

**Socio-environmental factors, objectified body consciousness and  
drive for muscularity in undergraduate men**

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**Dissertation (article format) submitted in partial fulfilment of the requirements for  
the degree *Magister Artium in Clinical Psychology*  
at the Potchefstroom Campus of the North-West University.**

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**November 2010**

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## 1. ACKNOWLEDGEMENTS

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

- ❖ My supervisor, Dr. Doret Kirsten, for her dedication to psychology, professional assistance, motivation and inspiration.
- ❖ Wilma Breytenbach for her statistical consultation services as well as her patience and constant availability.
- ❖ The language editor, Carol Saccaggi, for her professional service.
- ❖ Dr. Marlene Arndt, for inspiring me to become a psychologist and for being a mentor and a friend. Your contributions to my life have been significant.
- ❖ My parents, Gerrit and Renata Kruyswijk for believing in my abilities and for fostering an environment that enables me to reach my full potential and dreams.
- ❖ My three brothers, Marlo, Eduan and Leon Kruyswijk, as well as all my colleagues and friends for your unequivocal support and motivation.
- ❖ All the participants who agreed to take part in this study, without you this research would not have been possible.
- ❖ Finally and most importantly, I want to thank God for blessing me with the mental capacity and dedication to complete this research. One day when I stand before God at the end of my life it is my hope that I will have not a single bit of talent left and can say: "I gave everything You gave me".

## 2. DECLARATION

I, the undersigned, hereby declare that the work contained in this thesis is my own original work, and that I have not previously in its entirety or in part submitted it at any university for a degree.

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Renske Kruyswijk

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Date

### 3. LETTER OF CONSENT

I, the co-author, hereby give consent for Renske Kruyswijk to submit the following manuscript for purposes of a dissertation (article format): Socio-environmental factors, objectified body consciousness and drive for muscularity in undergraduate men.

It may also be submitted to the *South African Journal of Psychology* for publication.

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Dr. D.K. Kirsten  
Supervisor (co-author)

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Date

#### 4. CERTIFICATE FROM LANGUAGE EDITOR

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22 October 2010

The Editors

To Whom It May Concern:

**Declaration of Language Editing: Socio-environmental factors, objectified body consciousness and drive for muscularity in undergraduate men.**

This letter confirms that I have personally undertaken language editing of the article “Socio-environmental factors, objectified body consciousness and the drive for muscularity in undergraduate men”, written by Renske Kruyswijk. I have corrected the language and it is my professional opinion that the language used in the document is suitable for publication.

Please feel free to contact me should you have any queries.

Regards,

Carol Saccaggi

MA (English), MA (Clin psych)  
HPCSA #: PS 0102865

## 5. SUMMARY

### **Socio-environmental factors, objectified body consciousness and drive for muscularity in undergraduate men**

**Keywords:** Appearance Control Beliefs; Body Image; Body Shame; Body Surveillance; Drive for Muscularity; Objectified Body Consciousness

The display of the male body has recently become a common phenomenon in Western culture. The objectification of men is a new theoretical concept that originates from the more familiar concept of the perceived objectification, observation and evaluation of the female body (Fredrickson & Roberts, 1997). McKinley (as cited in Soban, 2006) terms this concept Objectified Body Consciousness (OBC). Past studies confirm that the concept of OBC may also be successfully applied to males (Grieve & Helmick, 2008; Tiggemann & Kuring, 2004), especially in relation to current cultural expectations for the male body (Grieve & Helmick, 2008; Soban, 2006). At an extreme level internalisation of the mesomorphic body shape as body ideal may lead to a Drive for Muscularity (DM; Grieve, 2007). Grieve and Helmick (2008) indicate that males who score high on objectification measures show higher incidences of DM. According to the socio-environmental theories of Grieve (2007) and McCabe and Ricciardelli (2004) males experience significant social pressures to achieve the muscular ideal. There is a scarcity of literature concerning body-image concerns and the muscular ideal within the South African male undergraduate population. This research was therefore exploratory in nature and aimed to determine whether undergraduate men with high levels of OBC differ significantly in DM from undergraduate men with low levels of OBC. In addition, the study investigated the existence of a correlation between OBC and DM and whether undergraduate men differ in DM in accordance with exposure to certain socio-environmental factors. The quantitative study employed a survey design (Mouton, 2001) and used the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996) and the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000). A convenience sample of 278 undergraduate males (mean age = 19 years) was selected based on availability and readiness to partake in the study (Field, 2005). Participants were all males aged between 18 and 20 and residing on the North-West University Potchefstroom Campus. Results indicate that undergraduate men with either elevated or low levels of OBC do not differ in terms of their DM. No correlation exists between OBC and DM. A group of undergraduate men who read fitness and health-related magazines, participate in sport, exercise regularly and have used



steroids and supplements in the past year was identified. This group presented with high incidences of Muscle Development Behaviour suggesting that they may be at risk of internalising an attitude of increasing muscularity that may result in DM.

## 6. OPSOMMING

### **Sosio-omgewings faktore, *objectified body consciousness* en *drive for muscularity* in voorgraadse mans**

**Sleutelwoorde:** *Appearance Control Beliefs; Body Image; Body Shame; Body Surveillance; Drive for Muscularity; Objectified Body Consciousness*

Die mesomorfiëse uitbeelding van mans het onlangs 'n algemene verskynsel in die Westerse kultuur geword. Objektivisering van mans is 'n nuwe konsep wat sy oorsprong vind in die meer bekende konsep dat vrouens hulle liggame as objekte beleef wat deur ander geobserveer en geëvalueer word (Fredrickson & Roberts, 1997). McKinley (soos aangehaal in Soban, 2006) noem hierdie spesifieke konsep *Objectified Body Consciousness* (OBC). Vorige studies het bevestig dat die konsep van OBC suksesvol toegepas kan word op mans (Grieve & Helmick, 2008; Tiggemann & Kuring, 2004), veral met betrekking tot die huidige kulturele mesomorfiëse verwagtinge vir die manlike liggaam (Grieve & Helmick, 2008; Soban, 2006). Die internalisering van die mesomorfiëse liggaamsvorm as liggams ideaal, kan op ekstreme vlakke lei tot die *Drive for Muscularity* (DM; Grieve, 2007). Grieve en Helmick (2008) het aangedui dat mans wat hoë tellings behaal op objektiviseringsinstrumente, ook hoër voorkoms van DM toon (Davis, Karvinen, & McCreary, 2005). Volgens die sosio-omgewings teorieë van Grieve (2007) en McCabe en Ricciardelli (2004), ervaar mans ernstige sosiale druk om die mesomorfiëse ideaal te bereik weens 'n verskeidenheid faktore. Die literatuur oor die Suid-Afrikaanse manlike voorgraadse bevolking in terme van die bogenoemde stellings blyk skaars te wees en beklemtoon die relevansie en noodsaaklikheid van hierdie studie; daarom was die navorsing hoofsaaklik verkennend. Die doel van hierdie studie was om te bepaal: of voorgraadse mans met hoë vlakke van OBC beduidend verskil in DM teenoor die met laer vlakke van OBC, of daar 'n korrelasie tussen OBC en DM is; en of voorgraadse mans verskil in DM as hulle blootgestel word aan sekere sosio-omgewings faktore. Kwantitatiewe navorsings metodes is gebruik in die beplanning van 'n opname-ontwerp (Mouton, 2001) en die volgende instrumente is gebruik: die *Objectified Body Consciousness Scale* (OBCS, McKinley & Hyde, 1996) en die *Drive for Muscularity Scale* (DMS, McCreary & Sasse, 2000). 'n Gerieflikheidssteekproef bestaande uit 278 voorgraadse mans (gemiddelde ouderdom = 19 jaar) is gekies op grond van hul beskikbaarheid en gewilligheid om deel te neem aan hierdie studie (Field, 2005). Deelnemers tussen die ouderdomme van 18 en 20 jaar, wat inwonende studente in 'n manskoshuis by die Noordwes-Universiteit se Potchefstroom-

kampus is is ingesluit. Resultate dui daarop dat daar geen verskil is tussen die voorgraadse mans met hoë of lae vlakke van OBC in terme van hul DM nie, en daar is ook geen korrelasie tussen OBC en DM waargeneem nie. 'n Groep voorgraadse mans is identifiseer wat fiksheid- en gesondheidsverwante tydskrifte lees, deelneem aan sport, gereeld oefen en steroïde en aanvullings gebruik het in die afgelope jaar. Dié groep mans vertoon hoë Spier Ontwikkelingsgedrag wat reeds hulle risiko verhoog om die mesomorfiëse ligaamsideaal te internaliseer wat moontlik tot die ontwikkeling van DM kan lei.

## **7. PREFACE**

### **7.1 Article Format**

For the purposes of this mini-dissertation, which forms part of the requirements for a professional master's degree, the article format as described by General Regulation A.13.7 of the North-West University was chosen.

### **7.2 Selected Journal**

The target journal for publication is the *South African Journal of Psychology*. The manuscript and the reference list have been styled to the journal's specifications. This includes use of the APA (American Psychological Association) reference style.

## **8. INSTRUCTIONS TO AUTHORS**

### **SOUTH AFRICAN JOURNAL OF PSYCHOLOGY**

#### **8.1 Submitting a manuscript**

SAJP is a peer-reviewed journal publishing empirical, theoretical and review articles on all aspects of psychology. Articles may focus on South African, African or international issues. Manuscripts to be considered for publication should be e-mailed to [sajp@up.ac.za](mailto:sajp@up.ac.za). Include a covering letter with your postal address, email address, and phone number. The covering letter should indicate that the manuscript has not been published elsewhere and is not under consideration for publication in another journal. An acknowledgement of receipt will be e-mailed to the author (within seven days, if possible) and the manuscript will be sent for review by three independent reviewers. Incorrectly structured or formatted manuscripts, or manuscripts not edited for language, will not be accepted into the review process.

Only one article per author will be published per calendar year. Exceptions to this rule will be at the sole discretion of the editor (with his or her associate editors) in the case of an exceptional article that needs to be published, a special issue where the specific article will make a significant contribution, in writing or responding to a *riposte*, etc.

Authors must please quote the manuscript number in ALL correspondence to the editor.

## 8.2 Manuscript Structure

- The manuscript should be no longer than 20 pages (5 000 words).
- **First page:** The full title of the manuscript, the name(s) of the author(s) together with their affiliations, and the name, address, and e-mail address of the author to whom correspondence should be sent.
- **Second page:** The abstract, formatted as a single paragraph, and no longer than 300 words. A list of at least six keywords should be provided alphabetically below the abstract, with semi-colons between words.
- **Subsequent pages:** The text of the article should be started on a new page. The introduction to the article does not require a heading.
- **Concluding pages:** A reference list, followed by tables and figures (if any). Each table or figure should be on a separate page. Tables and figures should be numbered consecutively and their appropriate positions in the text indicated. Each table or figure should be provided with a title (e.g. Figure 1: Frequency distribution of critical incidents). The title should be placed at the top for tables and at the bottom for figures. The appropriate positions in the text should be indicated.
- Authors are requested to pay attention to the proportions of illustrations, tables, and figures, so that they can be accommodated in a single (136mm) column after reduction, without wasting space.

## 8.3 Manuscript Format

- The manuscript should be an MS Word document in 12-point Times New Roman font with 1.5 line spacing. There should be no font changes, margin changes, hanging indents, or other unnecessarily complex formatting codes.
- The SAJP referencing style should be adhered to. The referencing style of the SAJP is similar to those used by the British Psychological Society and the American Psychological Association. The American Psychological Association (APA, ver. 5) style guidelines and referencing format should be adhered to.
- Headings should start at the left margin, and should not be numbered. All headings should be in **bold**. Main headings should be in **CAPITAL LETTERS**.
- The beginning of paragraphs is indicated by indenting the paragraph's first line using the tab key on your keyboard, except when the paragraph follows a main or secondary heading.

- Indents are only used for block quotes.
- In the reference list, the first line of each reference starts at the margin; and subsequent lines for each reference are indented.

#### **8.4 Language**

Manuscripts should be written in English. As the SAJP does not employ a full-time or dedicated language editor, it is compulsory that manuscripts should be accompanied by a declaration that the language has been properly edited, together with a letter by a certified language specialist, stating the name and address of the person who undertook the language editing. Failure to do so will result in the manuscript being returned to the author. Should the editor not be satisfied with the quality of language usage, in spite of the evidence that the language has been edited, she or he reserves the right to send the article to the a language editor of the Journal's choice and invoice the author(/s).

#### **8.5 Ethics**

Authors should take great care to spell out the steps taken to facilitate ethical clearance, i.e. how they went about complying with all the ethical issues alluded to in their study (or studies), either directly or indirectly, including informed consent and permission to report the findings. If, for example, permission was not obtained from all respondents or participants, the authors should carefully explain why this was not done.

## **9. MANUSCRIPT**

### **SOCIO-ENVIRONMENTAL FACTORS, OBJECTIFIED BODY CONSCIOUSNESS AND DRIVE FOR MUSCULARITY IN UNDERGRADUATE MEN.**

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## **ABSTRACT**

This exploratory study posits that Body Dysmorphic Disorders such as Drive for Muscularity (DM) are a problem amongst university men and need to be addressed in ways that are appropriate for male students and their gender-specific emotional, psychological and social needs (Soban, 2006). Literature on Objectified Body Consciousness (OBC), disordered eating and body dissatisfaction in the male population is currently scarce, especially in the South African context. This study aimed to determine: (1) whether undergraduate men with high levels of OBC differ significantly in DM from undergraduate men with low levels of OBC; (2) whether there is a correlation between OBC and DM; and (3) whether undergraduate men differ in DM depending on exposure to certain socio-environmental factors. The quantitative study employed a survey design (Mouton, 2001) and used the Objectified Body Consciousness Scale (OBCS, McKinley & Hyde, 1996) and the Drive for Muscularity Scale (DMS, McCreary & Sasse, 2000). A convenience sample of 278 undergraduate males (mean age = 19 years) was selected based on availability and readiness to participate in the study (Field, 2005). All participants were males aged between 18 and 20 residing at the North-West University Potchefstroom Campus. Results indicated that the DM scores of undergraduate men with elevated levels of OBC do not differ from the DM scores of undergraduate men with low levels of OBC. There is thus no correlation between OBC and DM. A group of undergraduate men who read fitness and health-related magazines, participate in sport, exercise regularly and have used steroids and supplements in the past year was identified. This group presented with high incidences of Muscle Development Behaviour suggesting that they may be at risk of internalising an attitude of increasing muscularity that may result in DM.

**Word count:** 287

**Keywords:** Appearance Control Beliefs; Body Image; Body Shame; Body Surveillance; Drive for Muscularity; Objectified Body Consciousness



## **Objectified Body Consciousness in the development of Drive for Muscularity**

The display of the male body has recently become a common phenomenon in Western culture. Men are displayed on billboards, in magazines, on television, in gymnasiums and on sport fields. Although the objectification of men is a new concept it finds its origin in the more familiar concept of the female body as objectified, observed and evaluated (Fredrickson & Roberts, 1997). Grieve and Helmick (2008) state that: “the media objectifies women by placing great emphasis on the body and physical appearance, and as a result of objectification women view and value themselves only in terms of their appearance and physical attributes” (p. 289). McKinley (as cited in Soban, 2006) terms this concept Objectified Body Consciousness (OBC). OBC includes several factors: body surveillance (viewing the body as separate from the self); the internalisation of cultural body standards (internalising cultural standards of beauty or body-shape as personal standards); and appearance control beliefs (which manipulate the mind into thinking that cultural standards are achievable).

At an extreme level OBC can lead to a drive for thinness in females as they internalise the ideal to be slender in the pursuit of social acceptance (Grabarek & Cooper, 2008). Past studies have confirmed that the concept of OBC can also be successfully applied to males (Grieve & Helmick, 2008; Tiggemann & Kuring, 2004). In Western society males are expected to be muscular and defined (McCreary & Saucier, 2005). OBC is thus often associated with an increase in male body dissatisfaction (Strelan & Hargreaves, 2005), especially when related to the current cultural expectations for the male body (Grieve & Helmick, 2008; Soban, 2006). Extreme internalisation of the mesomorphic body shape as body ideal may lead to a Drive for Muscularity (DM, Grieve, 2007), which is defined as: “an unrealistic perception of the body combined with an excessive pursuit of muscularity” (Olivardia, 2001, p. 254). A study by Grieve and Helmick (2008) indicated that males who scored high on objectification measures showed higher incidences of DM and increased levels of Muscle Dysmorphic (MD) symptoms when compared to males low in self-objectification. It is hypothesized that internalisation of the cultural ideals portrayed in the Western media strongly mediates the occurrence of body image concerns in both males and females (Daniel & Bridges, 2009). Daniel and Bridges (2009) found internalisation of media ideals and Body Mass Index to be the two strongest predictors of DM. The study found that body surveillance mediated the relationship between internalisation of media ideals and body shame. MD is a severe form of DM and signifies a collection of attitudes, which may include a strong dislike for one’s own body and a disproportional pathological pre-occupation with

muscularity. This preoccupation with body-shape may become persistent and cause clinically significant impairment and/or distress in daily functioning (Grieve, 2007). Males who experience high levels of emotional distress with their current level of muscularity may engage in extreme and potentially dangerous methods of weight control (Mussap, 2008). These measures may include fasting, the use/abuse of diuretics, anabolic steroids and various chemical stimulants and supplements and excessive exercising (Mussap, 2008). These measures are similar to the criteria for anorexia nervosa. Males with MD also frequently consume large quantities of food, which is analogous to binge eating in bulimic individuals (Grieve, 2007). MD is a serious condition that creates risks for the physical and psychological well-being of such males.

There has been a recent upsurge in efforts to understand male body-dissatisfaction. Although DM and predictive factors are evident, the research is far from conclusive. For example, a study by Daniel and Bridges (2009) showed that the variables of objectification theory had no relationship to DM in their sample of male college students. However, Grieve and Helmick (2008) indicated that males who scored high on objectification measures showed a greater DM. It is clear that male body-image issues and associated behaviour and risk factors for DM and MD warrant further exploration. A deeper understanding is needed in order to consider preventive interventions

### **Socio-environmental factors in the development of Drive for Muscularity**

The socio-environmental theories of Grieve (2007) and McCabe and Ricciardelli (2004) state that males experience significant societal pressure to achieve the muscular ideal. The past twenty years have marked a significant transformation in media and advertisement images, with emphasis falling on the muscular athletic body, which has become a trademark of our cultural obsession (Soban, 2006). Advertising has always been one of the main avenues for female objectification and males now also perceive pressure from the media to attain these increasingly unattainable body shapes (Giles & Close, 2008; Vartanian, Giant & Passino, 2001). Roles are increasingly reversed as females become the observers of males on display (Soban, 2006).

A study conducted by Schwartz, Phares, Tantleff-Dunn and Thompson (1999) indicated that there was no relationship between parental feedback and body dissatisfaction for college males. It seems that while females receive more pressure and negative feedback from their parents (Schwartz et al., 2005) males are pressurized and influenced on the sport field by peers and coaches (Grogan & Richards, 2002). Sports that focus on muscle mass and

a large physique, such as rugby and body-building, may increase an individual's risk for developing DM and MD (Hatmaker, 2005). Individuals who participate in such sports are at risk of eventually using/abusing anabolic steroids. These steroids influence the body mass/adiposity of an individual and Grieve (2007) posits that high density body mass could be a precursor for DM and MD. Furthermore, athletes often possess psychological characteristics such as competitiveness, an elevated need for control and perfectionist tendencies that increase the likelihood of developing DM. Although participation in sport does not necessarily lead to the development of DM or MD, it does increase individuals' susceptibility.

Awareness of societal pressures and exposure to societal ideals are strong predictors of body dissatisfaction. However, the internalisation of these social standards and appearances is an even stronger predictor of body dissatisfaction (Daniel & Bridges, 2009; McCabe & Ricciardelli, 2004). Pope, Olivardia, Borowiecki and Cohane (2001) indicate that the adoption of the muscular ideal presented in the media significantly influences the development of DM and MD in males. McCreary and Sasse (2000) found that males high in DM also had low self-esteem and high levels of depression. These findings are of concern as Toews (2007) found high self-esteem to be the strongest predictor of overall adjustment in first-year university students. First-year students need to adapt to a new social, educational and psychological environment (Schwitzer, et al., 2008), which poses various stressors and changes in eating and exercising patterns (Hoffman, Policastro, Quick & Lee, 2006). Health-related issues such as DM and MD are a growing problem amongst university males. These health issues need to be addressed in a way that is appropriate for male students and their gender-specific emotional, psychological and social issues (Soban, 2006).

Most studies on OBC, disordered eating and body dissatisfaction include female only review samples (Ousley, Diane & White, 2008). The literature on the male population is scarce, especially in the South African context. There is a definite need for more research in this area. The research study presented in this article was exploratory in nature and made use of international research to guide the formulation of research questions and the interpretation of the data. The aim of the study was specifically to explore socio-environmental factors, OBC and DM in the male student population at the North-West University, Potchefstroom Campus.

## **AIMS**

In light of the literature review three research questions were asked: (1) Do undergraduate men with low OBC scores differ significantly in DM scores from those undergraduate men with high OBC scores? (2) Is there a linear relationship between OBC and DM? (3) Do undergraduate men who are more exposed to certain socio-environmental factors such as fitness and health-related magazines, sport participation, regularity of exercise and use of steroids and supplements differ in terms of their DM scores?

## **Hypotheses**

H1: Undergraduate men with low levels of OBC differ significantly in DM from undergraduate men with high levels of OBC.

H2: There is a significant positive relationship between OBC and DM.

H3: Undergraduate men with a high DM frequently read fitness and health-related magazines.

H4: Undergraduate men with a high DM frequently participate in sport activities.

H5: Undergraduate men with a high DM exercise regularly.

H6: Undergraduate men with a high DM have used supplements and steroids in the past year.

H<sub>0</sub>: Undergraduate men with high and low levels of OBC do not differ significantly in DM.

H<sub>0</sub>: There is not a significant positive relationship between OBC and DM.

H<sub>0</sub>: Undergraduate men with high and low DM do not frequently read fitness and health-related magazines.

H<sub>0</sub>: Undergraduate men with high and low DM do not participate in sport activities.

H<sub>0</sub>: Undergraduate men with high and low DM do not exercise regularly.

H<sub>0</sub>: Undergraduate men with high and low DM have not used supplements and steroids in the past year.

## **METHOD**

### **Research Design**

A quantitative survey research design was selected (Mouton, 2001). This method of data collection allowed the researcher to determine the levels of OBC and DM, their relation to each other and differences in DM in terms of exposure to socio-environmental factors.

## **Participants**

Convenience sampling was used and participants were selected based on availability and readiness to participate in the study (Field, 2005). All participants were males between the ages of 18 and 20 years residing at the North-West University Potchefstroom campus. The final sample consisted of 278 undergraduate residential male students. No random sampling was implemented and interpretations were therefore based on effect sizes (Steyn, 2002). However, for the sake of completeness p-values are reported as if random sampling was used.

## **MEASURING INSTRUMENTS**

### **Biographical Questionnaire**

Participants were required to complete a biographical questionnaire compiled specifically for the purposes of this exploratory study. The questionnaire included demographic data items regarding age, ethnicity, exposure to media (specifically fitness and health-related magazines), involvement in sport activities, regularity of exercise and the use of supplements and steroids in the past year.

### **The Objectified Body Consciousness Scale (OBCS)**

The OBCS is a self-report 24 item scale related to body esteem, eating problems and psychological well-being (McKinley, 1998, 1999; McKinley & Hyde, 1996). Participants rate each item on a seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree) with a N/A (not applicable) option. Sub-scales consist of Body Surveillance (items 1, 3, 7, 9, 14, 16, 18, 20), Body Shame (items 2, 5, 8, 11, 13, 15, 17, 22) and Appearance Control Beliefs (items 4, 6, 10, 12, 19, 21, 23, 24). Individuals who score high on Body Surveillance monitor their appearance and think of the body in terms of how it looks. A high scorer on Body Shame feels like he is an unworthy person if he does not fulfil cultural expectations for his body. An individual who scores high on Appearance Control Beliefs believes that he can control his weight and his appearance if he tries hard enough. Even though the OBCS was originally developed for women, reliability studies indicate that internal consistency measures range from 0.64 to 0.79 in undergraduate men (McKinley, 1998). The OBCS is not standardized for South Africa, however, in this study satisfactory Cronbach alpha coefficients were obtained (0.63 for Body Surveillance, 0.74 for Body Shame, 0.61 for Appearance Control Beliefs). Consequently, all the sub-scales were considered reliable (Field, 2005). In this study the sub-scales all displayed satisfactory

construct validity. Body Surveillance retained two factors and explained 50% of the variance, Body Shame retained two factors and accounted for 52% of the variance and Appearance Control Beliefs retained three factors and explained 62% of the variance in the data.

### **The Drive for Muscularity Scale (DMS)**

The DMS is a 15 item self-report survey that measures behaviours and attitudes reflecting an individual's preoccupation with increasing muscularity. Participants rate each item on a six point Likert-type scale ranging from 1 (never) to 6 (always). The DMS is scored by obtaining the average rating of the 15 items. All items need to be reverse-coded before summing or averaging responses, with lower converted scores indicating a greater DM (McCreary, Sasse, Saucier & Dorsch, 2004). The DMS has three sub-scales. The DM sub-scale (items 1 to 9, 11 to 15) provides an overall score of behaviours and attitudes related to increasing muscularity. The Muscle Development Behaviours sub-scale (items 2, 3, 4, 5, 6, 8, 12) examines behaviours related to increasing muscularity and the Muscularity-Oriented Body Image Attitudes sub-scale (items 1, 7, 9, 11, 13, 14, 15) explores attitudes concerning increasing muscularity (Grabarek, & Cooper, 2008). Grabarek and Cooper (2008) reported an alpha coefficient of 0.88 for the overall DMS and internal consistencies of 0.92 for Muscle Development Behaviours and 0.91 for Muscle-Oriented Body Image Attitudes in their American student sample. In the current study Cronbach alpha coefficients for the DMS were very satisfactory (0.91 for DM, 0.88 for Muscle Development Behaviours, 0.90 for Muscle-Oriented Body Image Attitudes). Consequently, all the sub-scales were considered reliable (Field, 2005). The current study found satisfactory construct validity for all the sub-scales. DM retained two factors and accounted for 63% of variance, Muscle Development Behaviours retained one factor and accounted for 58% of the variance and Muscle-Oriented Body Image Attitudes retained one factor and accounted for 64% of the variance in the data.

### **Data Collection**

The research was conducted at male residences at North-West University (Potchefstroom Campus) during October 2009. Residential house committees were contacted telephonically and informed of the aims and purpose of the study and oral informed consent was obtained to perform data gathering. The availability sample was provided with a letter detailing the purposes of the study and written informed consent was obtained. Demographical data was obtained and the DMS and OBCS were completed and verified for completeness. The

researcher worked according to the principle of assent, where lack of response signalled accordance with the research procedure.

### **Data Analysis**

Data was captured and analysed by the North-West University's Statistical Consultation Services, Potchefstroom Campus using the SAS System for Windows Release (SAS, 2002-2003). A total of 338 completed questionnaires were obtained. However, the questionnaire included a final item asking participants to indicate whether they had answered truthfully. A total of 60 questionnaires were excluded from the dataset as the respondent indicated that he had not answered truthfully. For the purpose of addressing the first research question participants were divided into two extreme groups, a high group (top third) and a low group (bottom third), based on their scores on each of the OBCS sub-scales. Two new groups were formed to address the third research question. Group1 included participants who reported exposure to and involvement in certain socio-environmental factors, whereas Group2 included participants who did not report any exposure to or involvement in the socio-environmental factors. Descriptive statistics were used to describe the data (Gravetter & Forzano, 2003). Cronbach alpha reliability coefficients were computed for the OBCS and DMS sub-scales. Confirmatory factor analyses were conducted to confirm the construct validity of sub-scales. Pearson correlation coefficients were calculated to determine whether linear relationships existed between OBC and DM. Cohen's (1988) guidelines were used to interpret the strength of the correlation coefficients [small effect:  $r = |0.1|$ ; medium effect (noticeable with the naked eye):  $r = |0.3|$ ; large effect (practical significant):  $r \geq |0.5|$ ]. Effect sizes were calculated to determine the practical significance of the findings (Field, 2005; Steyn 2002). A  $d$  value of approximately 0.20 was regarded as indicative of a small effect size. A  $d$  value of approximately 0.50 was regarded as indicative of a medium effect size that was already noticeable to the naked eye. Finally, a  $d$  value of approximately 0.80 was regarded as indicative of a large effect size and was viewed as practically significant (Cohen, 1988).

### **Ethical Considerations**

The Ethics Committee of the Faculty of Health Sciences, North-West University (project number 06K25) provided ethical approval for the study. Verbal consent was obtained from hostel wardens and heads of house committees and written consent was obtained from

participants. Other ethical considerations involved: participant written informed consent, confidentiality, anonymity, no harm, freedom to withdraw without suffering negative consequences, and free psychotherapy if required.

## **RESULTS**

### Demographic Information

The final study included 278 undergraduate male residential students of which 12% were 18 years of age, 79% were 19 years of age and the remaining 9% were 20 years of age (mean age = 19 years). Of this sample 89% labelled themselves as white, 5% as black and 6% as coloured.

Descriptive Statistics are illustrated in Table 1.

Insert Table 1 About Here

The means of the OBCS and DMS subscales were calculated to indicate the level of OBC and DM in the sample. The results indicated neither high (mean 5 to 7) nor low (mean 1 to 3) indices of OBC. Average levels of DM were found in the sample (high mean = 1 to 3.5; low mean = 4 to 6).

In terms of the first hypothesis no practical significant differences in DM were found between undergraduate men with high and low OBC. In terms of the second hypothesis no correlations were found between the OBCS sub-scales and the DMS sub-scales. The first two hypotheses were thus rejected in favour of the nullhypotheses.

Table 2 illustrates the mean differences between Group1 and Group2 in terms of exposure to fitness and health-related magazines.

Insert Table 2 About Here

Table 2 illustrates that there are medium effect size ( $d = 0.05$ ) differences between Group1 (those who read fitness and health-related magazines; mean = 2.23) and Group2 (those who do not read fitness and health-related magazines; mean = 2.72) in terms of their mean DM. Those participants who read fitness and health-related magazines tend to towards higher indices of DM than those who do not read these magazines. 67% of the participants indicated



reading fitness and health-related magazines. Group1 (mean = 2.83) and Group2 (mean = 2.04) also differ with a medium effect size ( $d = 0.65$ ) in terms of Muscle Development Behaviours. The participants in Group1 have higher levels of Muscle Development Behaviours than those in Group2. However, there are no differences between Group1 and Group2 in terms of Muscle Oriented Body Image Attitudes. These results indicate that the third hypothesis should be accepted.

Table 3 indicates the differences between the means of Group1 and Group2 in relation to sport participation.

Insert Table 3 About Here

The results indicate that no differences of any practical value were found between Group1 (those who participate in sport activities) and Group2 (those who do not participate in sport activities) in terms of their mean DM. However the majority of the sample (89%) did report current involvement in sport activities. In addition, Group1 (mean = 2.64) and Group2 (mean = 2.03) differ with a medium effect size ( $d = 0.50$ ) in terms of Muscle Development Behaviours. No differences of any practical value were found between the two groups in terms of Muscle Oriented Body Image Attitudes. Therefore, the fourth hypothesis was rejected and the nulhypothesis was accepted.

Table 4 displays the difference in regularity of exercise in Group1 and Group2.

Insert Table 4 About Here

The results indicate that no differences of any practical value were found between Group1 (those who exercise regularly) and Group2 (those who do not exercise regularly) in terms of their mean DM. However, there are medium effect size ( $d = 0.50$ ) differences between Group1 (mean = 2.55) and Group2 (mean = 3.28) in terms of Muscle Development Behaviours, where Group1 has elevated levels of Muscle Development Behaviours. In this sample almost half (49%) of participants reported exercising at the gymnasium one to three times a week. However, no differences of any practical value were found between Group1 and Group2 in terms of Muscle Oriented Body Image Attitudes. Therefore, hypothesis five is rejected and the nulhypothesis is accepted.

Table 5 highlights the differences between the means of Group1 and Group2 in the use of supplements and steroids.

Insert Table 5 About Here

Practical significant differences ( $d = 1.20$ ) were found between Group1 (those who have used supplements and steroids in the past year) and Group2 (those who have not used supplements and steroids in the past year) in terms of their mean DM. Group1 (mean = 3.91) had a self-reported practically significant higher DM than Group2 (mean = 2.73). Similarly, Group1 (mean = 3.82) and Group2 (mean = 2.07) differ practically significantly ( $d = 1.80$ ) in Muscle Development Behaviours. Group1 thus demonstrated higher incidences of DM and Muscle Development Behaviours than Group2. Furthermore, Group1 (mean = 3.99) and Group2 (mean = 3.39) differed with a medium effect ( $d = 0.50$ ) in terms of Muscle Oriented Body Image Attitudes. In the total sample 14% of participants had been on a diet in the past year and 46% were gymnasium members. The results also indicated that almost a third (29%) of the participants had used steroids and supplements in the past year. Therefore, hypothesis six was accepted.

## **DISCUSSION**

This exploratory study aimed to determine whether undergraduate men with low levels of OBC differ practically significantly in DM from those with high levels of OBC. The study also investigated whether a correlation exists between OBC and DM. The study found no difference between undergraduate men with low or high levels of OBC in terms of their DM and no correlation between OBC and DM. These findings highlight the inconsistencies in the literature. In this regard Daniel and Bridges (2009) showed that the variables of objectification theory had no relationship to DM in their sample of male college students, whereas Grieve and Helmick (2008) found that males who scored high on objectification measures demonstrate higher incidences of DM. A possible theoretical explanation is demonstrated in the overall average levels of OBC and DM in this sample and therefore, the high group (those with top third OBC counts) and the low group (those with bottom third OBC counts) did not have significantly higher or lower scores. The importance of further research in this area is thus highlighted.

A further aim of this exploratory study was to determine whether undergraduate men who are exposed to certain socio-environmental factors such as fitness and health-related magazines, sport participation, regularity of exercise and the use of steroids and supplements, differ in terms of their DM scores from undergraduate men who are not exposed to these

factors. Results indicated that participants who read fitness and health-related magazines had higher incidences of DM than those who do not read these magazines. These results corroborate previous research findings (Daniel & Bridges, 2009; Pope et al., 2001; Soban, 2006). The results also indicated that those undergraduate men who read fitness and health-related magazines engage in Muscle Development Behaviours more frequently than those who do not read these magazines. Therefore, it is probable that these undergraduate men are exposed to certain ideals in the media and display certain behaviours to increase muscularity (Muscle Development Behaviours) but do not yet exhibit attitudes concerning the necessity of increasing muscularity. It appears that these undergraduate men have not internalised the muscular ideal as a personal standard for achievement.

The undergraduate men in this sample (89%) who participate in sport activities did not report significantly higher levels of DM than their counterparts who do not participate in sport activities. These findings contradict previous research. For example, Hatmaker (2005) posits that sports that focus on muscle mass and a large physique increase the individual's risk of developing DM and ultimately MD. Unfortunately, participants were not asked to indicate how seriously they participate in sport. Seriousness of participation could explain why this group demonstrated increases in Muscle Development Behaviours but not Muscularity-Oriented Body Image Attitudes. The sample consisted of mostly first-year students who had likely only competed in sport activities on a school league level. It is probable that participation in sport on a provincial or national level would increase attitudes towards muscularity. Therefore, participation in sport activities in this sample was related to an increase in Muscle Development Behaviours but not to DM or Muscularity-Oriented Body Image Attitudes.

In this sample participants who exercise regularly did not have practically significantly elevated levels of DM when compared to participants who did not exercise regularly. However, participants who exercise regularly displayed higher levels of Muscle Development Behaviours but did not display an attitude towards increasing muscularity (Muscularity-Oriented Body Image Attitudes). It appears that these undergraduate males' exercise patterns should be considered healthy and not excessive, as would be the case in individuals who demonstrate body-dissatisfaction (Mussap, 2008). It is probable that these undergraduate males exercise for relaxation and/or enjoyment and for the sake of playing a sport rather than increasing muscularity.

The participants who used supplements and steroids in the past year had a significantly elevated DM compared to the participants who did not use supplements and

steroids. These results corroborate previous research studies which indicate that males who experience dissatisfaction with their current level of muscularity may engage in extreme and potentially dangerous methods of weight control, including the use/abuse of various supplements and anabolic steroids (Mussap, 2008). This signifies that these undergraduate men display an elevated drive toward certain behaviours which increase muscularity (Muscle Development Behaviours) and concurrently exhibit attitudes towards increasing muscularity (Muscularity-Oriented Body Image Attitudes), both of which are indications of DM.

Although the inconsistencies in these results highlight the necessity for further research in this domain, a possible explanation of the results relates to the high levels of Muscle Development Behaviour and low levels of Muscularity-Oriented Body Image Attitudes in the group of participants exposed to various socio-environmental factors. A significant portion of the undergraduate men in the sample read fitness and health-related magazines (67%), participate in sport activities (89%), exercise regularly (49%) and have used steroids and supplements in the past year (29%). Theoretically these factors should result in high incidences of Muscle Development Behaviour. However, from a theoretical point of view it can be argued that they have not yet internalised the Westernised ideals, standards and attitudes of increasing muscularity and therefore have low to average levels of Muscularity-Oriented Body Image Attitudes and DM. The average OBCS scores suggest that the majority of participants in this sample monitor their appearance and think of their bodies in terms of how they feel and not how they look. The typical participant feels like a worthwhile person even if he does not fulfil cultural expectations for his body and believes that he does not need to control his weight or appearance. This sample of male undergraduates do not view or treat their bodies as objects that need to achieve the unrealistic muscular ideals of Western Culture. Other protective factors, such as self-esteem, might also play a role but these factors were not evaluated in this study.

Finally, the group of participants who were exposed to the socio-environmental factors did display an elevated level of Muscle Development Behaviour. However, elevated levels of DM were only associated with exposure to media ideals and the use of steroids and supplements. In this sample of undergraduate men the only group with elevated levels of Muscularity-Oriented Body Image Attitudes were those participants who have used steroids and supplements in the past year. This indicates that this group of undergraduate men may already be at risk of internalising an attitude of increasing muscularity, which may ultimately result in DM.

## **CONCLUSION**

The current research findings are a first step towards the investigation of body-image dissatisfaction in males, with specific reference to DM, MD, male eating disorders and the larger community in general. Although societal pressures and exposure to societal ideals are strong predictors of body dissatisfaction it is the internalisation of these social standards and appearances that increase the probability of developing DM. A significant portion of participants who were exposed to certain socio-environmental factors (media exposure, steroids and supplement usage) displayed high incidences of Muscle Development Behaviour and DM. However, a correlation between OBC and DM could not be validated.

One of the greatest challenges facing South African higher education is the development of a healthy student population. DM places the physical and psychological well-being of males at risk. There is no easy solution to combating the influence of the media and peer pressure, especially in terms of steroid and supplement use. It is therefore important that research be conducted that focuses on the influence of social and environmental factors in the development of body image disturbances. This data could provide possible indicators for developing a university environment that is supportive of healthy body image.

## **LIMITATIONS**

A limitation of the current study is the use of a convenience sample. However, the nature of the aims of the study was suited to convenience sampling. In addition, most studies cited in the literature review describe predominantly white participants, whereas this sample included white, black and coloured participants.

Furthermore, the socio-environmental factors were not formally evaluated with standardized measuring instruments, but were self-reported by participants. The Body Mass Index (BMI), which according to Daniel and Bridges (2009) is one of the strongest predictors of DM, was also not formally calculated since height and weight were self-reported by participants. This might have resulted in inaccurate findings and was therefore not included in this particular study. A further limitation of the current study is that the majority of the literature and research findings presented are from American sources. Although the American research findings are relevant, they are not necessarily equally valid for the South Africa context. Findings from the American studies cannot be generalised to South Africa. Although the student sample was substantial ( $N = 278$ ) it was drawn from a single university and the participants were predominantly first-year students. Data from other universities, post-school settings and older undergraduate students may have yielded different results.

## **RECOMMENDATIONS**

Further research with a variety of populations, educational levels and age groups in different settings and geographical areas is necessary to give a clearer picture of the relationship between OBC, DM and socio-environmental factors in South African men. It is important that professional staff, sport organisations and students at universities receive psycho-education regarding OBC, DM and the influence of the media, sport participation, peer pressure and societal expectations in the development of undergraduate men's unhealthy perceptions of their bodies.

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**Table.1 Descriptive statistics of the sub-scales of OBCS and DMS**

	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<b>OBCS sub-scales</b>	N = 265 <sup>a</sup>			
<b>Body Surveillance</b>	4.05	0.90	1.38	6.63
<b>Body Shame</b>	3.17	1.00	1.00	6.63
<b>Appearance Control Beliefs</b>	4.61	0.90	1.00	6.75
<b>DMS sub-scales</b>	N=277 <sup>a</sup>			
<b>Drive for Muscularity</b>	3.07	1.08	1.00	6.00
<b>Muscle Development Behaviours</b>	2.58	1.23	1.00	6.00
<b>Muscle-Oriented Body Image Attitudes</b>	3.56	1.25	1.00	6.00

<sup>a</sup> = differ as a result of the way that the OBCS was scored

**Table.2 Differences in Drive for Muscularity means of Group1 and Group2 with regard to exposure to fitness and health-related magazines**

<b>Construct</b>	<b>Group</b>	<b>n</b>	<b>Mean</b>	<b>STD</b>	<b>p-value</b> (in case of random sampling)	<b>d-value</b>
<b>Drive for Muscularity</b>	1	188	3.23	1.03	0.00**	0.50 <sup>Δ</sup>
	2	89	2.72	1.10		
<b>Muscle Development Behaviours</b>	1	188	2.83	1.21	0.00**	0.65 <sup>Δ</sup>
	2	89	2.04	1.11		
<b>Muscle Oriented Body Image Attitudes</b>	1	188	3.63	1.19	0.17	0.17
	2	89	3.40	1.35		

\*\*statistical significant at 0.01 level <sup>Δ</sup> medium effect size

**Table.3 Differences in Drive for Muscularity means of Group1 and Group2 with regard to sport participation**

<b>Construct</b>	<b>Group</b>	<b>n</b>	<b>Mean</b>	<b>STD</b>	<b>p-value</b> (in case of random sampling)	<b>d-value</b>
<b>Drive for Muscularity</b>	1	242	3.12	1.08	0.05*	0.37
	2	30	2.72	0.99		
<b>Muscle Development Behaviours</b>	1	242	2.64	1.22	0.01**	0.50 <sup>Δ</sup>
	2	30	2.03	1.17		
<b>Muscle Oriented Body Image Attitudes</b>	1	242	3.59	1.26	0.41	0.15
	2	30	3.40	1.18		

\* statistical significant at 0.05 level \*\* statistical significant at 0.01 level <sup>Δ</sup> medium effect size

**Table.4 Differences in Drive for Muscularity means of Group1 and Group2 with regard to regularity of exercise.**

<b>Construct</b>	<b>Group</b>	<b>n</b>	<b>Mean</b>	<b>STD</b>	<b>p-value</b> (in case of random sampling)	<b>d-value</b>
<b>Drive for Muscularity</b>	1	223	3.07	1.09	0.08	0.29
	2	37	3.39	0.98		
<b>Muscle Development Behaviours</b>	1	223	2.55	1.22	0.00**	0.50 <sup>Δ</sup>
	2	37	3.28	1.11		
<b>Muscle Oriented Body Image Attitudes</b>	1	223	3.60	1.28	0.60	0.08
	2	37	3.50	1.05		

\*\* statistical significant at 0.01 level <sup>Δ</sup> medium effect size

**Table.5 Differences in Drive for Muscularity means of Group1 and Group2 with regard to use of supplements and steroids in the past year.**

<b>Construct</b>	<b>Group</b>	<b>n</b>	<b>Mean</b>	<b>STD</b>	<b>p-value</b> (in case of random sampling)	<b>d-value</b>
<b>Drive for Muscularity</b>	1	79	3.91	0.86	0.00**	1.20 <sup>▲</sup>
	2	196	2.73	0.97		
<b>Muscle Development Behaviours</b>	1	79	3.82	0.88	0.00**	1.80 <sup>▲</sup>
	2	196	2.07	0.97		
<b>Muscle-Oriented Body Image Attitudes</b>	1	79	3.99	1.08	0.00**	0.50 <sup>Δ</sup>
	2	196	3.39	1.27		

\*\* statistical significant at 0.01 level <sup>▲</sup> practical significant <sup>Δ</sup> medium effect size

