self-reports, and therapists' ratings of fear of intimacy in clients. Scale items include questions that assess difficulty expressing thoughts and emotions, difficulty revealing personal flaws and failures, and experiencing anxiety about close emotional ties. Using this scale several authors have found that people with eating problems have a heightened fear of intimacy (e.g., Evans and Wertheim, 1998 and Pruitt et al., 1992). Pruitt et al. (1992) found that despite having similar relationship histories to controls, women with BN had higher fear of intimacy on this scale.

Fear of intimacy has also been linked to different mental health problems including drug abuse (Thorberg & Lyvers, 2006). The relationship between mental health problems, including eating disorders, and fear of intimacy may be mediated by insecurity of attachment as Hazan and Shaver (1987) reported that individuals with an insecure attachment style are both needy and fearful of intimacy. Insecure attachment has been categorized previously in different forms, but is often conceptualized along two dimensions: insecure avoidance (when the child deactivates the attachment system and avoids closeness with their caregiver) and insecure ambivalence (when the child exhibits unpredictable and incoherent attachment behaviors of dependence and rejection; Ainsworth & Bell, 1970). There is a strong evidence to suggest that individuals with eating disorders are more likely to have insecure interpersonal

attachment styles as adults (see Ward, Ramsay, & Treasure, 2000 for a comprehensive review), which may explain many of the difficulties that these people present with.

In a similar fashion, interpersonal distrust has also been linked to eating disorders. A subscale of the Eating Disorder Inventory (EDI; Garner, Olmstead, & Polivy, 1983) aims to measure this concept, and defines it as 'reluctance to form close relationships'. Laessle, Tuschl, Waadt, and Pirke (1989) found significantly higher levels of interpersonal distrust among 20 women with BN compared to 20 restrained eaters and 20 controls.

3.3.5. Negative social comparisons

Social comparison theory was proposed by Festinger (1954) to explain how socio-cultural pressure may influence the development of eating disorders. It has been suggested that women who compare themselves with inappropriate targets such as idealized images, are more vulnerable towards developing eating disorders. Our understanding of social comparison is still limited, and it remains unclear why some people appear to be more influenced by socio-cultural pressure and media exposure than others. However, some studies have demonstrated that social comparisons are related to uncertainties about the self and to self-esteem (Eurich & Byrne, 2004). Studies that have focused on the social comparisons made by people with eating disorders have presented mixed findings (Gilbert and Meyer, 2003, Morrison et al., 2003 and Troop et al., 2003). While Gilbert and Meyer (2003) found that levels of social comparison predicted bulimic attitudes in a non-clinical population, Morrison et al. (2003) reported that there were no differences between levels of social comparison between women with and without eating disorders. However, these researchers found that social comparison was more likely to be related to restrictive than bulimic attitudes in their nonclinical group. More research needs to be done before conclusions can be made in this area, although it appears that the ways in which individuals compare themselves to others could be a relevant focus for treatment. As with fear of intimacy, the relationship between social comparison and eating disorders may be mediated by attachment difficulties. Bamford and Halliwell (2009) studied socio-cultural attitudes towards appearance, social comparison, attachment and eating psychopathology in 213 non-clinical female undergraduates. They found that social comparison mediated the relationship between attachment anxiety and eating psychopathology, suggesting that as individuals with high attachment anxiety tend to devaluate themselves and use others for reassurance or validation, they will be more vulnerable to using others as a comparison in order to evaluate themselves (Table 3).

Table 3. - Summary of the studies included in this review. [UNAVAILABLE ON THIS VERSION, PLEASE CONSULT OFFICIAL VERSION]

4. Summary according to diagnosis

Many studies in this review have not differentiated between patients with anorexia nervosa and patients with bulimia nervosa and have grouped patients into one category (eating disorders). This could be partly due to the transdiagnostic model that has been proposed by Fairburn et al. (1993), who suggested that current eating disorder classifications should be re-evaluated because they have been divided arbitrarily in a way that does not reflect clinical experience. Patients with anorexia nervosa and those with bulimia nervosa and other eating disorders have many features in common. In addition a significant proportion of people with eating disorders find that over time their eating disorder symptoms (and hence their diagnosis) changes from anorexia to bulimia (Fairburn et al., 1993). For these reasons, Fairburn et al. (1993) have suggested that a better way of developing effective treatments for eating disorders is to see the various symptoms as manifestations of a more broadly defined "eating disorder" (hence the term, "transdiagnostic"). In spite of this, there are several studies included in this review that have described the diagnoses of the studied population, which has made it possible to summarize the interpersonal problems found in this review according to diagnosis (see Table 4 for a summary).

Table 4. - Associations between interpersonal difficulties with different eating disorder symptoms and diagnoses.

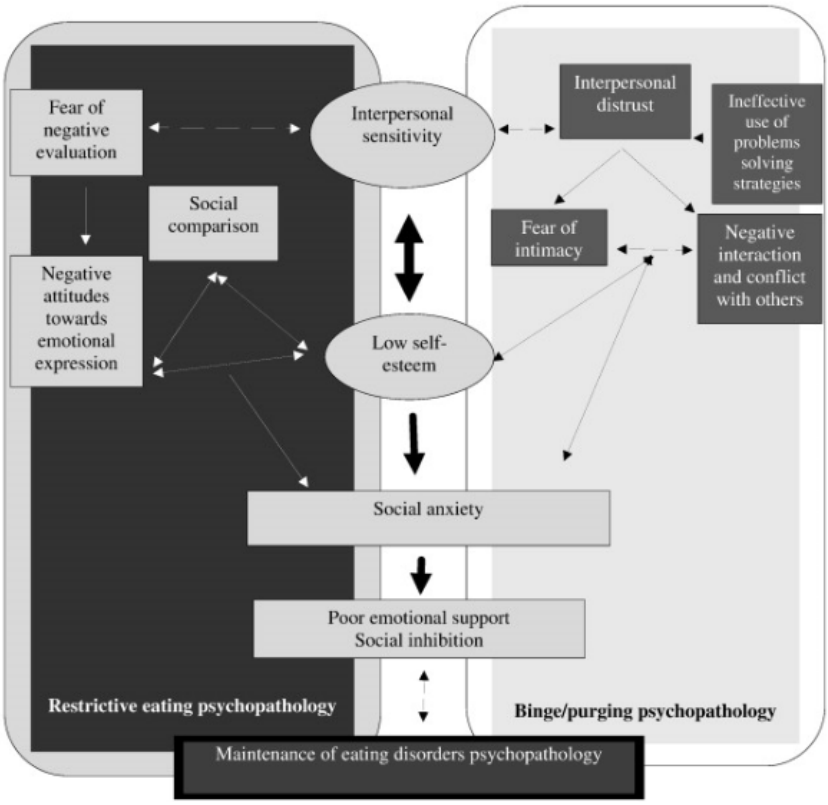
Anorexia nervosa and restrictive behavior	Bulimia nervosa and bulimic behavior
Fear of negative evaluation	High levels of interpersonal distrust
Negative attitudes towards emotional expression: avoid expressing thoughts and feelings when they conflict with others	More negative interaction and conflicts with others
More likely to give priority to other people's feeling over their own	High levels of interpersonal sensitivity
High interpersonal sensitivity	Avoid using problems focus coping strategies in interpersonal situations
High levels of social anxiety	Social anxiety
High levels of social comparison	Greater public self-consciousness
Poor emotional and practical support	Greater fears of intimacy
Less likely to have a partner than people without AN nervosa or those with BN	More discrepancy between ideal and actual support from others
Social inhibition	Less social support seeking methods in response to stress
High impairment in areas of academic performance, social leisure adjustment and family relationships	Less social support
	Less perceived support from friends and family
	Poor social maladjustment in all areas

5. A preliminary model

This review has described how eating disorder-related attitudes and behaviors are associated with maladaptive interpersonal traits and related social maladjustment which may predict or exacerbate eating disorder psychopathology. The findings support a model whereby those with eating psychopathology are more likely to avoid the expression of emotions, especially when they feel they will be perceived negatively, which may hinder the use of support from their social networks. This appears to be more frequent in people who restrict. The following preliminary model depicts the potential links that have been suggested from the literature review between maladaptive interpersonal traits and the consequences of these on social adjustment in the context of eating related attitudes and behaviors. The model hypothesizes that maladaptive childhood attachment plays a role in the development of both interpersonal problems and eating disorders, which has been supported in the research literature (Haslam et al., 2012 and Ward et al., 2000) Research has also demonstrated the role of genetics, particularly in anorexia nervosa, in the development of a specific temperament style (perfectionism, need for order, sensitivity to praise and reward) found to be a risk factor for the development of eating disorders (Wade et al., 2008). The model goes on to hypothesize that eating disorder psychopathology is maintained by social maladjustment (social inhibition, lack of social support) which develops due to a combination of factors. These factors appear to be different between people who suffer from restrictive eating psychopathology and those who suffer from binge/purging psychopathology, although the end result appears to be similar: social anxiety, poor emotional support, and social inhibition. The model hypothesizes that people with restrictive psychopathology, including those with anorexia nervosa, possibly due to the attachment difficulties associated with this disorder, present with fears of negative evaluation, and a negative attitude towards the expression of their emotions. In these individuals, the avoidance of expressing emotions combined with the interpersonal sensitivity and low self-esteem that has been described in the literature (Cervera et al., 2003, Gual et al., 2002 and Ruderman and Besbeas, 1992) could precipitate and maintain social anxiety. On the other hand, people with binge/purging psychopathology are found to have difficulties trusting others, and possibly as a consequence of this, have high levels of negative interactions and conflicts with others. It is not surprising that as a result of this and individuals' interpersonal sensitivity, these individuals often suffer from social anxiety, fear of intimacy and poor emotional support. In both conditions and in patients with eating disorders in general, it appears to be poor social support that helps to maintain their eating disorder psychopathology. However, interventions aimed at tackling social support may need

to be adapted depending on whether eating psychopathology is restrictive or binge/purging. The model is shown as a visual representation in Fig. 1.

Fig. 1. - Interpersonal functioning in the eating disorders: a preliminary model.



The fact that the model does not distinguish between interpersonal functioning in different relationships such as with family, friends and romantic partners is a limitation. It appears that the interpersonal problems prevalent in individuals with eating disorders are influenced by the context of the specific relationship and these influences may well differ for each individual.

6. Discussion

This review aimed to systematically evaluate the empirical literature concerning the interpersonal functioning of those with eating disorder psychopathology, in order to develop an empirically based model to inform clinicians and generate ideas for future research. The literature review is limited by the quality and the amount of studies in the field. In particular, there is a lack of longitudinal studies, which limits interpretations of causality in the associations identified. Most of the reviewed studies involve white females, which highlights the lack of studies involving males and other ethnic groups. Moreover, many studies in this field fail to control for concomitant psychopathology, such as depression and often use non-clinical populations, particularly university students, which may affect the generalizability of the findings to clinical populations. Future studies should focus on utilizing longitudinal research to explore the role of interpersonal problems in the development and maintenance of eating disorders, while controlling for co-morbid psychopathology, such as depression and anxiety. Finally, in many of the studies in this review and in the field in general, sample sizes are small.

Despite the limitations described above, there are some important conclusions that can be drawn from this review. Based on the information from these studies that have described the diagnosis of individuals, it can be hypothesized that the origins of the social anxiety and poor social support that have been described in people with eating disorders differ according to diagnostic groups. Interpersonal difficulties in people with restrictive behavior, including patients with anorexia nervosa, appear to be related to the avoidance of expressing feelings to others and

to giving priority to other people's feeling over their own. Interpersonal difficulties in people with bulimia nervosa appear to be more focused on interpersonal distrust and more negative interactions and conflict with others. The different interpersonal difficulties found in people with anorexia nervosa and bulimia nervosa could be related to personality characteristics associated with both disorders. For example several studies have consistently found that patients with eating disorders are more likely to display comorbid personality traits and disorders. People with anorexia nervosa have been found to present with anxious–fearful personality traits and disorders (typically obsessive–compulsive or avoidant) and people with bulimia nervosa and those who binge–purge coincide with dramatic–erratic personality traits and disorders (Bruce and Steiger, 2005, Grilo, 2002 and Hoffman et al., 2012).

This review highlights the interpersonal impact that eating disorders can have and how these problems affect satisfaction with personal relationships and social adjustment. Furthermore, this review supports the clinical utility of specific therapies aimed at improving social networks and social support in the treatment of eating disorders, whether anorexia, bulimia, or subclinical in nature. Overall, the findings from this review support the use of therapies in treating eating disorders, such as interpersonal psychotherapy, which aims to improve patients' use of their social networks. In any such approach, the cognitive elements used might aim to help patients to develop (or improve) interpersonal problems solving skills, challenge the beliefs that maintain their attitudes towards emotional expression and fear of negative evaluation, while using psychodynamic skills to tackle attachment issues that may maintain fear of intimacy in certain patients (Whight et al., 2011). An attempt to maximize the individual's social skills and ability to form lasting relationships could improve both interpersonal functioning and eating disorder symptoms as a consequence.

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