

**THE ASSOCIATION BETWEEN IDENTITY STYLE, PSYCHOLOGICAL
WELL-BEING AND FACTORS ASSOCIATED WITH EATING DISORDERS
IN ADOLESCENT FEMALES.**

Fernanda Da Páz Francisco

B.A. (Hons)

**Mini-dissertation (article format) submitted in partial fulfilment of the
requirements for the degree**

**MAGISTER ARTIUM in CLINICAL PSYCHOLOGY
at the North-West University, Potchefstroom Campus.**

Supervisor: Mrs. D.K. Kirsten

Co-Supervisor: Prof. W.F. du Plessis

Potchefstroom

August 2006

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	ii
SUMMARY	iii
OPSOMMING	vi
LETTER OF CONSENT	ix
INTENDED JOURNAL	x
INSTRUCTIONS TO AUTHORS	xi
MANUSCRIPT	1
ABSTRACT	3
LIST OF ABBREVIATIONS	4
METHOD	16
RESULTS	21
DISCUSSION	26
CONCLUSIONS	39
LIMITATIONS AND RECOMMENDATIONS	40
ACKNOWLEDGEMENTS	43
REFERENCES	44
TABLE 1	53
TABLE 2	55
TABLE 3	56
TABLE 4	57
TABLE 5	59
TABLE 6	60
APPENDIX 1	61

ACKNOWLEDGEMENTS

I would like to express my heartfelt gratitude and thankfulness to the following people:

- Foremost, to God Almighty and Our Lady for Their continual grace, strength and guidance.
- My husband, Alberto, who held my hand throughout this journey. Thank you for all your love, support and patience, you are my pillar of strength. I love you – this is for you!
- My parents, Fernanda and João, sister, Fatima, brother-in-law, Marco and brother, Ricky, Godson, Gino, thank you for always loving and believing in me.
- My special friends, Susan and Sandy, your enthusiasm and friendship is incredible.
- All my wonderful friends and family, for their encouragement and endless support.
- Doret Kirsten, my supervisor, for her patience, motivation, direction and for giving so much of herself to this “process”!
- Prof. Wynand du Plessis, my co-supervisor, for his fortitude, support and academic contribution.
- Wilma Breytenbach, for her patience and enthusiasm throughout this study.
- To all the participants in this study, may your future be filled with hope.
- To the NRF and the North-West University AUTHER focus area, for the financial bursary that made this study such a success.

Muinto obrigado!

SUMMARY

THE ASSOCIATION BETWEEN IDENTITY STYLE, PSYCHOLOGICAL WELL-BEING AND FACTORS ASSOCIATED WITH EATING DISORDERS IN ADOLESCENT FEMALES.

Key words: adolescents, body dissatisfaction, drive for thinness, fear of fat, identity style, protective factors, psychological traits associated with eating disorders, psychological well-being, weight over-concern.

Worldwide, adolescents are at risk of developing eating disorders since they are in a process of negotiating important developmental tasks and are thus vulnerable to the internalisation of the thin ideal (Polivy & Herman, 2002). Body dissatisfaction, bulimia and drive for thinness have been identified as the primary risk factors related to developing eating disorders (Garner, 2004). Despite the heightened vulnerability during adolescence and societal pressures to be thin, some adolescents are happy with their bodies and are not body dissatisfied nor have a drive for thinness. Since adolescence is associated with negotiating an identity, Berzonsky's (1999) social-cognitive model of identity formation is instrumental in exploring the relationship between identity style and factors associated with eating disorders. Furthermore, Berzonsky's (1999) informational identity style (IIS) as well as the normative identity style (NIS) are positively correlated to psychological well-being (PWB) whereas the diffuse-avoidant identity style (DAIS) is negatively correlated to PWB. Consensus has not been reached with regard to this (Adams et al., 2001), thus this investigation may provide important information with regard to the application of identity styles and

Ryff's (1995) six dimensions of PWB in future preventive programmes. This study aimed to investigate the relationship between identity styles, the primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of psychological well-being (PWB). Furthermore, it aimed to investigate whether the three groups of identity styles differed significantly in terms of the primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB. Lastly, it aimed to investigate whether different age and race groups of adolescent girls differed significantly in identity style, primary eating disorder risk factors, psychological traits associated with eating disorders and PWB. A one-shot cross-sectional survey design was used in which an availability and multicultural sample of adolescent females (n=290) ranging from 13- to 17-year old in grades 9 to 11 attending an English high school in the Gauteng Province was used. They completed the Eating Disorder Inventory-3 (EDI-3) (Garner, 2004), Identity Style Inventory (ISI) (Berzonsky, 1992), Scales of Psychological Well-Being (SPWB) (Ryff, 1989a), a self-designed biographical questionnaire and their Body Mass Index (BMI) was recorded. Significant negative correlations were found between the dimensions of PWB, eating disorder risk factors and associated psychological traits. Self-acceptance, environmental mastery and positive relations appeared to be key dimensions negatively associated with the primary eating disorder risk factors and associated psychological traits. Identity styles did not differ significantly with regard to the primary eating disorder risk factors, however relationships were found between identity styles and some psychological traits associated with eating disorders. These included the positive correlation between the IIS and perfectionism, the negative correlation between the NIS versus personal alienation and interpersonal alienation and the positive correlation between the DAIS and introceptive deficits. Comparisons between the three identity styles and each of

the six dimensions of PWB validated that female adolescents using an IIS and NIS experience greater levels of PWB than compared to their DAIS counterparts. Although age did not impact on the implementation of identity styles nor the primary eating disorder risk factors and associated psychological traits, the 17-year-old age group experienced greater levels of PWB with regard to autonomy, environmental mastery and personal growth. Furthermore, no significant differences were found with regard to race, identity styles, the primary eating disorder risk factors and PWB. Black female adolescents experienced more interpersonal insecurity and maturity fears than the White female adolescents in this study. These findings encourage the development of a regression model identifying protective factors in future research as well as constructing an effective preventive programme against eating disorders in female adolescents.

OPSOMMING

DIE VERBAND TUSSEN IDENTITEITSTYLE, PSIGOLOGIESE WELSYN EN FAKTORE WAT MET EETVERSTEURINGS GEASSOSIEER WORD, IN VROULIKE ADOLESSENTE.

Sleutelwoorde: adolessente, begeerte om maer te wees, beskermende faktore, gewigspreokkupasie, identiteitstyl, liggaamsontevredenheid, psigologiese trekke wat verband hou met eetversteurings, psigologiese welsyn, risikofaktore, vrees vir vet word.

Wêreldwyd loop adolessente die risiko om eetversteurings te ontwikkel, aangesien hulle besig is om belangrike ontwikkelingstake te bemeester, waartydens hulle des te meer vatbaar vir die internalisering van die maer-wees ideaal is. Die proses van identiteitsvorming word veral negatief deur die maer-wees ideaal beïnvloed (Polivy & Herman, 2002). Liggaamsontevredenheid, bulimiese gedrag en 'n sterk begeerte om maer te wees is onder andere geïdentifiseer as primêre risikofaktore wat met die aanvang van eetversteurings verband hou (Garner, 2004). Ten spyte van die verhoogde kwesbaarheid tydens adolessensie en die sosiale druk om maer te wees, is nie alle adolessente risikogevalle nie en vertoon almal nie trekke wat met eetversteurings geassosieer word nie. Dis onseker hoe hulle dit reg kry om ten spyte van hierdie moeilike fase psigologies gesond te bly en watter faktore hierin 'n rol speel. Aangesien adolessensie 'n tydperk is waartydens 'n stabiele ego-identiteit gevestig behoort te word, is Berzonsky (1999) se sosiaal-kognitiewe model van die proses van identiteitsvorming nuttig om die verband tussen identiteitstyle, psigologiese welsyn en die faktore wat met eetversteurings geassosieer word te ondersoek. Voorts

vind Berzonsky (1999) dat beide 'n inligting gebaseerde identiteitstyl (IGI) en 'n normatiewe identiteitstyl (NIS) positief met psigologiese welsyn korreleer. Daarteenoor is daar 'n negatiewe verband tussen 'n diffuus-vermydende identiteitstyl (DVS) en psigologiese welsyn. Daar is egter nie konsensus hieroor nie (Adams et al., 2001), en daarom kan hierdie ondersoek aandui of dit sinvol sou wees om aspekte soos identiteitstyle en die ses dimensies van psigologiese welsyn van Ryff (1995) in voorkomende programme in te sluit. Die doel van hierdie studie was dus om na die verband tussen identiteitstyle, die ses dimensies van psigologiese welsyn en faktore wat geassosieer word met eetversteurings te bepaal. Daarbenewens is gepoog om vas te stel of die drie groepe identiteitstyle beduidende verskille toon met betrekking tot die primêre risikofaktore vir eetversteurings, psigologiese trekke wat met eetversteurings gepaard gaan en die ses dimensies van psigologiese welsyn. Die moontlikheid van beduidende verskille binne verskillende ouderdoms- en rasse-groepe van vroulike adolessente, weer eens met betrekking tot identiteitstyle, psigologiese trekke wat met eetversteurings gepaard gaan en die ses dimensies van psigologiese welsyn, is ook ondersoek. 'n Eenmalige dwars-deursnit steekproef ontwerp is gebruik. Die beskikbaarheidsteekproef bestaan uit 'n multikulturele groep vroulike adolessente ($n = 290$), tussen die ouderdomme van 13 en 17 jaar, in graad 9-11, in 'n Engelsmedium hoërskool in die Gauteng Provinsie, Suid-Afrika. Die volgende vraelyste is ingesluit: Die Eating Disorder Inventory-3 (EDI-3) (Garner, 2004), Identity Style Inventory (ISI) (Berzonsky, 1992), Scales of Psychological Well-Being (SPWB) (Ryff, 1989a), asook 'n selfontwerpte biografiese vraelys. Liggaamsmassa indekse is ook bepaal. Die belangrikste bevinding was die negatiewe verband tussen die dimensies van psigologiese welsyn, primêre risikofaktore en psigologiese trekke wat met eetversteurings gepaard gaan. Spesifiek die dimensies van Selfaanvaarding, Omgewingsbemeestering en Positiewe verhoudings tree na vore as sleuteldimensies

wat negatief geassosieer word met die primêre risikofaktore en psigologiese trekke wat met eetversteurings gepaard gaan. Geen beduidende verskille is bevind tussen groepe met verskillende identiteitstyle en vlakke van liggaamsontevredenheid, bulimiese gedrag en die begerte om maer te wees nie. Daar was egter aanduidings van 'n verband tussen identiteitstyle en sommige psigologiese trekke wat met eetversteurings gepaard gaan. Hierby was ingesluit 'n positiewe korrelasie tussen 'n IGI en perfeksionisme, 'n negatiewe korrelasie tussen die NIS versus intra-persoonlike en interpersoonlike vervreemding, sowel as 'n positiewe korrelasie tussen 'n DVS en defekte in selfwaargenome gedrag. Vergelykings tussen die drie identiteitstyle en elk van die ses dimensies van psigologiese welsyn bevestig dat vroulike adolessente wat van 'n IGI en 'n NIS gebruik maak, hoër vlakke van psigologiese welsyn as dié met 'n DVS openbaar. Alhoewel ouderdom nie 'n uitwerking op die implementering van identiteitstyle of risikofaktore vir eetversteuring en psigologiese trekke hier rondom gehad het nie, toon die 17-jarige ouderdomsgroep hoër vlakke van psigologiese welsyn met betrekking tot outonomie, omgewingsbemeestering en persoonlike groei. Geen beduidende verskille is ten opsigte van ras, identiteitstyl, die primêre risikofaktore van eetversteurings en psigologiese welsyn gevind nie. Swart vroulike adolessente ervaar beduidend meer interpersoonlike onsekerheid en vrese vir volwassewording as Wit vroulike adolessente. Die bevindings verskaf belangrike inligting met betrekking tot voorkomingsprogrammering, asook die toekomstige ontwikkeling van 'n regressiemodel wat sou fokus op die identifisering van beskermende faktore teen eetversteurings.

LETTER OF CONSENT

We, the co-authors, hereby give consent for Fernanda Da Páz Francisco to submit the following manuscript for purposes of a mini-dissertation. It may also be submitted to the *South African Journal of Psychology* for publication.



Mrs. D.K. Kirsten

Supervisor and co-author



Prof. W.F. du Plessis

Co-supervisor and co-author

INTENDED JOURNAL AND INSTRUCTION TO AUTHORS

Intended Journal: South African Journal of Psychology

The manuscript as well as the reference list has been styled according to the above journal's specifications.

(Manuscript submission guidelines for authors on the next page)

Instructions to Authors

The original typewritten manuscripts plus two copies must be submitted to the Editor: Martin Terre Blanche, Department of Psychology, Unisa, PO Box 392, Pretoria, 0003, South Africa. e-mail: terremj@unisa.ac.za.

The manuscript must be accompanied by a letter stating that the article has not been previously published, is the author's/authors' own original work and all listed authors must sign the letter to indicate their agreement with the submission. The manuscript should be typed in Times New Roman, in 12-point font, double spacing with generous margins, on one side of the page only. The first page should contain the title of the paper, the author's/authors' name(s) and address(es), and the name and address of the author to whom correspondence should be addressed. The abstract should be on a separate page. The text of the article should start on a new page. Tables and figures should be numbered consecutively and submitted on separate A4 pages attached to the manuscript. The appropriate positions in the text should be indicated. Once the article has been accepted for publication, a computer diskette must also be submitted. ASCII is the preferred text format. The diskette should be clearly marked.

The format of articles should conform to the requirements of the *South African Journal of Psychology*: Guide to Authors, which is based on the Publication Manual of the American Psychological Association.

Illustrations and figures: These should be prepared on A4 sheets. One set of original illustrations and figures on good-quality drawing paper, or glossy photoprints and three sets of copies, should accompany the submission. The figures should be clearly

labeled. Authors are requested to pay particular attention to the proportions of figures so that they can be accommodated in single (82 mm) or double (170 mm) columns after reduction, without wasting space. Figures should be numbered consecutively in Arabic numbers (Figure 1, Figure 2), and descriptive captions listed on a separate sheet of A4 paper. Graphs should be fully inscribed, and points should be indicated with standard symbols. All illustrations and figures should be grouped together at the end of the manuscript, and their appropriate positions in the text should be indicated.

Figures and illustrations should preferably be supplied in electronic format, 300dpi, in .tif or .eps format.

**THE ASSOCIATION BETWEEN IDENTITY STYLE, PSYCHOLOGICAL
WELL-BEING AND FACTORS ASSOCIATED WITH EATING DISORDERS
IN ADOLESCENT FEMALES.**

Mrs. Fernanda Da Páz Francisco

P. O. Box 723

Paardekraal

1752

Mrs. D.K. Kirsten* and Prof. W.F. du Plessis

School for Psychosocial Behavioural Sciences: Psychology

North-West University, Potchefstroom Campus

Private Bag X6001

Internal Box 70

Potchefstroom

2520

Tel: +27 (0) 18 299 1738

E-Mail: ipvdkk@puknet.ac.za

South Africa

*To whom correspondence should be addressed.

**The association between identity style, psychological well-being and factors
associated with eating disorders in adolescent females.**

Fernanda Da Pâz Francisco, Doret K. Kirsten* and Wynand F. du Plessis

Institute for Psychotherapy and Counselling, North-West University, Potchefstroom
Campus.

Private Bag X6001, Internal Box 70, Potchefstroom, 2520, South Africa.

Email: ipvdkk@puknet.ac.za

*To whom correspondence should be addressed.

ABSTRACT

This study aimed to determine i) the relationship between identity styles, primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of psychological well-being (PWB), and ii) whether age and race groups differ significantly with regard to the aforementioned factors. A one-shot cross-sectional survey design was implemented. The multicultural, availability sample consisted of adolescent females (n=290), ages 13-17 years, in grades 9 to 11, attending an English school in the Gauteng Province. The Eating Disorder Inventory-3 (Garner, 2004), Identity Style Inventory (Berzonsky, 1992), Ryff's Scales of Psychological Well-Being (Ryff, 1989a) and Body Mass Index measures were implemented. Significant negative correlations were found between PWB, eating disorder risk factors and associated psychological traits. Specifically Self-Acceptance, Environmental mastery and Positive relations appeared to be key dimensions negatively associated to the primary eating disorder risk factors and associated psychological traits. Neither Identity styles nor race groups differed significantly regarding the prevalence of Drive for thinness, Bulimia and Body dissatisfaction. Those with an Informational Identity Style or Normative Identity Style exhibited practical and medium significant lower levels of associated psychological traits, and practically significant higher levels of PWB than those with a Diffuse-Avoidant Identity Style. The 17-year-olds experienced greater levels of PWB, whilst the Black females experienced significantly more interpersonal insecurity and maturity fears than the White females.

Word count = 219

LIST OF ABBREVIATIONS

IIS	Informational Identity Style
NIS	Normative Identity Style
DAIS	Diffuse-Avoidant Identity Style
PWB	Psychological Well-Being
WHO	World Health Organisation

Adolescence is a developmental stage characterised by chronic emotional turbulence and heightened vulnerability since important developmental tasks need to be negotiated such as the following: accepting bodily changes; forming an independent identity and self-esteem; coping with academic stress and peer pressure; gaining increased autonomy from the family; setting life goals and making important life choices (Gowen & Hayward, 1999; Mensinger, 2001; Mussell, Binford & Fulkerson, 2000). Apart from this, adolescents are bombarded daily with media images of the ideal, thin body, and are also exposed and more vulnerable to peer pressure, which reinforces the internalisation of the thin ideal (Andrist, 2003; Littleton & Ollendick, 2003; Muris, Meesters, van de Blom & Mayer, 2005; Pelletier, Dion & Levésque, 2004; Phelps, Johnston & Augustyniak, 1999; Waadegaard & Petersen, 2002; Wildes, Emery & Simons, 2001). In this regard it was found that models and media standards especially have a strong influence on how adolescents think they should look (Andrist, 2003; Field, Cheung, Wolf, Herzog, Gortmaker & Colditz, 1999; Gouws, Kruger & Burger, 2000). Eating disorders therefore often appear soon after puberty and persist through secondary school years (Furnham, Badmin & Sncade, 2002). The British Medical Association (2000) also confirms that female adolescents are vulnerable to developing eating disorders since many associate being thin with being successful and healthy – thus resulting in a pseudo-identity.

The three primary risk factors related with the onset of an eating disorder include *drive for thinness*, *body dissatisfaction* and *bulimia* as identified in the Eating Disorder Inventory - 3 (Garner, 2004). Identification with the skeletal look of models and peers may encourage the internalisation of the thin ideal, resulting in a drive for thinness, body dissatisfaction and bulimia. The dynamic interaction of these specific risk factors promotes the process of developing an eating disorder. Garner (2004:14)

defined the concept of *drive for thinness* as “an extreme desire to be thinner, a concern with dieting, a preoccupation with weight and an intense fear of weight gain”. Boschi et al. (2002) conceptualised drive for thinness as the firm willingness to modify body shape and size so as to attune them to the social concept of thinness. Polivy and Herman (2002) proposed that the influence of sociocultural factors in eating disorders can be summarised succinctly as the idealisation of thinness which results in a drive for thinness. *Body dissatisfaction* includes the “discontentment with the overall shape and size of regions of the body that are of extraordinary concern to those who have an eating disorder” (Garner, 2004:14). Pelletier, Dion and Levésque (2004) describe body dissatisfaction as the single most important risk factor related to developing eating disorders. The less likely an individual is able to achieve the ideal body image the more likely body dissatisfaction will ensue (Littleton & Ollendick, 2003). Field et al. (1999) found that the majority of adolescent females in their study were unhappy with their body weight and shape. Weight over-concern and fear of fat are further dynamics that derive from drive for thinness and body dissatisfaction. Weight over-concern is described as a constant awareness of one’s weight and it originates from internalising societal thinness standards (Field et al., 1999). The term fear of fat represents several meanings to Levitt (2003), including sensitivity to criticism, fear of loss of control and fears of growing up that signifies an end to childhood. *Bulimia* according to Garner (2004:14) refers to the “tendency to think about and to engage in bouts of uncontrollable overeating”. Polivy and Herman (2002) furthermore associate bulimia to an inability to control or regulate negative affect, which thus reflects inadequate coping behaviour.

Apart from the abovementioned main risk factors associated with the onset of eating disorders, Garner (2004) further identified psychological traits associated with the

development and maintenance of eating disorders. These associated traits include the following: *low self-esteem* which is a basic concept of negative self-evaluation and includes feelings of insecurity, inadequacy, ineffectiveness and lack of personal worth. *Personal alienation* reflects a pervasive sense of emotional emptiness, aloneness and a poor sense of self-understanding. *Interpersonal insecurity* refers to the difficulty in expressing personal thoughts and feelings with others in social situations. *Interpersonal alienation* reflects the basic impairment of attachment in relationships and is reflected in disappointment, estrangement and lack of trust in relationships. *Interoceptive deficits* are associated with the inability to accurately recognise and respond to emotional states. *Emotional dysregulation* refers to poor impulse regulation and mood intolerance which could lead to impulsivity, recklessness, anger and self-destructiveness. *Perfectionism* is associated with the value placed on achieving high goals and the highest possible standards of personal achievement. *Asceticism* reflects the tendency to seek virtue through the pursuit of spiritual ideals such as self-discipline, self-denial, self-restraint, self-sacrifice and control of bodily urges. *Maturity fears* are associated with the desire to retreat to the security of childhood which includes the avoidance of conflicts and the developmental expectations associated with adulthood. These psychological traits correspond with Beck's (cited in Corey, 2001) theory that emotional difficulties occur as result of irrational thoughts which leads to a distortion of reality. Garner (2004) acknowledges that persistent use of these impaired psychological traits renders a poor prognosis due to the lack of effective psychological adjustment and social functioning.

However, despite heightened vulnerability during adolescence and societal pressures to be thin, some adolescents are happy with their bodies and do not have a drive for thinness or a fear of fat, nor are they weight over-concerned, or show bulimic

tendencies. How do they do it and what protects them? The field of Positive Psychology aims to investigate these questions since the disease model does not move health practitioners closer to the prevention of eating disorders (Steck, Abrams & Phleps, 2004). According to Strümpfer (1995) the Fortigenic perspective refers to the origin of strengths, protective factors and seeks to understand why and how some people find the strength to withstand and overcome pressures toward increasing entropy, whereas others do not. Steck, Abrams and Phelps (2004) referred to protective factors as positive actions that increase resilience towards pathology, in other words, factors that buffer against disease. Steck, Abrams and Phelps (2004) proposed that positive psychology is relevant to eating pathology, as it shifts away from the disease model towards focusing on holistic wellness.

Recent investigations have attempted to identify and evaluate factors which protect female adolescents against the primary eating disorder risk factors and psychological traits associated with eating disorders. Protective factors identified thus far include biological, psychological and sociocultural dynamics. Biological dynamics includes maintaining a healthy lifestyle and body mass index (British Medical Association, 2000; Furnham, Badmin & Sneade, 2002; Mussell, Binford & Fulkerson, 2000; Pelletier, Dion & Levésque, 2004; Pokrajac-Bulian & Živčić-Běćirević, 2005). Psychological dynamics encompasses being self-determined, having a healthy self-esteem, maintaining a healthy body image, body satisfaction, sustaining a sense of personal power, self-efficacy, personal competence, a well integrated self, experiencing subjective well-being and positive cognitions and emotions, autonomy in life, purposeful activity, and coping skills (Andrist, 2003; Jansen, Nederkoorn & Mulken, 2005; Littleton & Ollendick, 2003; Mussell, Binford & Fulkerson, 2000; O'Dea & Abraham, 2000; Paradise & Kernis, 2002; Pelletier, Dion & Levésque, 2004;

Phelps, Johnston & Augustyniak, 1999; Pokrajac-Bulian & Živčić-Becirević, 2005; Polivy & Herman, 2002; Steck, Abrams & Phelps, 2004). Sociocultural dynamics comprises factors such as possessing positive relations with family and peers, perceived parental support, encouragement of autonomy, engaging in social activities that foster a positive body image, and belonging to a cultural group that is accepting of variety of body types (Kleinke, 1991; Littleton & Ollendick, 2003; Mussell, Binford & Fulkerson, 2000; O'Dea & Abraham, 2000; Steck, Abrams & Phelps, 2004). These factors are positively associated with PWB.

Ryff's (1995) six dimensions of PWB are rooted in the Fortigenic paradigm, and prioritises individuals' tendencies to use the key dimensions more often than other people. Her six dimensions of PWB (Ryff, 1995) include: *self-acceptance*, which is characterised by a positive attitude toward the self and accepting multiple aspects of the self; *positive relationships with other people*, encompasses maintaining warm, satisfying and trusting relationships; *autonomy*, refers to the ability to be self-determined and independent and to regulate behaviour from within; *environmental mastery*, includes a sense of mastery and competence in managing one's environment and the effective use of surrounding opportunities to meet psychological needs; *purpose in life*, encompasses a sense of directedness, setting goals in life and attaching meaning in the present and past life; and *personal growth*, is characterised by viewing oneself as growing and expanding, open to new experiences and realising one's potential. PWB is thus reflected in the extent to which these six dimensions have been operationalised in a person's life.

Current literature on protective factors against disease is valuable, yet it is imperative to maintain a developmental focus when working with adolescents. Although

literature has identified self-esteem and identity formation as protective factors in the above (Furnham, Badmin & Sneade, 2002; Littleton & Ollendick, 2003; Paradise & Kernis, 2002; Steck, Abrams & Phelps, 2004), it has not been operationalised as a process. In this respect the work of Erikson (cited in Craig, 1996), Marcia (1966) and Berzonsky (1999) might be useful since they focus on the process of identity construction. According to Erikson (cited in Craig, 1996), the fundamental task of the developing adolescent is to acquire an ego identity. Questions often asked during this phase include: *Who am I? What are my goals, beliefs, feelings and attitudes?* and *Where am I going to?* Identity encompasses several facets such as self-concept, a sense of self, playing appropriate social roles, body image, self-esteem, and self-worth (Coleman & Hendry, 1999). According to Erikson (cited in Craig, 1996), identity formation requires an active identity crisis prior to attaining an ego identity. Similarly, Marcia's (1966) moratorium and identity achieved status characterised by how adolescents deal with identity conflicts and decisional situations by actively seeking out, evaluating and utilising relevant information. Elaborating on Erikson and Marcia's theory of identity formation, Berzonsky (1999) proposed a social-cognitive model of identity formation that highlights the process of how individuals engage or avoid the task of constructing their self-identities which is furthermore embedded in the Fortigenic paradigm. According to this theory, a coherent, well-integrated identity structure provides individuals with a sense of direction and purpose, and serves as a conceptual frame within which they can make decisions, solve problems and deal with the demands of everyday life. Furthermore, Berzonsky (2003) and Vleioras and Bosma (2005) found that such a well-integrated identity structure is positively associated with PWB.

Further supporting the relevance of investigating identity styles in understanding the prevention of eating disorders, Steiner et al. (2003) recognised that most descriptions of the pathogenesis of eating disorders assign a central role to the individual's difficulty with negotiating the developmental demands of adolescence, specifically identity formation. It is even proposed that an eating disorder is a means of avoiding the developmental task of identity formation, since thinness is equated with an identity (Polivy & Herman, 2002). The internalisation of the thin body ideal thus does not appear to be preceded by a healthy process of identity attainment, as it implies a passive process in which no identity crisis is undertaken but a commitment is made. Marcia (1966) referred to it as being in a foreclosed identity status. By focusing attention on weight, shape and eating, identity concerns are avoided and a sense of control is maintained. However this is at the risk of an inadequate identity formation. Furthermore, unhealthy behaviours such as eating disorders serve as a basis for the self-esteem and self-confidence of eating disordered individuals (Levitt, 2003). In accordance, Polivy and Herman (2002) noted that thinness is relentlessly pursued by those who see no better way to solve their developmental problems, and eating disorders serve as a coping mechanism by women who do not have more constructive ways of dealing with personal crises. Similarly, eating disorders serve as an attempt to regulate overwhelming negative affect and to construct a coherent sense of self when internal structures are lacking (Polivy & Herman, 2002).

In this regard the work of Berzonsky is of importance. He identified three identity styles, namely: diffuse-avoidant, normative and informational (Berzonsky & Kuk, 2005). In the case of a Diffuse-Avoidant Identity Style (DAIS), adolescents procrastinate and are reluctant to confront and deal with personal conflicts and decisions. This identity style is associated with Marcia's diffused identity status.

Adolescents exhibiting this identity style tend to be dictated and controlled by situational demands and incentives (Berzonsky & Kuk, 2005), and are possibly vulnerable to societal pressures to thinness and expectations regarding female beauty. The utilisation of a DAIS is positively related to the following: the use of emotion-focused avoidant coping skills, externally controlled expectancies, a diffuse identity status and a socially defined identity. Research has proved that a DAIS is negatively related to PWB (Berzonsky & Kuk, 2005; Vleioras & Bosma, 2005). Wheeler, Adams and Keating (2001) suggested that adolescents using this style avoid an identity crisis and may thus use an eating disorder to represent their inner identity. Due to the fluctuating self-esteem associated with the DAIS, the primary eating disorder risk factors and psychological traits associated with eating disorders will probably occur as a result, possibly leading to an eating disorder. Literature thus points us in the direction that adolescents with a DAIS are at risk of developing an eating disorder whereas those using an IIS and NIS appear to be protected from developing an eating disorder (Berzonsky, 2003).

Berzonsky (1999) proposes that a foreclosed, internalised identity status is associated with a Normative Identity Style (NIS). A NIS refers to the manner adolescents deal with identity conflicts by conforming to expectations and prescriptions of significant others in a relatively automatic manner (Berzonsky & Kuk, 2005). The primary concern is to preserve and maintain existing self-views and opinions. This approach is associated with a collective self-definition and a tendency to be closed to information that may threaten their value and belief system (Berzonsky & Ferrari, 1996). This style was positively related to PWB (Berzonsky, 2003; Wheeler, Adams & Keating, 2001) and adolescents with this style were less maladjusted than their diffuse-avoidant counterparts with regard to unhealthy behaviours, such as eating disorders (Adams,

Munro, Doherty-Poirer, Munro, Petersen & Edwards, 2001). However, due to the absence of an identity crisis and thus healthy identity attainment, adolescents with a NIS may be both at risk and protected from societal pressures to achieve the ideal thin body and the outcome will depend on the preservation or non-preservation of the norms the group subscribed to.

Berzonsky (2003) found that an Informational Identity Style (IIS) enhances PWB and is associated with the stage of identity achievement or moratorium. An IIS is associated with deliberate self-exploration, a personally-defined identity, an internal locus of control, problem-focused coping and a number of social-cognitive dimensions such as a high need for cognition, introspection and openness to novel ideas, values and actions (Berzonsky & Ferrari, 1996). Muris et al. (2005) and Peñas-Lledo, Sancho and Waller (2002) discovered that eating disordered or body dissatisfied individuals do not possess these skills. Current research indicates that in addition to increased PWB, an IIS is positively associated with stronger identity commitments, greater self-clarity, a sense of purpose, direction and personal agency (Berzonsky, 2003; Berzonsky & Kuk, 2005; Vleioras & Bosma, 2005). Due to the fact that such a style is positively related to high self-esteem and PWB, one could expect that an IIS would be positively correlated with body and weight satisfaction. This may have important implications for the implementation of prevention programmes that address the development of an IIS to protect against eating disorders. It is possible that adolescents with an IIS, are protected against body dissatisfaction and drive for thinness as they possess qualities that eating disordered individuals lack.

Despite Berzonsky's (2003) findings about strong relations between identity style and PWB, Phillips and Pittman's study in 2004 (cited in Vleioras & Bosma, 2005) noted

no relationship between identity styles and PWB. Due to discrepant findings, Adams et al. (2001) recommended further investigations into the association between identity style and PWB. It would be important to determine whether specific identity styles are positively correlated to PWB as defined by Ryff (1995) and whether IIS and NIS are negatively correlated to body dissatisfaction and drive for thinness. Perhaps a specific identity style discourages the primary eating disorder risk factors and psychological traits associated with eating disorders. In contrast, a DAIS may be positively correlated to the primary eating disorder risk factors and psychological traits associated with eating disorders.

Furthermore, in prior studies possible correlations between body dissatisfaction and drive for thinness in multicultural adolescent populations have been neglected, but research is beginning to focus on these factors. Miller and Pumariega (2001) found that African Americans have different attitudes concerning weight, body size, and attractiveness than their White American counterparts, and had a lower overall drive for thinness and a greater acceptance of larger body proportions. African American females also had higher BMIs than White American females. On the local front, Caradas, Lambert and Charlton (2001) found that black South African girls had significantly higher BMI scores than White or mixed-race South African girls. However, body dissatisfaction was most prevalent amongst White South African girls despite their lower BMIs. Caradas, Lambert and Charlton (2001) suggested that this may be due to black South African girls being more comfortable with a larger body size.

Senekal, Steyn, Mashego, and Nel (2001) found that black South African women view obesity as a normal state of health, symbolising beauty, and are therefore not

under similar pressure as White South African women to value thinness. Despite the above findings, black women do not seem to be immune to body dissatisfaction and eating disorders (Willley et al, cited in Senekal et al, 2001). Wassenaar et al. (2000) (cited in Edwards & Moldan, 2004) discovered that White females had higher scores than Black females on body dissatisfaction, but Black females scored higher on drive for thinness, perfectionism and maturity fears. Possibly current trends of westernisation and urbanisation in South Africa may contribute to increased body dissatisfaction and drive for thinness amongst Black females. This is consistent with international findings, for example: Canpolat, Orsel, Akdemir and Ozbay (2005), Gunewardene, Huon, and Zheng (2001), Lake, Staiger and Glowinski (2000), Ogden and Elder (1998), Pokrajac-Bulian and Živčić-Bécirević (2005) and Wildes, Emery and Simons (2001) found that exposure to westernisation was a good predictor of dieting status, and Miller and Pumariega (2001) recently indicated evidence of African Americans being at increasing risk of developing eating disorders. Szabo (1999) recognised that within the South African context, current eating attitudes place a significant proportion of adolescents of all race groups at risk of developing eating disorders. Thus an investigation of differences in the primary eating disorder risk factors and psychological traits associated with eating disorders and PWB among a multicultural adolescent South African sample is warranted.

The aims of this study were to conduct a preliminary exploration as to (i) whether there is a relationship between identity styles, primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB; (ii) whether the three groups of identity styles differ significantly in terms of primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB; and (iii) to determine whether age and race groups differ

significantly regarding identity styles, primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB. The following hypotheses can be regarded as reasonable deductions with regard to the abovementioned aims: (i) a relationship exists between identity styles, primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB; (ii) the three groups of identity styles will differ significantly in terms of the primary eating disorder risk factors, psychological traits associated with eating disorders and six dimensions of PWB; and (iii) age and race groups will differ significantly in identity styles, primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB.

METHOD

Design

A one-shot cross-sectional survey design was used (Bless & Higson-Smith, 1995).

Research Sample

An availability, multicultural sample of adolescent females (n=290) in grades 9, 10 and 11 attending an English high school in the Gauteng Province partook in the study.

Ethical Aspects

This study was approved by the ethics committee of the North-West University (06K08) and the Governing Body of the high school. The researcher followed the ethical guidelines stated by the Health Professions Council of South Africa for psychologists (HPCSA, 2002). Participation was voluntary and participants were free to withdraw at any time. Parental (see Appendix 1) and participant informed consent were obtained. Confidentiality, anonymity and privacy were ensured. Feedback was

given to participants upon request and recommendations were made to the school regarding the outcomes of the study.

Research Procedure

The participants completed the Eating Disorder Inventory-3 (Garner, 2004), Berzonsky's (1992) Identity Style Inventory, and the Scales of Psychological Well-Being (Ryff, 1989a) during their life-skills orientation period. Anthropometric data were collected before completion of questionnaires by the researcher, who was previously instructed by a fitness consultant on recording Body Mass Index (BMI). Privacy was ensured during recording of the BMI. In the original design of the study it was intended to use the Skin Fold Measurement, as previous research indicated that it is a more accurate measurement to use (Clifford, Tan & Gorsuch, 1991; Heyward, 2002). Due to logistical problems at the school during data collection it was impossible to use this measurement.

Measuring Instruments

The reliability of these instruments was calculated by using Cronbach alpha coefficients and validity was calculated by using a factor analysis according to the Mineigen criterion. Due to the implementation of an availability sample and not a random sample, effect sizes were calculated and thus no inferential statistics were used.

Eating Disorder Inventory-3 (EDI-3) (Garner, 2004)

The EDI-3 consists of 91 items and provides 12 primary scales relevant to the phenomenology of eating disorders. The first three scales refer to the primary eating disorder risk factors and the remaining nine are referred to as the psychological traits associated with eating disorders. Participants rated their responses on a six point

Likert-style scale (Garner, 2004). The higher the raw scores on the subscales the greater the risk of developing an eating disorder. Garner, Olmstead and Polivy (1983) (cited in Garner, 2004) found an alpha above 0.80 on these scales for eating disordered clinical samples and non-clinical samples. In this study the following alpha coefficients were obtained for the primary eating disorder risk factors: 0.88 for Drive for Thinness, 0.78 for Bulimia and 0.90 for Body Dissatisfaction. Alpha coefficients obtained for psychological traits associated with eating disorders were: 0.85 for Low Self-Esteem, 0.83 for Personal Alienation, 0.76 for Interpersonal Insecurity, 0.71 for Interpersonal Alienation, 0.85 for Interoceptive Deficits, 0.73 for Emotional Dysregulation, 0.72 for Perfectionism, 0.63 for Asceticism and 0.68 for Maturity Fears.

In this study, the following factor analyses were obtained for the primary eating disorder risk factors: Drive for Thinness obtained one factor, with a variance of 59.35 % and a communality of 4.2 between differences; Bulimia obtained two factors, with a variance of 53.82 % and a communality of 4.3 between differences; and Body Dissatisfaction obtained two factors, with a variance of 65.84 % and a communality of 6.6 between differences. The following factor analyses were obtained for the psychological traits associated with eating disorders: Low Self-Esteem obtained one factor, with a variance of 56.56 % and a communality of 3.4 between differences; Personal Alienation obtained one factor, with a variance of 49.84 % and a communality of 3.5 between differences; Interpersonal Insecurity obtained two factors, with a variance of 56.35 % and a communality of 3.9 between differences; Interpersonal Alienation obtained two factors, with a variance of 51.58 % and a communality of 3.6 between differences; Interoceptive Deficits obtained one factor, with a variance of 45.80 % and a communality of 4.1 between differences; Emotional

Dysregulation obtained two factors, with a variance of 54.30 % and a communality of 4.3 between differences; Perfectionism obtained one factor, with a variance of 41.67 % and a communality of 2.5 between differences; Asceticism obtained one factor, with a variance of 31.47 % and a communality of 2.2 between differences; and Maturity Fears obtained two factors, with a variance of 51.85 % and a communality of 4.1 between differences.

Identity Style Inventory (ISI) (Berzonsky, 1992)

This inventory comprises 40 statements and contains three continuous style scales, namely the IIS scale, NIS scale and DAIS scale (Berzonsky & Kuk, 2005). Participants rated the extent to which they are self-descriptive on a Likert scale from 1 (not at all like me) to 5 (very much like me). A typical question in the Informational scale is: "I've spent a great deal of time thinking seriously about what I should do with my life"; in the Normative scale: "I've more or less always operated according to the values with which I was brought up"; and in the Diffuse-Avoidant scale: "I'm not sure what I want to do in the future". Each scale's raw score was brought to a count out of hundred, in other words to a percentage. Consequently, the largest raw score out of three scales determined which identity style the participant adhered to. Berzonsky (1999) documented alpha coefficients for the inventory ranging between 0.83 and 0.89. Alpha coefficients obtained for the Informational scale was 0.79, Normative scale 0.76 and Diffuse-Avoidant scale 0.71 in this study. The following factor analyses were obtained, the Informational scale obtained a two factor, with a variance of 43.18 % and a communality of 4.7 between differences. The Normative scale obtained a two factor, with a variance of 47.09 % and a communality of 4.2 between differences. The Diffuse-Avoidant scale obtained a three factor, with a variance of 52.22 % and a communality of 5.2 between differences.

Scales of Psychological Well-Being (SPWB) (Ryff, 1989a)

Due to the fact that Ryff's (1995) six dimensions of PWB are grounded in developmental psychology it is thus appropriate to investigate the developmental stage of adolescence. This scale encompasses six dimensions of PWB and consists of 18 items with six subscales. Participants' responses were indicated on a 6-point Likert scale, ranging from strongly disagree (1) to strongly agree (6). Although Ryff did not provide cut-off points, higher scores reflect a higher sense of PWB. Ryff (1989b) documented that the alpha coefficients for the scale ranged between 0.83 and 0.91. Alpha coefficients found in this study were: 0.76 for Autonomy, 0.79 for Environmental Mastery, 0.79 for Personal Growth, 0.84 for Positive Relationships with Other People, 0.82 for Purpose in Life and 0.89 for Self-Acceptance. The following factor analyses were obtained: Autonomy obtained three factors, with a variance of 47.29 % and a communality of 6.6 between differences; Environmental Mastery obtained three factors, with a variance of 49.91 % and a communality of 7.0 between differences; Personal Growth obtained three factors, with a variance of 53.89 % and a communality of 7.5 between differences; Positive Relationships with Other People obtained three factors, with a variance of 51.51 % and a communality of 7.2 between differences; Purpose in Life obtained three factors, with a variance of 54.31 % and a communality of 7.6 between differences; and Self-Acceptance obtained two factors, with a variance of 51.37 % and a communality of 7.2 between differences.

Body Mass Index (BMI)

BMI's were calculated by dividing weight in kilograms by height squared (BMI: Kg/m^2) (Sarafino, 2002). In South Africa, the World Health Organisation (WHO) BMI is used. A BMI below 18.5 is regarded as under weight; a BMI between 18.5 and

24.9 as normal weight and a BMI between 25 and 29.9 as overweight and a score of 30 and greater as obese (WHO, 1995).

Biographical Questionnaire

A self-designed biographical questionnaire was used to elicit biographical information.

RESULTS

Statistical analyses were performed using The SAS System for Window Release 9.1 TS Level 1 MO 2005 by SAS Institute Inc., Cary, NC, USA. Comparisons were made between identity styles and the primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB. In addition, comparisons between age and race groups with identity styles, the primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB were measured by means of Cohen's effect size (Steyn, Smit, Du Toit & Strasheim, 1998). Cohen's effect sizes of $d \geq 0.8$ were indicative of practically significant differences, whereas $d = 0.5$ as medium differences and a $d = 0.2$ as small significant differences (Cohen, 1988; Ellis & Steyn, 2003). Cohen (1988) acknowledges that it is difficult to obtain practical differences in social sciences. Pearson's product moment correlation coefficients (Jackson, 2003) were used to give an indication of linear relationships between the primary eating disorder risk factors and psychological traits associated with eating disorders, identity styles and the six dimensions of PWB. Correlations of $r \geq 0.5$ were indicative of practical significance, $r = 0.3$ were regarded as a medium correlation and $r = 0.1$ were indicative of small significance. The phi coefficient was used to determine relationships between identity styles, BMI and behavioural symptoms. A relationship of $w \geq 0.5$ was indicative of practical significance, $w = 0.3$ as a medium relationship and $w = 0.1$ as a small

significance. Only practically significant and medium significant results are reported in the Tables.

Demographic data regarding the study population are presented in Table 1.

(Table 1 here)

As noted in Table 1 participants' ages ranged from 13 to 17 years old and their grades ranged from grades 9 to 11. The majority were White (n=196) and Christian (n=256). The mean height was 162.55 cm and mean weight was 58.5 kg which indicated a mean BMI of 22 (n=195). This suggests that the majority were of a normal BMI, in addition almost an equal number were both underweight and overweight and a minority were obese (WHO, 1995). No significant relationship was established between BMI and identity styles or behavioural symptoms and identity styles. This relationship was explored in order to clarify the discrepancy with regard to some adolescent females employing an IIS and engaging in behavioural symptoms of eating disorders. The dominant identity style employed in all BMI categories was a NIS, followed by an IIS and the least employed style was a DAIS. The majority had not gone on eating binges (89%), purged (96%) or used laxatives (98%) in the past three months. The majority (61%) reported implementing a NIS (n=177), 27 % applying an IIS (n=78) and 12 % employed a DAIS (n=34).

Table 2 depicts correlations between the primary eating disorder risk factors and psychological traits associated with eating disorders, versus identity styles and the six dimensions of PWB.

(Table 2 here)

No significant correlations were found between identity styles and the primary eating disorder risk factors. Medium correlations were found between some psychological

traits associated with eating disorders and identity styles. A positive, medium correlation was found between the IIS and Perfectionism subscale and a negative medium correlation between the NIS, Personal Alienation and Interpersonal Alienation subscales. Furthermore a positive, medium correlation was established between the DAIS and Interoceptive Deficits subscale.

Medium to practically significant, negative correlations were found between all six dimensions of PWB and the primary eating disorder risk factors and psychological traits associated with eating disorders, except for the Perfectionism and Maturity Fears subscales. Practically significant, negative correlations were found between the Autonomy subscale and Low Self-Esteem and Personal Alienation. Negative medium correlations were found between the Autonomy subscale and Drive for Thinness, Bulimia, Body Dissatisfaction, Interpersonal Insecurity, Interpersonal Alienation, Interoceptive Deficits and Emotional Dysregulation. Practically significant, negative correlations were established between the Environmental Mastery subscale and Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Interpersonal Alienation and Interoceptive Deficits. Medium, negative correlations were established between the Environmental Mastery subscale and Drive for Thinness, Bulimia, Body Dissatisfaction, Emotional Dysregulation and Asceticism.

A practically significant, negative correlation was found between the Personal Growth subscale, Low Self-Esteem and Personal Alienation. Negative, medium correlations were found between the Personal Growth subscale and Body Dissatisfaction, Interpersonal Insecurity, Interpersonal Alienation and Interoceptive Deficits. Practically significant, negative correlations were found between the Positive Relationships with Others subscale and Low Self-Esteem, Personal Alienation,

Interpersonal Insecurity, Interpersonal Alienation and Interoceptive Deficits. Negative, medium correlations were found between the Positive Relationships with Others subscale and Drive for Thinness, Bulimia, Body Dissatisfaction, Emotional Dysregulation and Asceticism.

Practically significant, negative correlations were found between the Purpose in Life subscale and Low Self-Esteem and Personal Alienation. Negative, medium correlations were found between Drive for Thinness, Bulimia, Body Dissatisfaction, Interpersonal Insecurity, Interpersonal Alienation, Interoceptive Deficits and Emotional Dysregulation. Practically significant, negative correlations were found between the Self-Acceptance subscale and Drive for Thinness, Body Dissatisfaction, Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Interpersonal Alienation and Interoceptive Deficits. Negative, medium correlations were established between the Self-Acceptance subscale and Bulimia, Emotional Dysregulation and Asceticism.

Correlations between identity styles and the six dimensions of PWB are presented in Table 3.

(Table 3 here)

No significant correlations were found between the identity styles and the six dimensions of PWB. However positive, medium correlations were found between the IIS and Environmental Mastery, Personal Growth and Purpose in Life subscales of PWB. Positive, medium correlations were also established between the NIS and the Environmental Mastery, Positive Relationships with Others, Purpose in Life and Self-Acceptance subscales of PWB. Negative, medium correlations were established

between the DAIS and Autonomy, Environmental Mastery, Personal Growth and Purpose in Life subscales of PWB.

Significance of differences between identity styles, psychological traits associated with eating disorders and the six dimensions of PWB are illustrated in Table 4.

(Table 4 here)

No significant differences were found between the means of identity styles versus the primary eating disorder risk factors, Asceticism and Maturity Fears. In addition, no significant differences were found between the means of IIS and NIS versus the primary eating disorder risk factors and psychological traits associated with eating disorders. A medium difference was found between the means of the IIS and NIS versus the DAIS on the following subscales of psychological traits associated with eating disorders: Low Self-Esteem, Personal Alienation, Interpersonal Insecurity, Interpersonal Alienation and Interoceptive Deficits. A medium difference was found between the means of the NIS and DAIS on the Emotional Dysregulation subscale. A medium difference was found between the means of the IIS and DAIS on the Perfectionism subscale.

Practical and medium significant differences were established between identity styles and the six dimensions of PWB as is noted in Table 4. No significant differences were found between an IIS and NIS and the six dimensions of PWB. An IIS and DAIS showed practical significant differences on all the dimensions of PWB, except for the Positive Relationships with Others subscale which was of a medium difference. Practical significant differences were established between the NIS and DAIS on the Environmental Mastery and Purpose in Life subscales as well as medium differences on the remaining four dimensions of PWB.

Table 5 depicts the significance of differences between age groups and dimensions of PWB.

(Table 5 here)

No significant differences were found between the various age groups, identity styles, the primary eating disorder risk factors and psychological traits associated with eating disorders. However, on the Autonomy subscale a practically significant difference was found between the means of the 14- and 17- and 15- and 17-year-old age groups. In addition, a medium difference was found between the means of the 16- and 17-year-old age group. Furthermore, a medium significant difference was established between the means of the 14- and 17-year-old age groups on the Environmental Mastery and Personal Growth subscales.

Table 6 presents the significance of differences between race groups, the primary eating disorder risk factors and psychological traits associated with eating disorders.

(Table 6 here)

No significant differences were found between the White and Black groups, identity styles, the primary eating disorder risk factors and the six dimensions of PWB. A medium significant difference was found between the means of the White and Black groups on the Interpersonal Insecurity and Maturity Fears subscales.

DISCUSSION

The main focus of this study was to investigate the relationship between identity styles, the primary eating disorder risk factors, psychological traits associated with eating disorders and the six dimensions of PWB in adolescent females. Findings offer

valuable information regarding future research for the development of a regression model.

Self-Acceptance was identified as a key dimension against body dissatisfaction and drive for thinness and psychological traits associated with eating disorders, including the following: low self-esteem, personal alienation, interpersonal insecurity, interpersonal alienation, interoceptive deficits, emotional dysregulation and asceticism. This suggests that a strong sense of self-acceptance in female adolescents allows them to have a positive self-concept which enables them to embrace multiple aspects of their selves including accepting their body image (Ryff, 1995). Although current literature does not refer directly to the dimension of self-acceptance, self-esteem has been linked to eating disorders and has been investigated in many studies. It can be assumed that self-acceptance is closely associated with high self-esteem, since a positive self-concept implies a confident sense of self. In fact, Paradise and Kernis (2002) found that a high self-esteem is associated with each dimension of PWB, including self-acceptance. According to literature self-esteem has consistently been identified as a protective factor against eating disorders (Furnham, Badmin & Sneade, 2002; Littleton & Ollendick, 2003; Paradise & Kernis, 2002; Steck, Abrams & Phleps, 2004). In addition, Pelletier, Dion and Lévesque (2004) suggested that females with a positive attitude towards the self would less likely derive their self-esteem from their physical appearance only. Their self-worth could be derived from positive family and peer relationships, academic performance, values on achievement and health as well as the involvement in social activities (Craig, 1996). This suggests that female adolescents that have a positive self regard are able to maintain valuable interpersonal relations, are aware of their psychological needs and are able to regulate their emotions constructively. As a result they are effective in their environment. The relationship

between self-acceptance or self-esteem and psychological traits associated with eating disorders is further confirmed by the finding of a practically significant, negative correlation between the psychological trait of low self-esteem associated with eating disorders and the six dimensions of PWB. This means that having a low self-esteem strongly predisposes female adolescents to eating disorders and poor PWB, and conversely having a high self-esteem has a buffering effect against eating disorders and enhances PWB.

The PWB dimensions of environmental mastery and positive relationships with others were identified as additional key psychological dimensions against most psychological traits associated with eating disorders, except for perfectionism and maturity fears. Current literature also repeatedly refers to the identification of a sense of competence as a protective factor against eating disorders (Phelps, Johnston & Augustyniak, 1999; Steck, Abrams & Phleps, 2004). This suggests that if an adolescent female is capable of choosing or creating an environment conducive to meeting her psychological needs and is furthermore able to maintain warm and trusting relationships (Ryff, 1995), she will be less likely to develop an eating disorder because she will be psychologically fulfilled and supported. This finding is consistent with Ryan and Deci's (cited in Pelletier, Dion & Lévesque, 2004) self-determination theory which proposes that environmental mastery as well as positive relationships with others leads to a well integrated self, and the internalisation of own values in accordance with innate psychological needs. Pelletier, Dion and Lévesque (2004) further state that a self-determined profile could buffer against sociocultural influences about body image and decrease the risk of experiencing bulimic symptoms. The current study also found a practically significant, negative correlation between the psychological trait of personal alienation associated with eating disorders and the six

dimensions of PWB. This further confirms the above finding that positive relationships with others are a key dimension, which may buffer against eating disorders. Personal alienation results in the isolation of the self and prevents the formation of fulfilling relationships which places such individuals at risk of developing an eating disorder. Seeking social support has been identified by Kleinke (1991) as a constructive coping mechanism. It thus appears that buffers against eating disorders function at both intrapersonal and interpersonal levels.

Interestingly, no relationship was found between the six dimensions of PWB and two of the psychological traits associated with eating disorders, namely perfectionism and maturity fears. It is possible that although perfectionism and maturity fears are associated with eating disorders, it may not be related to the six dimensions of PWB measured in this study. Perhaps the use of other constructs related to PWB such as rationality, self-regulation, mindfulness and spirituality would have resulted in a contrasting relationship.

Unexpectedly, no significant correlations were found between identity styles and primary eating disorder risk factors. An analysis of the behavioural symptoms revealed that an insignificant number of participants from all three identity styles engaged in binge-eating, induced vomiting or used laxatives. The mean scores demonstrated that all three identity styles scored within the "sometimes" to "rarely" range with regard to the primary eating disorder risk factors. This may suggest that the female adolescents in this study display a normative discontent with their physical appearance. However, statistically significant relationships, although not practically significant, were found between identity styles and some psychological traits associated with eating disorders. The lack of practically significant correlations

between identity styles and primary eating disorder risk factors could be attributed to the fact that identity styles are a function of overall psychological integration which includes an individual's social and cognitive functioning, whereas the primary eating disorder risk factors pertain to specific psychological and behavioural indicators of an eating disorder. However, the psychological traits associated with eating disorders may be more relevant to an identity style since they relate to social and cognitive functioning.

The positive correlation between an informational identity style and the psychological trait of perfectionism associated with eating disorders, could be attributed to the sense of purpose, direction and personal agency that this identity style is associated with (Berzonsky & Ferrari, 1996). This finding parallels Garner's (2004) self-oriented perfectionism which suggests that individuals using such an identity style set high aims and goals for themselves.

The negative correlation between a normative identity style and the psychological traits of personal alienation and interpersonal alienation associated with eating disorders, is consistent with current literature which suggests that adolescent females with a NIS are in contact with their psychological needs and value relationships with significant others (Berzonsky & Kuk, 2005). Since adolescents with a NIS deal with identity conflicts by conforming to the expectations and prescriptions of significant others (Berzonsky & Kuk, 2005), it seemed to have served as a buffering effect in this study. However, it should also be noted that such decision-making strategies may also place adolescents using an NIS at risk of experiencing eating disorder symptoms and traits, should the lifestyle norms of the significant others encourage such behaviours.

The psychological trait of interoceptive deficits associated with eating disorders was found to be positively correlated to a DAIS. This may imply that adolescents with such an identity style are unable to recognise and respond to their emotional states (Garner, 2004), and therefore they are less equipped to cope with developmental crises (Polivy & Herman, 2002). This is consistent with the DAIS coping pattern (Berzonsky & Kuk, 2005).

As there were no significant correlations between primary eating disorder risk factors and identity styles, it could be expected that no differences between the identity styles and each of the primary eating disorder risk factors would occur. This expectation was confirmed. This contradicts what was initially hypothesised. It was assumed that adolescent females using an IIS or NIS would reveal a negative relationship to the primary eating disorder risk factors in comparison to adolescent females employing a DAIS. These findings could suggest that there is a relatively normative amount of discontent amongst all three identity styles with regard to body dissatisfaction and drive for thinness. This could be attributed to the exposure of the ideal thin portrayed in the media (Andrist, 2003; Littleton & Ollendick, 2003).

According to comparisons between the three identity styles and each of the psychological traits associated with eating disorders, there were no significant differences between IIS and NIS in terms of the associated traits. However the adolescents with a DAIS showed a tendency to experience more psychological traits associated with eating disorders. This could be attributed to the fact that an IIS and NIS are associated with a healthy process of acquiring an identity whereas those using a DAIS lack constructing a well-integrated identity (Berzonsky & Kuk, 2005). Psychological traits found to be more prominent in female adolescents using a DAIS

include low self-esteem, personal alienation, interpersonal insecurity, interpersonal alienation and interoceptive deficits. These findings suggest that a DAIS is associated with a negative self-evaluation, a sense of emotional emptiness, apprehension in social situations, a lack of trust in relationships, and an inability to recognise and respond to emotional states while the converse is true for an IIS and NIS (Garner, 2004). The psychological trait of emotional dysregulation associated with eating disorders was found to be more prevalent in female adolescents using a DAIS than a NIS. This suggests that female adolescents in this study using an NIS were less likely to engage in reckless, impulsive and self-destructive behaviours than their DAIS counterparts (Garner, 2004). This suggests good self-regulatory skills which are, according to Witmer and Sweeney (1992), a key aspect of psychological well-being. In addition, the psychological trait of perfectionism associated with eating disorders was found to be more prevalent in female adolescents using an IIS than a DAIS. This is consistent with previously mentioned findings of the positive correlation between an IIS and perfectionism. It is likely that female adolescents using a DAIS would exhibit a lesser tendency to perfectionism as they would be expected to be less conscientious and more dependent on externally-controlled goals (Berzonsky & Ferrari, 1996). These findings suggest that female adolescents using a DAIS would be more at risk of developing an eating disorder as compared to female adolescents using an IIS or NIS.

In the correlational study between identity styles and the six dimensions of PWB, disappointingly no significant correlations were found. As expected an IIS and NIS were positively correlated to PWB whilst the DAIS was negatively correlated to PWB as had been found in previous studies (Berzonsky, 2003; Vleioras & Bosma, 2005). These findings disprove Phillips and Pittman's study in 2004 (cited in Vleioras & Bosma, 2005) in which no relationship was found between identity styles and PWB.

The IIS was specifically linked to the dimensions of environmental mastery, personal growth and purpose in life. The NIS was additionally linked to the dimensions of self-acceptance and positive relationships with others but not to personal growth. These findings indicate that female adolescents using either an IIS or NIS experience a sense of competence in their environments and possess the ability to give meaning to their present and past lives (Ryff, 1995). Given that female adolescents using an IIS have a fundamental need for self exploration and achievement it would be expected that personal growth would be linked to such an identity style (Berzonsky & Ferrari, 1996). The NIS is associated with a collective identity and a need to preserve self-views and opinions through conforming to the prescriptions of significant others (Berzonsky & Kuk, 2005). This would imply that female adolescents using an NIS would favour their engagement in positive relationships with others and in self-acceptance, rather than in valuing personal growth.

As mentioned previously the DAIS was negatively correlated to PWB, specifically in the dimensions of autonomy, environmental mastery, personal growth and purpose in life. These findings imply that adolescent females using a DAIS are more concerned with expectations and evaluations of others, are unable to manage and organise their environment or opportunities in their environment to fulfil their psychological needs, lack a sense of meaning in life, and do not see purpose in their past lives (Ryff, 1995). These traits are consistent with the DAIS tendency to procrastinate, as well as a reluctance to confront and deal with personal conflicts and decisions (Berzonsky & Kuk, 2005). These findings suggest that the lack of these dimensions of PWB is likely to be an intrapersonal matter and reflects that a female adolescent with a DAIS may find it difficult to deal and cope with maturation.

The comparison between the three identity styles and each of the six dimensions of PWB suggested that female adolescents using an IIS and NIS experience greater levels of PWB than compared to their DAIS counterparts. They thus observably function more effectively in their everyday lives. Both the IIS and NIS exceeded the DAIS on all six dimensions of PWB involving practical significant and medium differences. Contrary to what was expected no significant differences were found between IIS and NIS in terms of the six dimensions of PWB. This could suggest that adolescent females employing an IIS or NIS are able to operationalise the six dimensions of PWB more effectively than their DAIS counterpart. Even though the two identity styles utilise different social-cognitive interactions, this could be attributed to the fact that they are both grounded in the Fortigenic paradigm. Although this study did not measure coping skills it is possible that adolescent females employing an IIS or NIS engage in the use of constructive strengths and coping strategies to cope with the challenges of adolescence. Furthermore, the emphasis on positive interpersonal relations associated with an IIS and NIS suggests that trusting others is a constructive means of coping (Kleinke, 1991). The DAIS on the other hand, appears to be rooted in the Pathogenic paradigm, which utilises destructive and ineffective coping mechanisms leading to poor PWB (Strümpfer, 1995). Significant differences were found between the IIS and NIS compared to DAIS in terms of the dimensions of environmental mastery and purpose in life. Interestingly, the dimension of positive relationships with others displayed only a medium difference between IIS and NIS compared to DAIS. This suggests the possibility that female adolescents using a DAIS may not always experience relationships negatively but are able to create some positive relationships too.

Furthermore, significant differences were found between the IIS and DAIS on the following dimensions of PWB: autonomy, personal growth and self-acceptance. Given the characteristics of the IIS, female adolescents using this identity style would be expected to experience greater levels of autonomy and need for personal growth. However, the finding of higher levels of self-acceptance in IIS is inconsistent with previous correlational findings where self-acceptance was more closely linked with NIS. Self-acceptance, as opposed to the other dimensions, was the only dimension of PWB which had a practically significant, negative correlation with almost all of the psychological traits associated with eating disorders. Thus an absence of a statistical relationship does not imply that self-acceptance is not present.

Lastly, it was found that female adolescents using an IIS are possibly more prone to the psychological trait of perfectionism associated with eating disorders. Although this trait of perfectionism could lead to extremely unrealistic or even self-destructive behaviours, female adolescents using an IIS also possess buffers against the pressures they may place on themselves. This identity style is linked to the PWB dimensions of environmental mastery, personal growth, purpose in life, autonomy and self-acceptance. Female adolescents using the NIS seemed to possess the following PWB dimensions: environmental mastery, positive relationships with others, purpose in life and self-acceptance. These attributes appear to have a buffering effect against psychological traits associated with eating disorders, particularly interpersonal alienation, personal alienation and emotional dysregulation. Adolescents in this study using the NIS did not appear to be vulnerable to any of the psychological traits associated with eating disorders. The NIS was the only identity style that possessed all three PWB dimensions identified previously as a buffering effect against eating

disorders, namely: self-acceptance, environmental mastery and positive relationships with others.

Female adolescents in this study using a DAIS appeared to be most vulnerable to the psychological trait of interoceptive deficits associated with eating disorders. Furthermore, this identity style did not appear to contribute positively to PWB and fared poorly compared to the other two identity styles. Although results do not show a consistent and direct relationship between DAIS and psychological traits associated with eating disorders, it may be postulated that the low levels of PWB experienced by female adolescents using a DAIS may place them at higher risk of developing a developmental crisis such as an eating disorder (Berzonsky, 2003). Wheeler, Adams and Keating (2001) found that female adolescents using a DAIS avoid an identity crisis and use an eating disorder as a source to represent their inner identity. Polivy and Herman (2002) further state that individuals using a DAIS may equate thinness as their identity and use it as a coping mechanism to deal with developmental crises. For such adolescents an eating disorder may therefore signify an existential project that gives life meaning and emotional fulfilment (Polivy & Herman, 2002).

In terms of age no significant differences were found with respect to identity styles, primary eating disorder risk factors as well as psychological traits associated with eating disorders. This finding is inconsistent with Waadegaard and Petersen's (2002) study, which suggested that body dissatisfaction increases with age. This may suggest that an eating disorder can develop at any age during adolescence and age does not impact on the identity style adolescent females employ. However, results revealed that the 17-year-old age group experienced significantly higher levels of PWB on the dimensions of autonomy, environmental mastery and personal growth than was the

case with the 14-year-old age group. These findings are consistent with those of Ryff's (cited in Paradise & Kernis, 2002) in which environmental mastery and autonomy tended to increase with age. This is consistent with the 17-year-old age group's developmental stage, which requires gaining increased autonomy from the family, coping with academic stress and peer pressure and forming an independent identity and self-esteem (Gowen & Hayward, 1999; Mensinger, 2001; Mussell, Binford & Fulkerson, 2000).

In addition, the female adolescents in the 17-year-old group may be moving towards the completion of an identity crisis and therefore may have had more time to experiment with various values and life philosophies leading to formation of new selves, beliefs and ideas. Although effective coping skills had not been tested in this study, effective coping skills has been associated with an identity achieved status (Craig, 1996). In contrast, the female adolescents in the 14-year-old age group were found to be more dependent on others and less able to resist social pressures that influence them to think and act in certain ways. Thus, they may experience difficulties in managing their environment and developing new attitudes or behaviours (Ryff, 1995). This is also consistent with their developmental phase of early adolescence, which is associated with the beginning of an identity crisis, during which they rely more on others to meet their physical and psychological needs. The vulnerability associated with the 14-year-old age group suggests that prevention programmes should start at this early age.

With regard to race no significant relationships were found in terms of identity styles, the primary eating disorder risk factors and the six dimensions of PWB. This is consistent with Edwards and Moldan's (2004) study where no significant differences

were found between race and primary eating disorder risk factors. Caradas, Lambert and Charlton (2001) also suggest that adolescent females who are similarly acculturated but from different ethnic backgrounds display similar eating behavioural and altitudinal patterns, as may have been the case in this study. There were however differences, although not practically different, between race and psychological traits of interpersonal insecurity and maturity fears associated with eating disorders.

Black female adolescents in this study appear to experience greater feelings of interpersonal insecurity and maturity fears than their White counterparts. The latter trait was confirmed by Wassenaar et al. (cited in Edwards & Moldan, 2004) who found that maturity fears were associated with Black females. This suggests the Black female adolescents feel apprehensive in sharing their thoughts and feelings in culturally different and perhaps unfamiliar social situations and that they experience difficulty with developmental expectations associated with adolescence (Garner, 2004). It may be hypothesised that the psychological traits of interpersonal insecurity and maturity fears, although associated with eating disorders, may also refer to an identity crisis. Given the urban, westernised school context where black students formed a minority, it can be expected that they struggled more with identity formation and acculturation as shown by the Black participants in this study. Although socioeconomic background, family of origin and level of acculturation were not controlled, it is possible that Black female adolescents in this study experience an ambivalent sense of self, in that they have to thrive in a westernised school environment as well as a traditional home environment. Le Grange et al. (cited in Edward & Moldan, 2004) suggested that high levels of disturbance in Black females may be due to exposure to extreme pressures in meeting expectations associated with western values. It thus appears that belonging to a specific race does not encourage

nor discourage adolescent females of becoming body dissatisfied and having a drive for thinness. Szabo (1999) however, stated that a significant proportion of adolescents of all race groups are at risk of developing an eating disorder.

CONCLUSIONS

Investigating the association between identity style, PWB and factors associated with eating disorders in adolescent females proved to be valuable. Important empirical data needed to develop a regression model to further determine protective factors against drive for thinness, bulimia, body dissatisfaction and psychological traits associated with eating disorders was found in this study. Ryff's six dimensions of PWB proved to be an effective instrument to utilise in preventative work which could encourage the development of a programme to cultivate healthy identity styles and PWB in female adolescents. Self-acceptance was identified in this study as the most crucial psychological dimension against the drive for thinness, bulimia, body dissatisfaction and associated psychological traits, followed by environmental mastery and positive relationships with others. Self-acceptance encompasses several aspects of the self such as self-esteem, self-image, self-concept, self-efficacy and self-worth. These aspects provide female adolescents with a sense of self which encourages an introspective awareness and rational thought process. These traits have previously been identified as lacking in eating disordered individuals. Female adolescents that engage in the PWB dimension of environmental mastery attain the necessary coping skills required to negotiate important developmental tasks, in particular forming their identity and gaining increasing autonomy. Furthermore, the ability to have positive relationships with others suggests that the female adolescent is able to engage in healthy interactions with others and invest her strengths within her community. These dimensions of PWB parallel the IIS and NIS, in which the acquisition of an identity is of utmost

importance. This suggests that if a female adolescent applies the six dimensions of PWB, she will more than likely implement an IIS or NIS, which will have a buffering effect against the development of an eating disorder. The 17-year-old age group experienced greater levels of PWB with regard to autonomy, environmental mastery and personal growth. This suggests that as female adolescents move towards the completion of an identity crisis, they gain the necessary coping skills to negotiate developmental tasks such as the utilisation of problem-focused solutions, seeking social support, employing self-control and accepting responsibility for their actions (Sarafino, 2002). Through these and other coping skills adolescent females obtain the dimensions of PWB necessary to successfully complete the developmental tasks of adolescence. Black female adolescents experienced more interpersonal insecurity and maturity fears than the White female adolescents in this study. It appears that the contrasting social environment that Black female adolescents are exposed to, at least in the school context, increases their discomfort in social situations. In conclusion, it appears that adolescent females utilising an IIS and NIS are buffered indirectly against the primary eating disorder risk factors and directly against the psychological traits associated with eating disorders and furthermore experience enhanced PWB. In contrast, adolescent females utilising a DAIS were found to be at risk of developing an eating disorder and experiencing poorer PWB than their counterparts. Furthermore, these findings are consistent with the tenets of Positive Psychology as key dimensions that may prevent adolescent females from developing an eating disorder have been identified.

LIMITATIONS AND RECOMMENDATIONS

The following limitations were identified throughout the study. Firstly, due to the use of a purposive sample, findings are only applicable to this study. Secondly, as

mentioned previously, the skin fold assessment could have proved to be more effective in the classification of weight categories. Thirdly, a one-shot cross-sectional survey design was used and no qualitative information was obtained, which could have explained the lack of correlations between identity styles and the primary eating disorder risk factors. Fourthly, no in depth interviews were followed up to clarify ambiguous findings. Fifthly, since an IIS and NIS are related to coping styles and self-efficacy according to Berzonsky (1999), no measurement was used to determine the nature of the female adolescent's coping styles. Such information could have produced clearer findings. Sixthly, further post-hoc analysis should be undertaken such as a regression analysis to determine which factors serve a protective function against eating disorders.

It is recommended, further post-hoc analysis should be undertaken such as a regression analysis to determine which factors serve a protective function against eating disorders. Future research conducted on this topic might consider employing a mixed method approach, as well as a social desirability scale be employed in future research. In depth interviews with adolescents who are identified as at high risk of developing eating disorders would also be a necessity to clarify ambiguous findings. An investigation of protective factors against perfectionism and maturity fears by implementing an alternative measuring instrument rooted in PWB would be beneficial in clarifying these findings. Perhaps an instrument measuring thought processes may prove to be beneficial, due to both perfectionism as well as maturity fears being linked to irrational thought processes and beliefs (Beck, cited in Corey, 2001). Berzonsky (2002) (cited in Vleioras & Bosma, 2005) acknowledged that identity styles cannot be fully assessed by one single measure, thus the use of various identity style measurements should be implemented. Ryff (1995) also recognised that PWB consists

of diverse concepts and thus the use of other PWB variables should be included in future research. Further research should also be undertaken, in exploring the association between identity style, PWB and psychological traits associated with eating disorders in adolescent males. Current research substantiates this recommendation (Furnham, Badmin & Sneade, 2002). It is further suggested that a prevention programme be devised to foster protective factors against eating disorders in adolescent females, especially with regard to cultivating healthy identity styles and PWB. This could be achieved by implementing Fava's (Fava & Ruini, 2003) well-being therapy, as it provides a structured, directive, problem oriented and educational model, based on Ryff's six dimensions of PWB that fosters protective factors against eating disorders. It is recommended that such therapy should be focused particularly on Ryff's (1995) dimensions of self-acceptance, environmental mastery and positive relations. Similarly it would be important to study adolescent females who have fully recovered from an eating disorder and investigate which identity styles and dimensions of PWB they employed.

(Word count excluding abstract = 10 558)

ACKNOWLEDGEMENTS

The contributions of the participants in this study are hereby acknowledged. The financial assistance of the National Research Foundation (NRF) and the research focus area AUTHER of the Faculty of Health Sciences of the North-West University (Potchefstroom campus) are also acknowledged. Opinions expressed in this report and conclusions arrived at, are those of the author and are not necessarily to be attributed to the National Research Foundation or the North-West University.

REFERENCES

- Adams, G.R., Munro, B., Doherty-Poirer, M., Munro, G., Petersen, A.R., & Edwards, J. (2001). Diffuse-avoidance, normative, and informational identity styles: Using identity theory to predict maladjustment. *Identity: An International Journal of Theory and Research*, 4, 307-320.
- Andrist, L.C. (2003). Media images, body dissatisfaction, and disordered eating in adolescent women. *Adolescent Health*, 28(2), 119-123.
- Berzonsky, M.D. (1992). Identity Style Inventory Manual (ISI-3): Revised Version. New York: State University of New York.
- Berzonsky, M.D. (1999). Identity styles and hypothesis – testing strategies. *Journal of Social Psychology*, 139 (6), 784-789.
- Berzonsky, M.D. (2003). Identity style and well-being: Does commitment matter? *Identity: An International Journal of Theory and Research*, 3(2), 131-142.
- Berzonsky, M.D., & Ferrari, J.R. (1996). Identity orientation and decisional strategies. *Personality and Individual Differences*, 20(5), 597-606.
- Berzonsky, M.D., & Kuk, L.S. (2005). Identity style, psychosocial maturity and academic performance. *Personality and Individual Differences*, 39(1), 235-247.

- Bless, C., & Higson-Smith, C. (1995). *Fundamentals of Social Research Methods: An African perspective: Second Edition*. Cape Town: Juta and Co, Ltd.
- Boschi, V., Sierva, M., D'Orsi, P., Margiotta, N., Trapanese, E., Basile, F., Nasti, G., Paloa, A., Bellini, O., & Falconi, C. (2002). Body composition, eating behaviour, food-body concerns and eating disorders in adolescent girls. *Annals of Nutrition and Metabolism*, 47, 284-293.
- British Medical Association: Board of Science and Education. (2000). *Eating Disorders, Body Image and the Media*. London: British Library Cataloging in Publication Data.
- Canpolat, B.I., Orsel, S., Akdemir, A., & Ozbay, M.H. (2005). The relationship between dieting and body image, body ideal, self-perception, and body mass index in Turkish adolescents. *International Journal of Eating Disorders*, 37, 150-155.
- Caradas, A.A., Lambert, E.V., & Charlton, K.E. (2001). An ethnic comparison of eating attitudes and associated body image concerns in adolescent South African schoolgirls. *Journal of Human Nutritional Dietetics*, 14, 111-120.
- Clifford, P.A., Tan, S., & Gorsuch, R.L. (1991). Efficacy of a self-directed behavioural health change program: Weight, body composition, cardiovascular fitness, blood pressure, health risk, and psychosocial mediating variables. *Journal of Behavioural Medicine*, 14, 303-323.

- Cohen, J. (1988). *Statistical power analysis for the behavioural sciences*. (2nd ed). Hillsdale, NJ: Erlbaum.
- Coleman, J.C., & Hendry, L.B. (1999). *The Nature of Adolescence* (3rd ed.). London: Routledge.
- Corey, G. (2001). *Theory and Practice of Counseling and Psychotherapy* (6th ed). USA: Wadsworth.
- Craig, G.J. (1996). *Human Development* (7th ed.). New Jersey: Prentice Hall.
- Edwards, D., & Moldan, S. (2004). Bulimic pathology in black students in South Africa: Some unexpected findings. *South African Journal of Psychology*, 34(2), 191-205.
- Ellis, S.M., & Steyn, H.S. (2003). Practical significance (effect sizes) versus or in combination with statistical significance (p-values). *Management Dynamics*, 12(4), 51-53.
- Fava, G.A., & Ruini, C. (2003). Development and characteristics of a well-being enhancing psychotherapeutic strategy: well-being therapy. *Journal of Behaviour Therapy and Experimental Psychiatry*, 34, 45–63.
- Field, A.E., & Cheung, L., Wolf, A.M., Herzog, D.B., Gortmaker, S.L., & Colditz, G.A. (1999). Exposure to the mass media and weight concerns among girls. *Pediatrics*, 103(3), 660-661.

- Furnham, A., Badmin, N., & Sneade, I. (2002). Body image dissatisfaction: Gender differences in eating attitudes, self-esteem and reasons for exercise. *Journal of Psychology*, 136(6), 581-596.
- Garner, D.M. (2004). *Eating Disorder Inventory Manual-3*. USA: Psychological Assessment Resources Inc.
- Gouws, E., Kruger, N., & Burger, S. (2000). *The Adolescent* (2nd ed.). Cape Town: Heinemann Publishers (Pty) Ltd.
- Gowen, L.K., & Hayward, C. (1999). Acculturation and eating disorder symptoms. *Journal of Research on Adolescents*, 9(1), 67-79.
- Gunewardene, A., Huon, G.F., & Zheng, R. (2001). Exposure to westernization and dieting: A cross-cultural study. *International Journal of Eating Disorders*, 29, 289-293.
- Health Professions Council of South Africa (HPCSA). (2002). *Ethical code of professional conduct*. Gauteng: Psychological Society of South Africa.
- Heyward, V.H. (2002). *Advanced fitness assessment and exercise prescription* (4th ed.). Champaign, Illinois: Burgess Publishing Company.
- Jackson, S.L. (2003). *Research Methods and Statistics. A Critical Thinking Approach*. Thomson & Wadsworth.. USA.

- Jansen, A., Nederkoorn, C., & Mulken, S. (2005). Selective visual attention for ugly and beautiful body parts in eating disorders. *Behaviour Research and Therapy*, 43, 183-196.
- Kleinke, C.L. (1991). *Coping with life challenges*. Pacific Grove, California: Brooks/Cole Publishing Company.
- Lake, A.J., Staiger, P.K., & Glowinski, H. (2000). Effect of western culture on women's attitudes to eating and perceptions of body shape. *International Journal of Eating Disorders*, 27, 83-89.
- Levitt, D.H. (2003). Drive for thinness and fear of fat: separate yet related constructs? *Journal of Eating Disorders*, 11, 221-234.
- Littleton, H.L., & Ollendick, T. (2003). Negative body image and disordered eating behaviour in children and adolescents: What places youth at risk and how can these problems be prevented? *Clinical Child And Family Psychology Review*, 6(1), 51-66.
- Marcia, (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, 3(5), 551-558.
- Mensinger, J. (2001). Conflicting gender role prescriptions and disordered eating in single-sex and coeducational school environments. *Gender and Education*, 13(4), 417-429.

- Miller, M.N., & Pumariega, A.J. (2001). Culture and eating disorders: A historical and cross-cultural review. *American Journal of Psychiatry*, 64(2), 93-110.
- Muris, P., Meesters, C., van de Blom, W., & Mayer, B. (2005). Biological, psychological and sociocultural correlates of body change strategies and eating problems in adolescent boys and girls. *Eating Behaviours*, 6, 11-22.
- Mussell, M.P., Binford, R.B., & Fulkerson, J.A. (2000). Eating disorders: Summary of risk factors, prevention programming, and prevention research. *The Counseling Psychologist*, 28(6), 764-796.
- O'Dea, J.A., & Abraham, S. (2000). Improving the body image, eating attitudes and behaviours of young male and female adolescents: A new educational approach that focuses on self-esteem. *International Journal of Eating Disorders*, 28, 265-271.
- Ogden, J., & Elder, C. (1998). The role of family status and ethnic group on body image and eating behaviour. *International Journal of Eating Disorders*, 23, 309-315.
- Paradise A.W., & Kernis, M.H. (2002). Self-esteem and psychological well-being: Implications of fragile self-esteem. *Journal of Social and Clinical Psychology*, 21(4), 345-361.
- Pelletier, L.G., & Dion, S., & Levésque, C. (2004). Can self-determination help protect women against sociocultural influences about body image and reduce their

- risk of experiencing bulimic symptoms? *Journal of Social and Clinical Psychology*, 23(1), 61-89.
- Peñas-Lledo, E., Sancho, L., & Waller, G. (2002). Eating attitudes and the use of alcohol, tobacco and exercise among male and female adolescents. *Eating Behaviours*, 3, 101-111.
- Phelps, L., Johnston L.S., & Augustyniak, K. (1999). Prevention of eating disorders: Identification of predictor variables. *Eating Disorders*, 7, 99-108.
- Pokrajac-Bulian, A., & Živčić-Becirević, I. (2005). Locus of control and self-esteem as correlates of body dissatisfaction in Croatian university students. *European Eating Disorders Review*, 13, 54-60.
- Polivy, J., & Herman, C.P. (2002). Causes of eating disorders. *Annual Review of Psychology*, 53, 187-213.
- Ryff, C.D. (1989a). Scales of Psychological Well-Being (SPWB). USA: University of Wisconsin.
- Ryff, C.D. (1989b). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069-1081.
- Ryff, C.D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science*, 4(4), 99-104.

Sarafino, E.P. (2002). Health Psychology: Biopsychosocial interactions (4th ed.). New York: John Wiley & Sons, Inc.

SAS System for Window Release 9.1. (2005). TS Level 1 MO. NC: USA.

Senekal, M., Steyn, N.P., Mashego, T.B., & Nel, J.H. (2001). Evaluation of body shape, eating disorders and weight management related parameters in Black female students of rural and urban origins. *South African Journal of Psychology*, 31(1), 45-53.

Steck, E.L., Abrams, L.M., & Phelps, L. (2004). Positive psychology in the prevention of eating disorders. *Psychology in the Schools*, 41(1), 111-117.

Steiner, H., Kwan, W., Shaffer, T.G., Walker, S., Miller, S., Sagar, A., & Lock, J. (2003). Risk and protective factors for juvenile eating disorders. *European Child and Adolescent Psychiatry*, 12(1), 38-46.

Steyn, A.G.W., Smit, C.F., Du Toit, S.H.C., & Strasheim, C. (1998). Moderne statistiek vir die praktyk. Pretoria: Van Schaik Uitgewers.

Strümpfer, D.J.W. (1995). The origins of health and strength: from 'salutogenesis' to 'fortigenesis'. *South African Journal of Psychology*, 25(2), 81-89.

Szabo, C.P. (1999). Eating attitudes among black South Africans. *American Journal of Psychiatry*, 156, 981-982.

- Vleioras, G. & Bosma, H.A. (2005). Are identity styles important for psychological well-being? *Journal of Adolescence*, 28, 397-409.
- Waadegaard, M., & Petersen, T. (2002). Dieting and desire for weight loss among adolescents in Denmark: a questionnaire survey. *European Eating Disorders Review*, 10(5), 329-346.
- Wheeler, H.A., Adams, G.R., & Keating, L. (2001). Binge eating as a means for evading identity issues: The association between an avoidance identity style and bulimic behaviour. *Identity: An International Journal of Theory and Research*, 1 (2), 161-178.
- Wildes, J.E., Emery, R.E., & Simons, A.D. (2001). The roles of ethnicity and culture in the development of eating disturbances and body dissatisfaction: a meta-analytic review. *Clinical Psychology Review*, 21(4), 521-551.
- Witmer, J.M., & Sweeney, T.J. (1992). A holistic model for wellness and prevention over the life span. *Journal of Counselling & Development*, 71, 140-148.
- World Health Organisation. (1995). Physical status: the use and interpretation of anthropometry. Report of a WHO expert committee: Geneva.

Table 1. Demographics of participants (n=290).

Variable		Frequency	Percentage %
Age:	13	3	1.04
	14	83	28.72
	15	96	33.22
	16	88	30.45
	17	19	6.57
Race:	White	196	69.76
	Black	77	27.40
	Coloured	2	0.71
	Indian	5	1.78
	Chinese	1	0.36
Religion:	Christian	256	92.42
	Jewish	4	1.44
	Hindu	2	0.72
	Islam	3	1.08
	Agnostic	2	0.72
	None	10	3.61
Identity Style:	Informational	78	26.99
	Normative	177	61.25
	Diffuse-Avoidant	34	11.76
Body Mass Index:	Under weight	42	14.48
	Normal	195	67.24
	Overweight	38	13.10
	Obese	15	5.17
Identity Style and Body Mass Index:			
Under weight:	Informational	9	21.43
	Normative	25	59.52
	Diffuse-Avoidant	8	19.05
Normal:	Informational	54	27.84
	Normative	119	61.34
	Diffuse-Avoidant	21	10.82
Overweight:	Informational	10	26.32
	Normative	25	65.79
	Diffuse-Avoidant	3	7.89
Obese:	Informational	5	33.33
	Normative	8	53.33
	Diffuse-Avoidant	2	13.33

Table 1. Demographics of participants (n=290).

Variable		Frequency	Percentage %
In the past three months:			
Binge ate	Often	30	10.56
	Rarely	254	89.44
Purged	Often	10	3.52
	Rarely	274	96.48
Used laxatives to lose weight	Often	6	2.11
	Rarely	278	97.89

Table 2. Correlations between the primary eating disorder risk factors and psychological traits associated with eating disorders versus identity styles and the dimensions of psychological well-being (n=290).

Variable	<u>Eating Disorder Inventory-3:</u>											
	DT	B	BD	LSE	PA	II	IA	ID	ED	P	A	MF
<u>Identity Style Inventory:</u>												
IIS	-	-	-	-	-	-	-	-	-	0.3*	-	-
NIS	-	-	-	-	-0.3*	-	-0.3*	-	-	-	-	-
DAIS	-	-	-	-	-	-	-	0.3*	-	-	-	-
<u>Scales of Psychological Well-Being:</u>												
AU	-0.3*	-0.3*	-0.3*	-0.5**	-0.5**	-0.4**	-0.4*	-0.4*	-0.3*	-	-	-
EM	-0.4*	-0.3*	-0.4*	-0.5**	-0.7**	-0.5**	-0.5**	-0.6**	-0.4*	-	-0.3*	-
PG	-	-	-0.3*	-0.5**	-0.5**	-0.4*	-0.3*	-0.4*	-	-	-	-
PR	-0.3*	-0.3*	-0.3*	-0.5**	-0.6**	-0.6**	-0.7**	-0.5**	-0.4*	-	-0.3*	-
PL	-0.3*	-0.3*	-0.4*	-0.5**	-0.5**	-0.4*	-0.4*	-0.4*	-0.3*	-	-	-
SA	-0.5**	-0.4*	-0.5**	-0.7**	-0.7**	-0.5**	-0.6**	-0.6**	-0.4*	-	-0.4*	-

$r \geq 0.5$ ** (large effect & practical significance), $r = 0.3$ * (medium effect), $r = 0.1$ - (small effect).

Note: DT: Drive for Thinness, B: Bulimia, BD: Body Dissatisfaction, LSE: Low Self-Esteem, PA: Personal Alienation, II: Interpersonal Insecurity, IA: Interpersonal Alienation, ID: Interoceptive Deficits, ED: Emotional Dysregulation, P: Perfectionism, A: Asceticism, MF: Maturity Fears, IIS: Informational Identity Style, NIS: Normative Identity Style, DAIS: Diffuse-Avoidant Identity Style, AU: Autonomy, EM: Environmental Mastery, PG: Personal Growth, PR: Positive Relationships with Others, PL: Purpose in Life, SA: Self-Acceptance.

Table 3. Correlations between identity styles and the six dimensions of psychological well-being (n=290).

Variable	<u>Identity Style Inventory:</u>		
	Informational Identity Style	Normative Identity Style	Diffuse-Avoidant Identity Style
<u>Scales of Psychological Well-Being:</u>			
Autonomy	-	-	-0.3*
Environmental Mastery	0.3*	0.4*	-0.3*
Personal Growth	0.3*	-	-0.3*
Positive Relationships with Others	-	0.3*	-
Purpose in Life	0.4*	0.4*	-0.4*
Self-Acceptance	-	0.3*	-

$r \geq 0.5$ ** (large effect & practical significance), $r = 0.3$ * (medium effect), $r = 0.1$ - (small effect).

Table 4. Significance of differences between identity styles, psychological traits associated with eating disorders and the six dimensions of psychological well-being (n=290).

Variable	Identity Style Inventory:						
	Informational		Normative		Diffuse-Avoidant		
	Identity Style [1]		Identity Style [2]		Identity Style [3]		
	n=78		n=177		n=34		
	M	SD	M	SD	M	SD	d
<u>Eating Disorder Inventory-3:</u>							
Low Self Esteem	4.36	4.67	4.74	4.41	7.79	5.05	[1;2] - [1;3] 0.7* [2;3] 0.6*
Personal Alienation	6.10	5.29	5.55	4.95	9.97	6.11	[1;2] - [1;3] 0.6* [2;3] 0.7*
Interpersonal Insecurity	5.77	4.63	6.30	4.93	9.00	4.87	[1;2] - [1;3] 0.7* [2;3] 0.6*
Interpersonal Alienation	6.42	4.70	6.10	4.43	9.01	4.87	[1;2] - [1;3] 0.5* [2;3] 0.6*
Interoceptive Deficits	8.81	7.62	7.82	6.38	12.78	7.69	[1;2] - [1;3] 0.5* [2;3] 0.7*
Emotional Dysregulation	6.50	5.37	5.10	4.71	8.50	6.84	[1;2] - [1;3] - [2;3] 0.5*
Perfectionism	11.81	5.43	10.03	5.41	8.15	5.98	[1;2] - [1;3] 0.6* [2;3] -
<u>Scales of Psychological Well-Being:</u>							
Autonomy	61.07	10.23	57.42	9.11	52.62	9.93	[1;2] - [1;3] 0.8** [2;3] 0.5*
Environmental Mastery	61.03	9.74	59.66	8.49	49.94	9.07	[1;2] - [1;3] 1.1** [2;3] 1.1**
Personal Growth	69.32	9.69	65.06	8.39	60.09	10.14	[1;2] - [1;3] 0.9**

Table 4. Significance of differences between identity styles, psychological traits associated with eating disorders and the six dimensions of psychological well-being (n=290).

Variable	<u>Identity Style Inventory:</u>						
	Informational		Normative		Diffuse-Avoidant		
	Identity Style [1]		Identity Style [2]		Identity Style [3]		
	n=78		n=177		n=34		
	M	SD	M	SD	M	SD	d
Positive Relationships	67.23	10.73	65.80	10.16	59.60	9.82	[1;2] -
With Others							[1;3] 0.7*
							[2;3] 0.6*
Purpose in Life	64.08	9.85	62.03	8.65	50.41	10.69	[1;2] -
							[1;3] 1.3**
							[2;3] 1.1**
Self-Acceptance	61.18	12.20	60.33	12.09	51.01	13.30	[1;2] -
							[1;3] 0.8**
							[2;3] 0.7*

d≥0.8** (large effect & practical significance), d=0.5* (medium effect), d=0.2 - (small effect).

Note: M: Mean, SD: Standard Deviation.

Table 5. Significance of differences between age groups and psychological well-being (n=286).

Variable	n	Age	M	SD	d
Scales of Psychological Well-Being:					
Autonomy	83	14	56.23	10.45	[14;15] -
	96	15	57.02	8.83	[14;16] -
	88	16	58.86	9.39	[14;17] 0.8**
	19	17	65.32	10.80	[15;16] -
					[15;17] 0.8**
					[16;17] 0.6*
Environmental	83	14	57.61	9.66	[14;15] -
Mastery	96	15	59.48	9.21	[14;16] -
	88	16	58.66	9.57	[14;17] 0.5*
	19	17	62.84	9.89	[15;16] -
					[15;17] -
					[16;17] -
Personal Growth	83	14	64.20	8.57	[14;15] -
	96	15	65.76	9.39	[14;16] -
	88	16	66.29	9.60	[14;17] 0.6*
	19	17	69.35	8.02	[15;16] -
					[15;17] -
					[16;17] -

$d \geq 0.8^{**}$ (large effect & practical significance), $d = 0.5^{*}$ (medium effect), $d = 0.2$ - (small effect).

Note: M: Mean, SD: Standard Deviation.

Table 6. Significance of differences between race groups, the primary eating disorder risk factors and psychological traits associated with eating disorders (n=273).

	White		Black		
	n=194		n=77		
Variable	M	SD	M	SD	d
<u>Eating Disorder Inventory-3:</u>					
Interpersonal Insecurity	5.81	4.79	8.04	4.46	0.5*
Maturity Fears	9.59	5.27	13.10	5.60	0.6*

d≥0.8** (large effect & practical significance), d=0.5* (medium effect), d=0.2- (small effect).

Note: M: Mean, SD: Standard Deviation.

LETTER OF CONSENT:

January 2006

Dear Parent

MASTERS CLINICAL PSYCHOLOGY RESEARCH: MRS F. FRANCISCO

Current research confirms that female adolescents are at risk of developing eating disorders. The research study entitled *"Does identity style protect against primary eating disorder risk factors and psychological traits associated with eating disorders in adolescent females?"* aims to identify factors that could protect female adolescents from developing an eating disorder. The researcher seeks to publish the findings in a scientific journal and to develop a prevention programme against eating disorders. Three hundred female adolescents in grades 9, 10 and 11 will partake in the study.

Each participant will be expected to complete three sets of confidential questionnaires. Participation is voluntary and confidentiality will be maintained throughout. Should some participants be at risk of developing an eating disorder, referrals will be given for intervention. Feedback will thus be given to the participants on the results of the study.

I hereby request permission for your child to participate in the study. You are under no obligation to give permission or to give reasons for refusing permission. Please tick the appropriate box;

☐ Permission is hereby given for my child to participate in this study.

☐ Permission is hereby refused for my child to participate in this study.

Signed at _____ on this _____ day of _____ 2006.

Child's name

Parent Signature

Sincerely,

Mrs F. Francisco
Intern Clinical Psychologist

Mrs D. Kirsten
Educational Psychologist
Supervisor

Prof. W.F. du Plessis
Clinical Psychologist
Co-Supervisor