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Positive Psychology and Subclinical Eating Disorders in South Africa: a literature overview.

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Abstract

Rapid escalation of Subclinical Eating Disorders (SED) in the form of high levels of body-dissatisfaction (BD) and drive for thinness (DT) globally and locally, and the at-risk status of university females are underscored by recent studies. As yet there exists no South African program tailored to the needs of afflicted female students and which includes a risk-protective focus grounded in Positive Psychology theory. In this chapter a theoretical overview on the nature and definition of SED, its prevalence and the rationale for a risk-protective focus grounded in Positive Psychology theory are provided. Thereafter three preliminary South African studies, namely two correlation studies (De Pãz Fransisco, 2007; Kirsten, Du Plessis & Swanepoel, 2010) and the Weight Over-concern and Well-being program of Kirsten, Du Plessis and Du Toit (2007) are discussed. Findings of these preliminary studies highlight the promise of utilizing Positive Psychology theoretical approaches to practically significantly reduce risk factors and promote protective factors. As such, Well-being therapy (Fava & Ruini, 2003) that promotes the six dimensions of psychological well-being (Ryff & Keyes, 1995), and Self-Determination Theory (Ryan & Deci, 2000) that can promote true self-esteem in the form of self-determination and mindfulness (Kabat-Zinn, 1998), with its inherent self-compassion, kindness and self-forgiving manner, show promise. More in-depth studies with larger samples are however needed.

Key words: body dissatisfaction; drive for thinness; psycho-education; psychological well-being; risk-protective; secondary prevention; self-objectification; Subclinical Eating Disorder; weight over-concern.

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Introduction

Internationally, the prevalence of Sub-clinical Eating Disorders (SED) or Eating Disorders Not Otherwise Specified, as described in the DSM-IV-TR (APA, 2000), have escalated rapidly. SED is conceived to be at an intermediate point on an eating disorder continuum, where asymptomatic, unrestrained eating lies at one end, milder forms of disturbed eating at an intermediate point, and clinical eating disorders (ED) at the other extreme (Mintz & Betz, 1988). Various authors support the validity of this continuum (Lindeman & Stark, 2001; Lu & Hou, 2009; Mickley, 2004).

Socio-environmental factors such as *drive for thinness* (DT) and *body dissatisfaction* (BD); and personality and temperament factors such as *low self-esteem* have consistently been singled out as the most predictive/risk factors associated with SED and ED onset (Lu & Hou, 2009; Phelps, Johnston & Augustyniak, 1999; Richardson & Paxton, 2010; Shapiro, Shea & Pritchard, 2007; Steiner et al., 2003; Van Rooyen, 2008). *Drive for thinness* is said to be an internalization of the unattainable thinness ideal, resulting in BD and consequently a firm willingness to alter body size and shape. Drive for thinness entails persistent obsessive body surveillance, weight over-concern, perceived fatness, a fear of fat, irrational beliefs regarding thinness, a preoccupation with dieting and extreme self-consciousness (Celio et al., 2000; Garner, 2004; Levitt 2003; Polivy & Herman, 2002). A DT has also been described as an extreme form of *self-objectification*, which occurs when an observer's perspective on the physical self is internalized; and the self is seen as an object to be looked at and evaluated (McKinley & Hyde, 1996; Muehlenkamp & Saris-Baglama, 2002; Tiggeman & Lynch, 2001). Concurrently, BD and body shame entail that present body size and shape are consistently overestimated and devalued, while the importance of physical appearance over other physical and self-attributes are overemphasized (Geller, Zaitsoff & Srikameswaran, 2002). According to Troisi et al. (2006) BD is a negative, prejudiced evaluation of the self in terms of figure, body, stomach and hips in comparison to an idealized thinness ideal. To conclude the conceptualisation of terms, *low self-esteem* refers to a stable set of irrational beliefs based on the negative self-evaluation about the individual's own qualities, attributes, adequacy and sense of worthiness (Nosek, Hughes, Swedlund, Taylor & Swank, 2003).

The "ideal thin woman", as portrayed by the media, is essentially 15% below her ideal, healthy body weight, which represents an unrealistic standard of thinness (Mussel, Binford & Fulkerson, 2000). The media, amongst others, contributes largely to these unrealistic thinness aspirations by sending ruthless messages to young people regarding their appearance, and especially that thinness is a standard of beauty (Hawkins, Richards, Granley & Stein, 2004). Elevated internalization of the thinness ideal and aspirations to reach the standards of beauty in our culture produces psychological discomfort, body dissatisfaction and risky dietary practices, because the ideal is unattainable for most women. The power of the thinness ideal messages is illustrated in the fact that globally the prevalence of SED symptoms and the ultimate risk of developing a full-blown ED, have escalated rapidly over the past two decades. In the 1980s only 31% to 45% of American female respondents experienced low body esteem in the form of BD, weight over-concern, and DT (Mintz & Betz, 1988). However, more recently and internationally, 55% up to 75% and 80 % of university females reported to suffer from SED symptoms (Littleton & Ollendick, 2003; Thompson & Digby, 2004). These symptoms, apart from BD and DT, also included self-objectification, "yo-yo" dieting, use of laxatives and slimming medication, over-exercising and self-starvation (Croll et al., 2002).

In South Africa, serious concerns were already raised more than a decade ago by Szabo and Hollands (1997), when 21.66% of their multicultural female youths reported possible eating pathology, thus not merely SED symptoms. The findings of Caradas, Lambert and Charlton (2000) corresponded with these proportions, as 17% to 21% of their South African ethnic adolescent female samples indeed reported possible eating pathology as indicated by DT and BD. This contradicted the findings of Senekal, Steyn, Mashego and Nel (2001) who proposed that black South African women are protected against SED, since they view obesity as a normal state of health, symbolizing beauty. Non-Westernized females are traditionally therefore not under similar pressure as White South African women to value thinness. However, Wassenaar, Le Grange, Winship and Lachenicht (2000) and recent investigations (Edwards & Moldan, 2004) among cross-ethnic female South African students, indeed showed significant eating pathology and SED symptoms. Black South African females thus do not seem to be immune to SED, and are probably experiencing acculturative stress due to their cultural transition to a more Westernized culture (Hwang, Myers, Abe-Kim & Ting, 2008). The findings are also consistent

with international evidence that African Americans show increases in SED symptoms, hence increased risk (Miller & Pumariega, 2001). Lastly, in an international survey of Garner (2004) among 4000 females, which included an unknown percentage of South African respondents, 56% indicated BD, 66% reported dissatisfaction with their body weight, and a shocking 89% admitted to a DT.

The at-risk status of young females, especially on-campus populations across ethnic diversity, was underscored globally and nationally, and consequently the need for prevention programs was emphasized. Earlier studies on the battlefield of SED and ED prevention and treatment focused on the identification of risk factors, and then on reducing such factors, combined with psycho-education (Garner, 1997). Many of these programs were successful to some extent (Becker, Franko, Nussbaum & Hertzog, 2004; Steiner et al., 2003; Winzelberg et al., 2000) but their effects did not last. Furthermore, many of these interventions were mainly derived from interventions meant for adults, and thus were not developmentally appropriate for addressing psychosocial tasks such as identity development as described by Erickson (1959). According to Phelps et al. (2000) and Pratt, Phillips, Greydanus and Patel (2003) the lack of a risk-protective focus which is developmentally appropriate, seems to be one of the main reasons why former intervention programs were either not quite successful or their effects did not last.

Despite criticism against the above-mentioned risk-driven prevention programs, the identification of the main risk factors predictive of SED and ED was extremely valuable, as it contributed to increased insight into these phenomena. That being said, pathogenic models failed to explain why some females, despite sharing similar socio-cultural experiences and personality and temperament factors, do not develop SED or a clinical ED (Brown 2008; Shapiro, Carlson, Astin & Freedman, 2006). A shift in research focus clearly became necessary and insights into protective factors in an SED and ED context became crucial (Steck, Abrams & Phelps, 2004). This shift in focus introduced the field of Positive Psychology.

Positive Psychology and Sub-clinical Eating Disorders

Positive Psychology concerns itself with the origins of wellness, i.e. Salutogenesis (Strümpfer, 1995). It seeks to understand how and why individuals thrive despite adverse circumstances (Seligman & Csikszentmihalyi, 2000). The question of what *protects* individuals against SED *despite* peer and media pressure for thinness highlighted the relevance of Positive Psychology to this field of enquiry. Positive Psychology is not meant to replace other psychotherapies, and should, according to Seligman (2005, p.7), embrace *both healing what is weak and nurturing what is strong.* Therefore an integrated prevention approach is called for, and understandably, recent Positive Psychology literature suggests a risk-protective focus (Phelps, Sapia, Nathanson & Nelson, 2000). Effective programs thus would be dependent on the identification and deterrence of specific risk factors, but also on enhancing protective factors to prevent SED onset significantly within the developmental context of the target group.

Protective factors specifically relevant to ED and SED include self-determination, positive self-esteem, rationality and autonomy, self- and coping-efficacy, effective problem solving and stress management skills, affect balance, self-regulation and mindfulness, learned optimism, social competence and support, self-nurturing, spirituality and probably mindfulness (Brown & Ryan, 2003; Fredrickson, 2001; Littleton & Ollendick, 2003; Pelletier, Dion & Levésque, 2004; Phelps et al., 2000; Steck et al., 2004; Steiner et al., 2003). All of these protective factors are positively correlated with improved psychological well-being (PWB), resilience and resistance. Hence the argument that a risk-protective focus will be more effective to reduce pathology as PWB and resilience are concurrently enhanced.

Psychological well-being can be broadly defined in terms of hedonic and eudaimonic theoretical perspectives (Ryan & Deci, 2001). Hedonic well-being measures ask *if* people are happy and satisfied with their lives: it thus measures happiness or subjective well-being (Ryan & Deci, 2001). Subjective well-being entails three components, namely satisfaction with life, the presence of positive affect and the relative absence of negative affect (Diener, 2000). Contrastingly, eudaimonic well-being measures ask *why* people are happy. Eudaimonic well-being means that people live in accordance with their true self (daimon) and achieve self-actualization, and self-express their needs, deeply held values and talents (Ryan & Deci, 2001).

The eudaimonic approach defines PWB much broader than subjective well-being, and mainly in terms of the degree to which a person is fully functioning and has operationalized the six dimensions of PWB, namely self-acceptance, autonomy, environmental mastery, positive relations with others, personal growth and meaning in life (Ryff & Keyes, 1995). According to Ryff (1998) eudaimonic well-being reflects more than happiness; it reflects resilience in the face of adversity, and also positive functioning, mental health and personal strengths (Ryff & Keyes, 1995).

Despite attempts by international researchers to develop empirically based, primary prevention programs in schools and colleges, such as American studies (Phelps et al., 2000; Winzelberg et al., 2000) and British studies (Becker, Franko, Nussbaum & Hertzog, 2004; Steiner et al., 2003), no empirically based, developmentally appropriate and risk-protective programs known to the researcher exist in South Africa. However, since it is often too late for primary prevention when students enter university, professionals working with such at-risk groups then should focus on secondary prevention (Becker et al., 2004). Before a secondary prevention program could be developed, a few pilot studies were conducted to determine whether the research findings regarding possible protective factors against SED symptoms also hold true for young South African females; and to determine which direction to take in program development. These pilot studies are discussed below.

Study 1: Correlations between SED symptoms and the six domains of PWB

This preliminary South African study by De Pãz Fransisco (2007) offered valuable information regarding prevention programming for SED. The aim of this study was to determine correlations between the six dimensions of PWB and SED symptoms.

Method

Research design and participants

A one-shot cross-sectional survey design was used (Morse, 2003), which eventually included an availability and multicultural sample of adolescent females (n = 290) ranging between the ages of 13 and 17 years in grades 9 to 11, attending an English high school in the Gauteng Province. Race distribution was White (n = 196), Black (n = 77), Coloured (n = 2),

Indian (n = 5) and Chinese (n = 1). Their BMI-ranges were: underweight (n = 42, 14.48%), normal (n = 195, 67.24%), over-weight (n = 38, 13.10%) and obese (n = 15, 5.17%). Ethical issues for research stipulated by the Health Professions Council of South Africa (HPCSA, 2004) were attended to closely.

Measuring instruments

After sampling, participants completed self-report questionnaires. Psychological well-being was measured by the Scales of PWB (SPWB) (Ryff, 1998), and Cronbach alphas obtained in this study were: Autonomy 0.76; Environmental Mastery 0.79; Personal Growth 0.79; Positive Relationships 0.79; Purpose in Life 0.82; and Self-Acceptance 0.89. The Eating Disorder Inventory-3 (Garner, 2004) measured SED-symptoms, and alphas corresponded with those obtained by Garner (2004), and were for this study: Drive for Thinness 0.88; Bulimia 0.78; Body Dissatisfaction 0.90; Low Self-Esteem 0.85; Personal Alienation 0.83; Interpersonal Insecurity 0.76; Interpersonal Alienation 0.71; Interoceptive Deficits 0.85; Emotional Dysregulation 0.73; Perfectionism 0.72; Asceticism 0.63 and 0.68 for Maturity Fears.

Results and Discussion

Results are illustrated in Table 1.

Insert Table 1 approximately here

Pearson's product moment correlation coefficients (2009) indicated that Self-acceptance specifically was the only domain of PWB that had practically significant negative correlations with both BD and DT. This finding is in line with existing literature (Phelps et al., 1999), and suggests that self-acceptance could play a buffering role against BD and DT. According to Ryff and Keyes (1995) self-acceptance, as an aspect of self-esteem, entails that a person accepts her good and bad qualities, feels positive about her past life and even her failures, and practices self-forgiveness. Her self-esteem is thus non-contingent in that she does not find her self-esteem through how others value her or their expectations (Ryan & Brown, 2003). Hence, the findings suggest that females high on BD and DT are prone to have a contingent self-esteem (Ryan & Brown, 2003). This uncompassionate sense of worth entails that they see their worth as

dependent upon appearing certain ways or accomplishing certain goals, namely being thin. Surprisingly perfectionism had no significant correlation with DT and BD in this study, and contributes to an inconclusive body of research regarding the role of perfectionism in SED (Bardone-Cone et al., 2007; Van Rooyen, 2008).

Practically significant negative correlations were found between all six domains of PWB and EDI-3 Low Self-esteem and Personal Alienation respectively: Self-acceptance, Personal relations and Purpose in life; Autonomy, Environmental mastery and Positive relations. Practically significant negative correlations were also found between EDI-3 Interpersonal Insecurity, Interpersonal Alienation and Interocpetive Deficits, and SPWB Self-acceptance, Environmental mastery and Positive relations respectively. These findings were expected and are consistent with the Self-Determination Theory (SDT) of Ryan and Deci (2000), which reflects a person's sense of autonomy, competence and relatedness. Although not exactly similar, conceptually the domains of SDT bare close resemblance to the domains of Autonomy, Environmental Mastery and Personal Relatedness (SPWB), and are therefore relevant to SDT. Pelletier et al. (2004) found that self-determination, in the form of true self-acceptance, protects individuals from BD and DT. According to Ryan and Brown (2003) autonomy is regarded as the "true self-esteem". The less autonomous a person is, the less loveable and acceptable they would feel, and the less they will seek close relations with others and the more they would alienate themselves interpersonally. In turn they would feel incompetent in that they cannot act effectively on their environment, and experience a lack of meaning and purpose in life since they are pursuing extrinsic, meaningless goals (e.g. being thin). Consequently personal growth would be inhibited as they do not actualize their potential.

Practically significant correlations between Self-Acceptance, Autonomy, Environmental Mastery, Positive Relations (SPWB), and the EDI-3 Lack of Interoceptive awareness are also consistent with mindfulness and SDT theory. Ryan and Brown (2003) specifically state that when one is truly self-determined, "one does not only focus on what others approve of, but also on one's … pressing needs" (p.75). Self-determination implies a full awareness, similar to mindfulness, which entails an open, nonjudgmental, full awareness of what is occurring in the present (Kabat-Zinn, 1998). In self-determination and mindfulness there is no fixed self-concept

to protect (Ryan & Brown, 2003; Shapiro 2006, 2007). Conversely, when one negatively judges the self and one's ability to influence the environment and to form close relationships, one would want to protect oneself by rather not reflecting on one's internal experiences; hence the lack of interoceptive awareness.

The findings of Study 1 clearly indicated the probability that the six domains of PWB as defined by Ryff and Keyes (1995), self-determination (Ryan & Brown, 2003), and mindfulness (Brown, Ryan & Creswell, 2007) could prove to be protective factors, but called for an experimental design. This introduced the second study, in which a secondary prevention program, namely the Weight Over-concern and Well-being (WOW) program, was developed (Kirsten, Du Plessis & Du Toit, 2007) and its effect empirically evaluated.

Study 2: The Weight Over-concern and Well-being program for secondary prevention

The development, rationale and session content of the WOW program and the Tomatis Method (TM) of sound stimulation have been outlined in Kirsten and Du Plessis (2006) and Kirsten et al. (2007), thus brief outlines will suffice. The WOW program resulted from a four phase participatory action research process (Morse, 2003), embedded in Social Constructivist theory, and was conducted in collaboration with university students with SED. Each new phase of action comprised various learning spirals, and was informed by the results of previous phases (Zuber-Skerritt, 2002). Given the above, the WOW program is an empirically based, secondary prevention program, based on developmental perspectives.

The WOW uses an integrative technically eclectic approach, where therapeutic techniques working independently from a wide variety of theoretical underpinnings were incorporated (Lazarus & Beutler, 2001). Amongst others, the most prominent underpinnings included Narrative (White & Epston, 1990), Positive Psychology and Well-being Therapy (Fredrickson, 2001; Fava & Ruini, 2003), Cognitive Behaviour Therapy (Beck & Weishaar, 1991), Neuro-Linguistic Programming (Andreas & Andreas, 1989), and Logotherapy (Hutzel & Jenkins, 1995). Prochaska's transtheoretical model (1984) was used to structure program activities according to various stages, levels and change processes: *Session 1:* problem clarification, preparation for personal growth via enhancement of interoceptive awareness;

Session 2: resolving inner ambivalence to change, reinterpretation of the "SED problem" and re-authoring personal identity; *Session 3:* reapportioning of time to reduce SED symptoms, and enhancing meaningfulness and satisfaction with life; *Session 4:* reducing SED symptoms and enhancing autonomy and self-acceptance by teaching rationality and critical attitudes towards media stereotypes and socio-cultural pressures of thinness, and core beliefs regarding SED risk factors; *Sessions 5, 6 and 7*: enhancing mastery and reducing SED symptoms by teaching cognitive and behavioral skills to enhance rationality, self-acceptance and self-nurturing, mindful eating and effective coping; *Session 8:* identification and enhancement of personal strengths, self-acceptance and positive relations; and *Session 9:* proactive coping, integrating acquired skills in a comprehensive behavioral strategy and integrating meaningful values with self-esteem, positive relations and purpose in life.

The TM, which impacts hearing and listening, communication, brain and posture, was devised by a French ear-nose-throat specialist Alfred Tomatis (1996). Applied initially with singers, its impact on voice, posture and communication (Tomatis, 1996) lead to progressive extensions, amongst others in stuttering (Van Jaarsveld & Du Plessis, 1988), learning difficulties (Tomatis, 1996) and autism (Neysmith-Roy, 2001). Observations of its application in general clinical contexts suggest that persons become more open to external and internal stimuli, more receptive and responsive to therapeutic interventions, and experience a rapid relaxation response and affect balance. These observations were progressively corroborated by South African empirical findings, amongst others positive outcomes for weight pre-occupied and overweight females (Du Plessis, Vermeulen & Kirsten, 2004; Van Wyk, 2003).

Aims of study

The aims were to determine: a) whether participation in the combined TM of sound stimulation and the WOW program (WOW-combined); and b) participation in the WOW program-only (WOW-only), would lead to significant enhancement of PWB, reductions in SED-symptoms and associated psychological traits, and negative mood states; and c) whether results of the two experimental groups would exceed results of a non-intervention control group

(Control Group) practically significantly; and d) whether program outcomes for the two experimental groups would be retained at a four month follow up.

Method

A mixed method, three group pre-post test design (Morse, 2003) was used. Only the quantitative data will be reported here, although qualitative results derived from focus group interviews and written documents supported and strengthened the experimental outcomes.

Participants and Procedures

Despite attempts to obtain a multi-cultural sample, only 60 undergraduate white female students volunteered. Ethical issues for research stipulated by the HPCSA (2004) were attended to closely. The inclusion criteria were: normal to slightly overweight Body Mass Index of 20-26 (World Health Organization, 1995); absence of clinical eating or body-dysmorphic disorders; moderate personality disorder traits (American Psychiatric Association, 2000); and the presence of a high degree of SED symptoms, as measured by the Objectified Body Consciousness Scale (McKinley & Hyde, 1996), Eating Disorder Inventory-2 (Garner, Olmstead & Polivy, 1983). Those who did not meet the criteria were referred for individual therapy. After selection screening, an availability sample of 45 was selected and randomly assigned to the three groups (each n = 15). After group assignment, blind pre-assessment was conducted when participants completed self-report questionnaires. ANOVAS were used to determine pre-treatment group equivalence. All groups were equivalent, except that the WOW-only and Control Group differed on Interoceptive Awareness (EDI-2) and Environmental Mastery (SPWB). Covariance analyses were consequently performed on these subscales to correct for differences between groups at pre-assessment. Thereafter WOW-combined attended 64 half hour TM sessions (2 hours a day, 4 days a week, integrated with 9 WOW sessions, 90 to 120 minutes each, twice weekly) over 4 weeks. WOW-only attended 9 WOW sessions of 90 to 120 minutes each, twice weekly, over 4 weeks. The non-intervention group was offered participation afterwards, but declined. Post-assessment commenced 1 month post-program and follow-up 4 months later.

Demographic information derived from descriptive statistics revealed the following: all participants reported unsuccessful attempts to overcome SED symptoms, a strong desire to

change, almost always feeling dissatisfied with their bodies, and spending approximately 45% to 65% personal time obsessing about it. A third (n = 15) reported using laxatives or medication to lose weight, 24% (n = 11) were continually dieting, 64% (n = 29) regularly dieted, while 11% (n = 5) sometimes dieted, reflecting their drive for thinness. Mean age was 20.33 years (ranging between 18 years 6 months and 22 years), comprising Afrikaans (n = 38) and English-speaking (n = 7) females. Mean height was 167.90 cm and mean weight 63.17 kg, resulting in a mean normal range Body Mass Index of 23.89 (World Health Organization, 1995). Maternal history of eating disorders was reported by 26% (n = 12), whereas 40% (n = 18) experienced family pressures to be thin. Mean age at onset of SED was 15 years.

Measuring instruments

The Eating Disorder Inventory-2 (EDI-2; Garner et al., 1983) was used to measure SED symptoms and risk factors during participant selection and pre-post testing. Kirsten, Nienaber and Fischer (2008) obtained an overall Cronbach alpha coefficient of 0.94 in a South African female sample. The Objectified Body Consciousness Scale (OBCS) (McKinley & Hyde, 1996) measured self-objectification, body surveillance and body shame. Cronbach alphas in Study 2 were: 0.72, 0.61 and 0.65 respectively. General PWB was measured by the Satisfaction With Life Scale (SWL) (Diener, Emmons, Larsen & Griffin, 1985), which entails positive affective appraisal, negative affective appraisal and life satisfaction. An alpha of 0.88 in the WOW-study compared well with that in other South African samples (Wissing & van Eeden, 2002). The Profile of Mood States (POMS; McNair, Lorr & Droppleman, 1992) measured various negative mood states with good Alpha coefficients. In this study alphas ranged between 0.76 and 0.94. Eudaimonic PWB was measured by the SPWB (Ryff, 1998). Alpha coefficients could not be calculated due to sample size, but those obtained by De-Pãz Fransisco (2007) in a young female sample were excellent.

Data Analysis

The SAS System for Windows Release 9.1 TS Level 1MO (2002-2003) by the SAS Institute Inc. (1999), Cary, NC, USA was used for statistical analysis. Paired t-tests were used to determine within group differences and ANOVAS were used to determine between-group, post-testing and follow-up differences. Pre-test scores were subtracted from post-test scores in all

cases, and follow-up test scores were subtracted from post-test scores to obtain mean differences both within and between groups. Tukey's intervals were calculated to determine inter-group differences. Effect sizes (d-values) were calculated to determine practical significance (Ellis & Steyn, 2003), with $d \geq 0.5$ indicating a moderate effect and $d \geq 0.8$ indicating large effect and practical significance.

Results

Overall, practically significant reductions in all SED symptoms and increases on most subscales of PWB occurred within both experimental groups and most negative mood states for WOW-combined, in comparison with the control group. Results lasted at four months follow-up.

Pre-post test differences within WOW-combined.

As indicated in Table 2 practically significant reductions in *SED symptoms* occurred on the EDI-2 for: Drive for thinness, Bulimia, Body dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal distrust and Maturity fears, while Interoceptive awareness was practically significantly enhanced. Scores on the OBC indicated practically significant reductions in Body surveillance and Body shame, except for Appearance control beliefs. Practically significant reductions in *negative mood states* on the POMS were: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Confusion and the Total score. Increased Vigour and reduced Fatigue tended towards practical significance. Practically significant increases were found on almost all domains of *PWB* **(**SPWB): Self-acceptance, Autonomy, Environmental mastery, Positive relations and Purpose in life. Personal growth and Satisfaction with life tended toward practical enhancement.

Insert Table 2 approximately here

Pre-post test differences within WOW-only.

As indicated in Table 3 practically significant reductions were obtained on all *SED symptoms* (EDI-2) namely: Drive for thinness, Bulimia, Body dissatisfaction, Ineffectiveness and Interpersonal distrust, and likewise for OBCS Body surveillance and Body shame. Perfectionism and Maturity fears tended towards practical reduction (EDI-2), and Interoceptive awareness increased practically significantly. Regarding *negative mood states*, only Tension-Anxiety

(POMS) was practically significantly reduced. Increases in *PWB* (SPWB) were of practical significance for Self-acceptance and Environmental mastery, whilst increases on Personal growth, Positive relations and Purpose in life showed tendencies towards practical significance. Satisfaction with life (SWL) increased practically significantly.

Insert Table 3 approximately here

Pre-post test differences within Control Group.

No significant reductions in *SED symptoms* (EDI-2, OBCS), *negative mood states* (POMS), nor enhancement of *PWB* (SPWB, SOC-29, SWLS) on any of the subscales. In contrast to the experimental groups, the control group's functioning deteriorated. As indicated in Table 4, SED symptoms increased practically significantly on some measures, for instance Bulimia (EDI-2) and Tension-Anxiety (POMS). Fatigue and Total POMS scores tended to increase, while Vigour (POMS) and Personal growth (SPWB) tended towards reduction.

Insert Table 4 approximately here

Significance of post assessment differences between groups.

No significant differences were found between the two experimental group's outcomes on any of the measures. As indicated in Table 5 WOW-combined outcomes exceeded all outcomes of Control Group practically significantly on all measuring instruments, i.e., regarding reduced *SED-symptoms* on the EDI-2: Drive for thinness, Bulimia, Body dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal distrust and Maturity fears; on the OBCS regarding reduced Body surveillance and Body shame; regarding reduced *negative mood states* on the POMS, i.e.: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Fatigue, Confusion, and Total POMS scores; and increased Vigour (POMS; d = 1.12). In terms of *PWB* outcomes, WOW-combined exceeded Control Group practically significantly on all subscales of SPWB, i.e., Autonomy, Self-acceptance, Personal growth, Positive relations and Purpose in life; and Satisfaction with life (SWLS).

Insert Table 5 approximately here

Significance of post-assessment differences between groups.

WOW-only and Control Group differed practically significantly on all measures of *SED* and most measures of *PWB* (see Table 5), indicating the strength of the WOW program per sé. Reductions in *SED symptoms* in WOW-only (also see Table 5) practically significantly exceeded outcomes of Control Group on the EDI-2 and OBCS with regard to Drive for thinness, Bulimia, Body dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal distrust, Maturity fears, Body surveillance and Body shame. For *negative mood states*, WOW-only exceeded Control Group practically significantly on Tension-Anxiety; and also in terms of enhancement of *PWB* (SPWB) on Autonomy, Personal growth, and Positive relations. No statistically significant differences were found between outcomes of WOW-only and Control Group for negative mood states on the POMS such as Depression-Dejection, Anxiety-Hostility, Vigour, Fatigue, Confusion, Total scores; Purpose in life and Self-acceptance (SPWB); and Satisfaction with life (SWLS).

Pre-post covariance analysis of differences between groups corrected for pre-test counts. As illustrated in Table 6, increases for Interoceptive awareness (EDI-2) and Environmental mastery (SPWB) for WOW-combined and WOW-only respectively, practically significantly exceeded outcomes of Control Group. In line with aim (d), no significant post-follow-up differences were found between WOW-combined and WOW-only, thus confirming the maintenance of outcomes for both groups at a four month follow-up. The results are not discussed further, in view of the lack of statistically significant differences. In Control Group there were no statistically significant changes either at a four month follow-up.

Insert Table 6 approximately here

Discussion

The WOW findings have shown that conceptually, pathogenic and salutogenic perspectives can be successfully combined into a risk-protective model of secondary prevention for SED, which may possibly even be useful as an enrichment program for female students in general. Despite the need to refine the WOW program, it provided valuable preliminary information into the understanding of the prevention of SED whilst promoting PWB.

Although WOW-combined and WOW-only did not differ significantly on any of the measuring instruments, the combined program led to quantitatively more changes per sé. More practically significant differences occurred between WOW-combined and Control Group than for WOW-only and Control Group, namely: all negative mood states, enhanced PWB such as also Self-Acceptance and Purpose in life (SPWB), and satisfaction with life (SWLS). They highlighted the advantage of a combined program, and suggested that WOW-combined participants experienced relief much faster, over a broader spectrum, and possibly at a deeper level, than WOW-only participants. That the latter still was in an integration phase was supported by observations during the process. WOW-combined participants mastered CBT and Well-being-therapy skills much easier and faster than those in WOW-only. They required less assistance with restructuring of irrational thoughts and mistaken beliefs. It thus appeared to be a more natural process for WOW-combined than for WOW-only.

The more rapid, in-depth improvement in WOW-combined in terms of all SED symptoms, negative mood states and PWB, is in line with the effects of the TM and the Broaden and Build Theory of Fredrickson (2001). Firstly the TM is known to accelerate processing of incoming information, i.e. improved listening, thus rendering openness to therapeutic input and personal growth (Thompson & Andrews, 1999, 2000), expanded thinking and enhanced interoceptive awareness (Du Plessis et al., 2004). Secondly, beyond symptom reduction, interpersonal and PWB gains, only WOW-combined participants experienced reductions on almost all negative mood states in comparison with Control Group. This finding too is consistent with previous TM studies (Du Plessis et al., 2004; Van Wyk, 2003) and the energizing effect of the TM on the cerebral cortex (Tomatis, 1996), signifying its biopsychosocial impact. Thirdly, in line with the Broaden and Build Theory (Fredrickson, 2001), positive emotions broaden individuals' momentary thought-action repertoires, prompting them to pursue wider ranges of thoughts, perceptions and actions than typical and produce upward spirals of better coping and appreciable increases in well-being (Fredrickson & Branigan, 2003). Certainly such benefits are in line with overall improvement and the greater ease with which WOW-combined could recognize their irrational inner dialogue and dispute their internalized, mistaken beliefs.

The ability of WOW-combined to accelerate therapeutic effects and ground its participants in levels of PWB, significantly higher than attained by Control Group, confirms its robustness. In summary, the TM proved to be a viable supplement to the WOW program, since the combined program clearly offered advantages for females struggling with recalcitrant SED symptoms.

Corresponding experimental group outcomes in terms of practically significant reductions in DT, and concurrent Bulimia, BD (EDI-2) and Body shame (OBCS) are in line with Stice's (2001) postulation that reduced DT and fear of fat would directly reduce BD and risk of bulimia. Practically significant reductions in Self-objectification and Body surveillance (OBCS) and within group increases on Self-acceptance (SPWB) are in line with Tiggemann and Lynch's (2001) Self-objectification theory, the correlation study of De Pãz Fransisco (2007), and McKinley and Hyde (1996). They found that self-accepting individuals are less prone to DT and BD, evaluate their bodies according to their own criteria, and consequently are less susceptible to self-objectification and external thinness pressures. No significant reductions occurred on Appearance control beliefs (OBCS), indicating that participants still believe that they should monitor their appearance. However, healthier forms of appearance monitoring were observed in both experimental groups, namely improved personal grooming, unique hairstyles and more personalized ways of dressing.

Practically significant increases in Interoceptive awareness and decreased Bulimia scores (EDI-2) are consistent with findings of Schneer (2002), and Brown and Ryan (2003). They found that increased interoceptive awareness, possibly a form of mindfulness, is associated with decreased bulimic behavior. Practically significant reductions in negative affect on Confusion-Bewilderment and Tension-Anxiety (POMS), and maintenance thereof at a four month follow-up signify that experimental groups have acquired healthier forms of emotional self-regulation. This is consistent with the converse of risk-theories proposing that SED-females utilize automatic, mindless bulimic behavior to regulate, cope with and numb out confusing negative affect (Garner et al., 1983; Pelletier et al., 2004; Polivy & Herman, 2002), or to obtain emotional relief (Lindeman & Stark, 2001).

Practically significant increases in domains of PWB such as Autonomy, Environmental mastery, Positive relations and Personal growth (SPWB), with concomitant decreased DT, BD, Bulimia, Interpersonal distrust, Ineffectiveness and Maturity fears are in line with existing literature. Cash, Thériault and Annis (2004) found that a negative body-image entail greater interpersonal discomfort and concerns about approval and acceptance in social relationships, thus the converse as specifically found in reduced BD, was proven. Enhanced self-determination, as demonstrated by increased autonomy, environmental mastery and personal relations, are regarded as an important pathway to enhanced PWB (Ryan & Deci, 2000; Ryff & Keyes, 1995). According to Self-determination Theory (Ryan & Deci, 2000, 2001) and also as described by Pelletier et al. (2004), self-determination acts as a buffer against BD, DT, bulimic symptoms, and enhances personal relations and a sense of self-efficacy in coping with environmental challenges. Concomitant practically significant reductions in Ineffectiveness and Maturity fears (EDI-2) within the experimental groups, and between them and the control group, as well as maintenance thereof at the four month follow-up, reflect that experimental groups feel more competent to take control over critical decisions about their lives. According to Garner (2004) reductions in Maturity fears are seen as one of the best indicators of good prognosis in recovering from eating disorders and were proven in this study. Results suggest that the multiple demands of late adolescence no longer seem so overwhelming, and that rigid preoccupation with food and eating, which is an illusion of control and competence, is rendered unnecessary (Steiner et al., 2003).

Practically significantly enhanced Autonomy and Personal growth (SPWB) for both experimental groups, exceeding that of the control group also at follow-up, imply that participants are more open to new experiences and have developed new attitudes and behaviors towards themselves and others (Ryff & Keyes, 1995). This finding fits neatly with significantly reduced Perfectionism and Drive for thinness (EDI-2) for both experimental groups in comparison with the control group at post- and follow-up testing, suggesting an alteration in the irrational belief that only the highest standards of personal performance and perfection are acceptable (Garner et al., 1983). According to Garner (2004) perfectionism is an important component in determining depth of commitment toward DT. Decreases in perfectionism and increases in autonomy which is regarded as the “true self-esteem” (Ryan & Deci, 2000), are in

line with the findings of Polivy and Herman (2002), who found that higher self-esteem moderates perfectionism.

The finding that Self-acceptance (SPWB) neither differed significantly between WOW-combined and WOW-only, nor between WOW-only and Control Group, seems obscure. It deserves further investigation, but also proves that true self-esteem, or at least certain components thereof, is difficult to enhance. Regarding maintenance of outcomes at the four month follow-up, the following quote from a participant illustrates the strength of the WOW program: "Participation in the WOW program was a life-changing experience and something I will never forget."

Conclusions

The risk-protective focus of the WOW program has been proven to be an effective psychosocial intervention in the management of females with SED. Its impact in the context of a relatively brief time span, with retention of gains at four month follow-up, is proof of its efficacy as a clinical intervention in a peri-urban environment. The combined WOW program proved to have a biopsychosocial effect, in view of its concomitant positive physiological impact on fatigue and vigour. As such its compatibility and complementary role within the context of a psychosocial intervention was demonstrated. However, the cost-effectiveness and comparative brevity of the WOW program renders it the program of choice regarding individuals with SED.

Limitations of WOW and Recommendations

Failure to attract larger samples and also multicultural participants, despite repeated invitations in various residences, and non-measurement of the impact of specific techniques are limitations. The WOW program needs simplification, refinement, and application with multicultural groups and female adolescents at secondary school level are indicated. A preliminary study to inform the refinement of the WOW program and to seek a better understanding of how to operationalize self-acceptance or self-esteem was required. Consequently, Study 3 (Kirsten, Du Plessis & Swanepoel, 2010) was performed.

Study 3: SED symptoms, Self-Compassion, Self-Forgiveness, and Mindfulness

In Western societies the media promotes the view of the self as an object (Hawkins et al., 2004; Ryan & Brown, 2003). Females see themselves not as persons but as objects to be judged, resulting in self-objectification (Muehlenkamp & Saris-Baglama, 2002; Tiggemann & Lynch, 2001), and a lack of autonomy (Ryan & Brown, 2003). The introjected thinness ideal becomes a form of self-esteem with the aim of gaining, or not losing, self- or other approval, resulting in a vulnerability to conform to activities others value and approve of (Ryan & Brown, 2003). Females with SED thus have a contingent self-esteem in that their worth is dependent upon reaching extrinsic standards or goals. They thus do not develop a true self, as understood from an eudaimonic perspective. Furthermore, Western psychologists have frequently focused on enhancing self-esteem as a response to adolescents' negative self-evaluations (Neff & McGehee, 2010), but non-contingent self-esteem is difficult to raise (Shapiro & Pritchard, 2007). It is argued that high self-esteem may also contribute to certain problematic behaviors, such as narcissism, self-absorption, self-centeredness and a lack of concern for others (Neff, 2003; Ryan & Brown, 2003). Therefore encouraging the pursuit of high self-esteem does not necessarily seem to be a desired or productive goal (Neff & McGehee, 2010). This notion calls for an alternative self-view, known as the self-as-process (Ryan & Brown, 2003).

According to self-determination theory (Ryan & Deci, 2000) the "true self-esteem" or the "self-as-process" is autonomy. Autonomy refers to the "experience of free will, ownership and initiative in one's own behavior, and that one is not coercively controlled" (p.73) by, for example, pressures to thinness. Autonomy as defined by Ryff and Keyes (1995) implies that a person is unconcerned about the expectations or evaluations of others, able to resist social pressures, self-determining and independent, and regulates behavior from within and evaluates the self by her own standards and beliefs. A non-autonomous person would: be over-concerned with the expectations and evaluations of others, rely on others' judgements to make important decisions, and conform to social pressures to think or act in certain way. As such, autonomy would be a more accurate replacement for self-esteem, as is motivated by Brown and Ryan (2003): "the true basis for well-being appears to be in stepping outside the self-concept altogether ... In mindfulness and true self-determination, there are no fixed concept of self to protect or enhance" (p.75). Concomitant mindfulness, with its open, non-judgmental awareness

of what is occurring in the present (Kabat-Zinn, 1998) thus also seems to be another important construct in the self-as-process. Mindfulness is a receptive mind state in which individuals observe their thoughts and feelings (e.g. about their appearance) as they arise without trying to change them or push them away, but without running away from them either (Brown & Ryan, 2003). Although the purpose of mindfulness per sé is not self-compassion and self-kindness, it entails the perspective of self-compassion (Neff, 2003).

Self-compassion provides an alternative model for thinking about the self that may promote PWB (Brown, Ryan & Creswell, 2007; Neff & McGehee, 2010; Shapiro et al., 2006). Put simply, "self-compassion is compassion turned inward" (Neff & McGehee, 2010, p. 226), and it seems to be another important ingredient of the "self-in-process". Neff (2003) defines self-compassion as "being kind and understanding toward oneself in instances of pain or failure rather than being harshly self-critical; perceiving one's experiences as part of the larger human experience rather than seeing them as isolating; and holding painful thoughts and feelings in mindful awareness rather than over-identifying with them" (p.89). Self-compassion consequently transforms negative self-affect, i.e. feeling bad about not being thin enough, into positive self-affect, i.e. feeling kindness and understanding towards the self, and a more balanced self-perspective. According to Neff and Vonk (2009) it circumvents the entire evaluation process of the self and may be a useful alternative to global self-esteem, but is not to be confused with self-indulgence or laziness (Neff, Kirkpatrick & Rude, 2007).

Self-forgiveness is another important concept to consider when thinking about the self-as-process. According to Hall and Fincham (2008) self-forgiveness is the release of negative feelings toward the self in the wake of an objective fault or wrongdoing, and the restoration of goodwill, self-respect and self-acceptance. Individuals engaging in self-forgiving behavior show themselves self-compassion, and are able to recognize their intrinsic worth and its independence from their failures (Hall & Fincham, 2008; Neff 2003). Self-forgiveness is also positively correlated to PWB (Dillon, 2001).

Theoretically the well-being benefits of self-compassion, mindfulness and self-forgiveness have been highlighted in enhancing "true self-esteem", but studies applying it to the

field of SED are almost non-existing in South Africa. It was therefore the aim of Study 3 (Kirsten et al., 2010) to determine whether a relationship exists between self-compassion, self-forgiveness, mindfulness and primary SED symptoms and low self-esteem.

Method

Participants

In this study a one-shot cross-sectional survey research design was used (Morse, 2003). Ethical issues (HPCSA, 2004) were attended to closely. An initial random sample of 200 females was selected, but after a data cleaning process, the multicultural sample included 122 residential female students between the ages of 18 and 25 at the Potchefstroom campus of the North-West University. The response rate was 61%. The majority of the participants were White (n=112), and ten were African.

Measuring instruments

Self-report questionnaires were used. The subscales Drive for Thinness, Body Dissatisfaction, and Low Self-esteem of the *Eating Disorder Inventory* (EDI-3; Garner, 2004) were used to measure SED-symptoms. Good *C*ronbach alphas were found in Study 3 – Drive for Thinness: 0.84, Body Dissatisfaction: 0.88, and Low Self-esteem: 0.84. The *Self-Compassion Scale (SCS;* Neff, 2003) measured self-compassion in this study, and Cronbach alphas were: Self-kindness: 0.74, Self-judgment: 0.73, Common humanity: 0.71, Isolation: 0.78, Mindfulness: 0.68 and Over-identification: 0.70. The *Five Facet Mindfulness Questionnaire (FFMQ;* Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) measured mindfulness, and Cronbach alphas in this study were: Observing: 0.73, Describing: 0.90, Acting with awareness: 0.85, Non-judging of inner experience: 0.80, and Non-reactivity to inner experience: 0.76. The *Heartland Forgiveness Scale* (HFS; Thompson et al., 2005) measured forgiveness in this study. Cronbach alphas were: Self-forgiveness: 0.74, Forgiveness of others: 0.73 and Forgiveness of a situation: 0.66.

Statistical analysis

The SAS System for Windows Release 9.1 TS Level 1MO (2002-2003) by the SAS Institute Inc. (1999), Cary, NC, USA was used. Pearson's product moment correlation

coefficients (Jackson, 2009) were used to determine linear relationships between the identified variables, using Cohen's (1988) correlation guidelines.

Results

In general, aspects of self-compassion, self-forgiveness and mindfulness had practically significant negative correlations with SED-predictors BD, DT and low self-esteem (see Table 7). Only practically significant results will be discussed.

Insert Table 7 approximately here

As illustrated in Table 7, practically significantly negative correlations were found between Body dissatisfaction (EDI-3) and: HFS Total self-compassion, Mindfulness, Self-kindness and Common humanity; SCS Self-forgiveness; and FFMS Mindfulness non-judge. Practically significant negative correlations were found between EDI-3 Drive for thinness and: the SCS Self-kindness and the FFMS Mindfulness non-judge. Practically significantly negative correlations were also found between the EDI-3 Low self-esteem and: HFS Total self-compassion, SCS Self-kindness and Common humanity, HFS Self-forgiveness, and FFMS Mindfulness describe.

Discussion

Findings are in line with pathogenic perspectives on SED (Garner, 2004; Phelps et al., 1999) and with De Pãz Fransisco (2007) that identified low self-esteem as a possible strong predictive factor for DT, BD and ultimately SED. Findings are also consistent with salutogenic perspectives, and call for alternative conceptualizations of self-esteem. Body-dissatisfaction, DT and low-self-esteem all had in common a strong inverse relationship with Self-kindness and Self-compassion (SCS), Self-forgiveness (HFS) and Mindfulness non-judge (FFMS). This finding is consistent with Adams and Leary (2007), who claimed that self-compassion may reduce BD and low self-esteem associated with eating disorders, due to its forgiving stance. Females with BD and DT tend to take an evaluative stance towards themselves, whereas Mindfulness non-judge (FFMS) is to take a non-evaluative stance towards cognitions and emotions, and not over-identifying with them (Baer et al., 2006). Mindfulness non-judge may thus protect females

against SED symptoms since it can enable females to see themselves as independent from their failures (Kristeller, Baer & Quillian-Wolever, 2006). Females could learn that they are not what they look like or fail to look like.

BD and low self-esteem also had inverse relationships with Total self-compassion and its associated constructs Mindfulness, Self-kindness and Common humanity (SCS), and self-forgiveness (HFS) in common. These findings are consistent with Neff (2003), who proposed that self-compassion provides a more balanced self-perspective and transforms negative self-affect into positive self-affect. Neff, Kirkpatrick and Rude (2007) further proposed that self-compassion and its associated constructs constitute a healthy form of self-acceptance, as it entails adopting a radical accepting stance towards the disliked aspects of oneself (e.g. body shape) and one's life. This finding is also consistent with the control trials of Wade, George and Atkinson (2009), who found acceptance as a promising approach for reducing BD. Furthermore, findings are also in line with Hall and Fincham (2008), who explained self-forgiveness as the release of negative feelings toward the self in the wake of an objective fault or wrongdoing (e.g. not being thin enough), and the restoration of goodwill, self-respect, and self-acceptance. Consequently, self-forgiveness, together with its inherent self-compassion and self-acceptance, was indicated as especially relevant to individuals with SED or eating disorders (Brown, 2008; Dillon, 2001; Hall & Fincham, 2008).

Limitations of this preliminary study were that it did not use the Self-determination scale of Ryan and Brown (2003), and that the sample was not representative; thus findings are not generalizable beyond this sample.

General Discussion and Recommendations

This chapter was not meant to be an exhaustive review of all the scientific literature on SED, but mainly emphasized a Positive Psychology approach to SED prevention and its standing in South African literature. There are not many studies in this field of enquiry, and more in-depth future studies, including larger samples that will allow for more complex statistical analysis, are necessary. Although the preliminary South African studies that were discussed did not use larger or representative samples, they nonetheless indicated the probable value of a risk-protective

focus in SED prevention. Findings highlighted the importance of true self-esteem, i.e. self-determination, self-compassion and self-forgiveness and the various components of mindfulness as being relevant to DT, BD, low self-esteem and Ryff's six domains of psychological well-being. Findings call for larger and more in-depth experimental studies into the application of Positive Psychology in this field. Well-being Therapy, which promotes the six domains of PWB (Fava & Ruini, 2003) and reduces the premature interruption of well-being moments in the domains of PWB, and Self-Determination Theory (Ryan & Deci, 2000); and the promotion of true self-esteem via self-determination and mindfulness, with its inherent self-compassion, self-kindness and self-forgiveness, show promise in such interventions.

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Table 1: Correlations between SED-symptoms and the six domains of PWB for Study 1.

	Eating Disorder Inventory-3								
Variables	DT	BD	B	LSE	PA	II	IA	ID	ED
Scales of Psychological Well-being									
Self Acceptance	- .5▲	- .5▲	- .4▲	- .7▲	- .7▲	- .5▲	- .6▲	- .6▲	- .4▲
Positive Relations	- .3 Δ	- .3 Δ	- .3 Δ	- .5▲	- .6▲	- .6▲	- .7▲	- .5▲	- .4▲
Environmental Mastery	- .4▲	- .4▲	- .3 Δ	- .5▲	- .7▲	- .5▲	- .5▲	- .6▲	- .4▲
Purpose in Life	- .3 Δ	- .4▲	- .3 Δ	- .5▲	- .5▲	- .4▲	- .4▲	- .4▲	- .3 Δ
Autonomy	- .3 Δ	-.3 Δ	- .3 Δ	- .5▲	- .5▲	- .4▲	- .4▲	- .4▲	- .3 Δ
Personal Growth	-	- .3 Δ	-	- .5▲	- .5▲	- .4▲	- .3 Δ	- .4▲	-

Note: EDI-3: Eating Disorder Inventory, **SPWB**: Scales of Psychological Well-being, DT: Drive for Thinness, BD: Body Dissatisfaction, B: Bulimia, LSE: Low Self-Esteem, PA: Personal Alienation, II: Interpersonal Insecurity, IA: Interpersonal Alienation, ID: Interoceptive deficits, ED: Emotional Dysregulation.

r between .24 and .36 = Δ medium significant correlation; **r** between .37 and 1 = ▲Large and practically significant correlation.

Table 2: Paired t-tests indicating **s**ignificance of pre-post test differences within WOW-combined (n = 15) for Study 2.

Variable	M-pre	SD	M-post	SD	M-diff	SD-diff	p	d
EDI-2:								
Drive thinness	25.33	5.136	15.60	5.791	-9.73	1.065	.0002*	1.304•••
Bulimia	32.66	5.052	25.00	8.177	-7.00	.954	.0006*	1.147•••
Body dissatisfact.	27.33	7.528	16.06	6.638	-11.27	.697	< .0001**	1.794•••
Ineffectiveness	45.40	5.705	34.53	6.937	-10.87	.661	< .0001**	1.642•••
Perfectionism	22.13	5.939	17.73	4.802	-4.40	.641	.0006**	1.143•••
Interpersonal dist.	29.96	5.009	24.00	6.513	-5.96	.689	.0003**	1.236•••
Lack int.aware.	45.33	5.821	34.53	10.246	-10.80	.950	.0006**	1.136•••
Maturity fears	36.93	6.386	31.20	5.894	-5.73	.625	.0006**	1.145•••
OBCS:								
Body surveillance	39.47	4.453	30.46	5.218	-9.01	8.349	.0009**	1.079•••
Body shame	39.11	8.073	29.18	10.645	-10.01	11.265	.0040**	.888•••
POMS:								
Tension-Anxiety	19.73	8.438	12.40	7.872	-7.33	7.715	.0025**	.950•••
Depression-Dejection	25.60	13.162	13.27	12.062	-12.33	14.094	.0044**	.874•••
Anger-Hostility	17.60	9.500	9.73	6.496	-7.87	10.960	.0148*	.717••
Vigour	13.00	6.948	18.33	6.148	5.33	9.193	.0413*	.580••
Fatigue	14.10	4.629	9.67	5.789	-4.43	7.456	.0372*	.594••
Confusion	12.66	4.336	7.02	4.567	-5.64	5.353	.0011**	1.054•••
Total POMS	76.70	39.935	33.76	37.209	-42.94	47.515	.0035**	.903•••
SPWB:								
Autonomy	51.27	13.630	61.80	8.570	10.53	8.927	.0004**	1.179•••
Environmental mastery	53.24	7.211	61.09	8.486	7.85	9.900	.0083**	.793•••
SPWB:								
Personal growth	62.20	11.638	69.16	10.509	6.96	11.378	.0327*	.612••
Positive relations	56.40	10.182	64.27	12.646	7.87	7.567	.0013**	1.039•••
Purpose in life	55.93	10.003	63.40	8.838	7.47	8.484	.0042**	.880•••
Self-acceptance	47.07	13.941	58.87	12.223	11.80	12.621	.0028**	.934•••
SOC-29:	120.47	21.256	139.87	18.969	19.40	18.376	.0011**	1.056•••
SWLS:	19.87	6.501	24.67	6.747	4.80	6.581	.0135*	.729••

Note: M-pre: mean pre-test, **SD**: standard deviation; **M-post**: mean post-test; **M-diff**: Mean difference; **SD-diff**: standard deviation of difference; **EDI-2**: Eating Disorder Inventory-2; Body dissatisfact.: Body dissatisfaction; Interpersonal dist.: Interpersonal distrust; Lack int.aware.: Lack of interoceptive awareness; **OBCS**: Objectified Body Consciousness Scale; **POMS**: Profile of Mood States; **SPWB**: Scales of Psychological Well-Being; **SOC-29**: Orientation to Life Questionnaire; **SWLS**: Satisfaction with Life Scale; **p** ≤ .05 = * Statistically significant; **p** ≤ .01 = ** Highly statistically significant; **d** = .5 = •• Medium effect size; **d** ≥ .8 = ••• Practically significant.

Table 3: Paired t-tests indicating **s**ignificant pre-post test differences within WOW-only (n = 15) for Study 2.

Variable	M-pre	SD	M-post	SD	M-diff	SD-diff	p	D
EDI-2:								
Drive for thinness	27.60	7.538	20.46	7.453	-7.13	.749	<.0001**	1.360•••
Bulimia	33.53	6.046	29.80	6.992	-3.73	.639	.0061**	.834•••
Body dissatisfact.	31.88	8.868	20.66	7.898	-11.21	.684	<.0001**	1.820•••
Ineffectiveness	43.80	5.684	37.12	9.331	-6.68	.489	<.0001**	1.364•••
Perfectionism	24.46	5.718	21.97	5.452	-2.49	.531	.0090**	.782••
Interpersonal distrust	30.20	5.894	27.06	3.14	-3.14	.403	.0007**	1.109•••
Lack int.aware.	44.56	7.862	38.33	9.271	-6.23	.637	.0020**	.976•••
Maturity fears	33.93	8.233	31.33	9.240	-2.60	.504	.0256*	.645••
OBCS:								
Body surveillance	37.73	6.850	30.82	5.859	-6.91	5.561	.0003*	1.242•••
Body shame	37.13	6.022	28.16	7.373	-8.98	7.625	.0004*	1.177•••
POMS:								
Tension-Anxiety	17.13	8.887	11.87	8.069	-5.27	5.933	.0040	.888•••
SPWB:								
Environmental mastery	59.20	10.988	64.42	8.968	5.22	6.171	.0055**	.846•••
Personal growth	67.54	11.709	71.42	8.960	3.88	7.043	.0511*	.551••
Positive relations	60.19	11.652	65.62	12.319	5.43	9.024	.0354*	.601••
Purpose in life	61.33	10.594	65.74	7.633	4.41	7.912	.0487*	.557••
Self-acceptance	56.64	12.830	64.87	8.887	8.23	9.956	.0064**	.826•••
SWLS:	23.67	10.000	26.93	5.297	3.27	3.104	.0011**	1.052•••

Note: **M-pre**: mean pre-test, **SD**: standard deviation; **M-post**: mean post-test; **M-diff**: Mean difference; **SD-diff**: standard deviation of difference; **EDI-2**: Eating Disorder Inventory-2; Body dissatisfact.: Body dissatisfaction; Lack int.aware.: Lack of interoceptive awareness; **OBCS**: Objectified Body Consciousness Scale; **POMS**: Profile of Mood States; **SPWB**: Scales of Psychological Well-Being; **SWLS**: Satisfaction with Life Scale; **p** $\leq$ .05 = * Statistically significant; **p** $\leq$ .01 = ** Highly statistically significant; **d** = .5 = •• Medium effect size; **d** $\geq$ .8 = ••• Practically significant.

Table 4: Paired t-tests indicating significant pre-post test differences within Control Group (n = 15) for Study 2.

Variable	M-pre	SD	M-post	SD	M-diff	SD-diff	p	D
EDI-2:								
Bulimia	23.06	5.663	26.00	6.59	2.94	0.368	.0006**	2.195•••
POMS:								
Tension-Anxiety	20.07	8.128	21.87	7.209	1.80	1.612	.0007**	1.118•••
Vigour	14.47	5.462	13.20	4.585	-1.27	1.830	.0180*	.691••
Fatigue	13.73	7.075	15.00	6.676	1.27	2.120	.0364*	.597••
Total	82.46	46.912	69.70	40.655	7.24	11.226	.0256*	.645••
SPWB:								
Personal growth	62.27	10.491	56.80	7.073	-5.47	6.479	.0056**	.844•••

Note: **M-pre**: mean pre-test, **SD**: standard deviation; **M-post**: mean post-test; **M-diff**: Mean difference; **SD-diff**: standard deviation of difference**; p**: statistical significance, **d**: practical significance; **EDI-2**: Eating Disorder Inventory-2; **OBCS**: Objectified Body Consciousness Scale; **POMS**: Profile of Mood States; **SPWB**: Scales of Psychological Well-Being; **SWLS**: Satisfaction with Life Scale.

p $\leq$ .05 = * Statistically significant; **p** $\leq$ .01 = ** Highly statistically significant; **d** = .5 = •• Medium effect size; **d** $\geq$ .8 = ••• Practically significant.

Table 5: Tukey's intervals indicating the significance of post-assessment differences between groups (n = 45) for Study 2.

Variable	(n=15) M-diff [1;2]	(n=15) M-diff [1;3]	(n=15) M-diff [3;2]	T[1;2]	T[1;3]	T[3;2]	d[1;2]	d[1;3]	d[3;2]
EDI-2:									
Drive thinness	.3714	1.2841	- .9127	-	*	*	-	1.65•••	1.17•••
Bulimia	.5619	1.5143	- .9524	-	*	*	-	2.17•••	1.36•••
Body dissatisfaction	.0065	1.1037	- .0972	-	*	*	-	1.65•••	1.64•••
Ineffectiveness	.4193	1.2170	- .7978	-	*	*	-	2.09•••	1.37•••
Perfectionism	.3178	.8756	- .5578	-	*	*	-	1.60•••	1.03•••
Interpersonal distrust	.04048	.9667	- .5619	-	*	*	-	1.81•••	1.97•••
Maturity fears	.3917	.9214	- .5298	-	*	*	-	1.71•••	.99•••
OBCS:									
Body surveil.	-2.100	-10.811	8.711	-	*	*	-	1.76•••	1.42•••
Body shame	-1.035	-11.546	10.511	-	*	*	-	1.43•••	1.29•••
POMS:									
Tension-Anx.	-2.067	-9.133	7.067	-	*	*	-	1.60•••	1.24•••
Depression-Dej.	-6.824	-14.571	7.748	-	*	-	-	1.27•••	-
Anger-Hostility	-5.800	-8.267	2.467	-	*	-	-	.93•••	-
Vigour	4.133	6.600	-2.467	-	*	-	-	1.12•••	-
Fatigue	-1.900	-5.700	3.800	-	*	-	-	1.04•••	-
Confusion	-3.667	-5.911	2.244	-	*	-	-	1.41•••	-
Total POMS	-24.39	-50.18	25.79	-	*	-	-	1.41•••	-
SPWB:									
Autonomy	7.415	12.287	-4.873	*	*	-	.91•••	1.52•••	-
Personal growth	3.085	12.431	-9.345	-	*	*	-	1.44•••	1.08•••
Positive rel.	2.441	9.862	-7.421	-	*	*	-	1.30•••	.98•••
Purpose in life	3.056	10.574	-7.518	-	*	-	-	1.19•••	-
Self-acceptance	3.574	11.600	-8.026	-	*	-	-	10.54•••	-

Table 5 continued: Tukey's intervals indicating the significance of post-assessment differences between groups (n = 45) for Study 2.

Variable	(n=15) Adj M-diff [1;2]	(n=15) Adj M-diff [1;3]	(n=15) Adj M-diff [3;2]	p[1;2]	p[1;3]	p[3;2]	d[1;2]	d[1;3]	d[3;2]
SOC-29:	11.200	21.588	-10.388	-	*	-	-	1.39•••	-
SWLS:	1.533	4.467	-2.933	-	*	-	-	1.05•••	-

Note: M-diff: mean of differences; **T[1;2]**: Tukey's intervals between WOW-only and WOW-combined; **T[1;3]**: Tukey's intervals between WOW-combined and Control Group; **T[2;3]**: Tukey's intervals between WOW-only and Control Group; **d[1;2]**: practical significance of differences between WOW-combined and WOW-only; **d[1;3]**: practical significance of differences between WOW-combined and Control Group; **d[3;2]**: practical significance of differences between Control Group and WOW-only; **EDI-2**: Eating Disorder Inventory-2; **OBCS**: Objectified Body Consciousness Scale; **POMS**: Profile of Mood States; **SPWB**: Scales of Psychological Well-Being; **SWLS**: Satisfaction with Life Scale.

p $\leq$ .05 = * Statistically significant; **p** $\leq$ .01 = ** Highly statistically significant; **d** = .5 = Δ Medium effect size; **d** $\geq$ .8 = ••• Practically significant.

Table 6: Analysis of pre-post covariance of differences between groups, corrected for pre-test counts (n = 45) for Study 2.

Variable	WOW -comb. (n=15) Adj M-diff	WOW-only (n=15) Adj M-diff	Control Group (n=15) Adj M-diff	p[1;2]	p[1;3]	p[3;2]	d[1;2]	d[1;3]	d[3;2]
EDI-2:									
LIA	1.10	.83	- .46	.3708	< .0001*	< .0001*	-	2.95•••	2.45•••
SPWB:									
EM	7.76	7.75	-4.42	1.000	< .0001*	.0004*	-	1.71•••	1.71•••

Note: WOW-comb: WOW-combined; Adj M-diff: adjusted mean difference; **p[1;2]**: statistical significance of differences between WOW-combined and WOW-only; **p[1;3]**: statistical significance of differences between WOW-combined and Control Group; **p[3;2]**: statistical significance of differences between Control Group and WOW-only; **d[1;2]**: practical significance of differences between WOW-combined and WOW-only; **d[1;3]**: practical significance of differences between WOW-combined and Control Group; **d[3;2]**: practical significance of differences between Control Group[and WOW-only; **EDI-2**: Eating Disorder Inventory-2; LIA: Lack of Interoceptive Awareness; **SPWB**: Scales of Psychological Well-being; EM: Environmental Mastery.

p $\leq$ .05 = * Statistically significant; **p** $\leq$ .01 = ** Highly statistically significant; **d** = .5 = Δ Medium effect size; **d** $\geq$ .8 = ••• Practically significant.

Table7: Correlations between eating disorder predictors, mindfulness, self-compassion and self-forgiveness for Study 3**.**

	Eating Disorder Inventory-3		
Variables	Drive for Thinness	Body-Dissatisfaction	Low Self-Esteem
Five Facet Mindfulness Scale			
Mindfulness Describe		- .291 Δ	- .431▲
Act with Awareness	- .244 Δ	- .293 Δ	- .295 Δ
Non Judge	- .366 Δ	- .425▲	- .291 Δ
Non-React		-. 289 Δ	
Self-Compassion Scale			
Self-Kindness	- .380▲	- .440▲	- .413▲
Common Humanity	- .292 Δ	- .402▲	- .391▲
Mindfulness	- .298 Δ	- .428▲	- .336 Δ
Total Self-compassion	- .326 Δ	- .431▲	- .402▲
Heartland Forgiveness Scale			
Self-Forgiveness	-.276 Δ	- .395▲	- .425▲

Note: r between .24 and .36 = Δ medium correlation; **r** between .37 and 1 = ▲Large and practically significant correlation.