

**VALIDATION OF MALAY VERSION BODY  
SELF-IMAGE QUESTIONNAIRE AMONG  
MALAYSIA'S YOUNG ADULTS**

**LIM CHIEN JOO**

**UNIVERSITI SAINS MALAYSIA**

**2017**

**VALIDATION OF MALAY VERSION BODY SELF-  
IMAGE QUESTIONNAIRE AMONG MALAYSIA'S  
YOUNG ADULTS**

**by**

**LIM CHIEN JOO**

**Thesis submitted in fulfilment of the requirements  
for the degree of  
Master of Science (Medical Statistics)**

**July 2017**

## Table of Contents

ACKNOWLEDGEMENT .....	vi
LIST OF TABLES .....	vii
LIST OF FIGURES .....	viii
LIST OF ABBREVIATIONS AND ACRONYMNS .....	ix
LIST OF SYMBOLS .....	x
LIST OF APPENDIX .....	xi
PENGESAHSAHIHAN BORANG SOAL SELIDIK IMEJ DIRI BADAN VERSI BAHASA MELAYU DI KALANGAN BELIA DI MALAYSIA .....	xii
VALIDATION OF MALAY VERSION BODY SELF-IMAGE QUESTIONNAIRE AMONG MALAYSIA'S YOUNG ADULTS .....	xiv
CHAPTER 1 INTRODUCTION .....	- 1 -
1.1 Background of Study .....	- 1 -
1.2 Justification of Study .....	- 4 -
1.2.1 Problem Statement .....	- 4 -
1.2.2 Significance of Study .....	- 5 -
1.3 Research Objectives.....	- 7 -
1.3.1 General Objectives .....	- 7 -
1.3.2 Specific Objectives.....	- 7 -
1.4 Research Questions.....	- 7 -
1.5 Research Hypothesis.....	- 7 -
CHAPTER 2 LITERATURE REVIEW .....	- 8 -
2.1 Component of Body Image.....	- 8 -
2.1.1 Perceptual Measures.....	- 9 -
2.1.2 Affective Measures .....	- 10 -
2.1.3 Cognitive Measures.....	- 10 -
2.1.4 Behavioural Measures .....	- 10 -
2.2 Prevalence of Misperception on Body Image.....	- 11 -
2.3 Negative Body Self-Image.....	- 11 -
2.4 Positive Body Self-Image .....	- 12 -
2.5 The Relationship between Positive and Negative Body Image.....	- 14 -
2.6 Gender Differences in Body Image Perception .....	- 16 -
2.6.1 Male.....	- 16 -
2.6.2 Female .....	- 18 -
2.7 Other Questionnaires related to Body Self-Image.....	- 19 -
2.7.1 Body Shape Questionnaire (BSQ).....	- 19 -

2.7.2	Body Appreciation Scale (BAS) .....	- 21 -
2.8	Original Version of Questionnaire (51 Items) .....	- 22 -
2.9	Body Self-Image Questionnaire – Short Form (27 Items).....	- 23 -
2.10	Advantages and Disadvantages of Online Survey Research .....	- 24 -
2.10.1	Advantages .....	- 24 -
2.10.2	Disadvantages .....	- 26 -
2.11	Factor Analysis .....	- 26 -
2.12	Multigroup Analysis .....	- 27 -
2.13	Conceptual Framework .....	- 28 -
CHAPTER 3 METHODOLOGY .....		- 30 -
3.1	Study Design .....	- 30 -
3.2	Study Population .....	- 30 -
3.2.1	Reference population/ Source population .....	- 30 -
3.2.2	Seed of the study .....	- 30 -
3.2.3	Sampling Frame .....	- 30 -
3.2.4	Sample Size Calculation.....	- 30 -
3.2.5	Sampling Method .....	- 32 -
3.2.6	Study Subjects .....	- 32 -
3.3	Operational Term .....	- 32 -
3.3.1	Young adults .....	- 32 -
3.4	Instrument .....	- 32 -
3.4.1	Translation of Questionnaire .....	- 33 -
3.5	Variable Measurement .....	- 36 -
3.6	Ethical Considerations .....	- 37 -
3.7	Data Collection Plan .....	- 38 -
3.7.1	Flowchart of study.....	- 40 -
3.7.2	Flowchart of Statistical Analysis.....	- 41 -
3.8	Data Analysis .....	- 42 -
3.8.1	Software .....	- 42 -
3.8.2	Data Entry .....	- 42 -
3.8.3	Preliminary Data Screening .....	- 42 -
3.8.4	Demography .....	- 42 -
3.8.5	Multivariate Analysis .....	- 43 -
CHAPTER 4 RESULTS .....		- 52 -
4.1	Sample Description and Preliminary Data Analysis.....	- 52 -
4.2	Exploratory Factor Analysis .....	- 52 -
4.2.1	Socio-demographic Characteristics of the respondents .....	- 52 -

4.2.2	Item Descriptive Statistics.....	- 55 -
4.2.3	Assumptions checking.....	- 56 -
4.2.4	Item Factor Loading and Communalities.....	- 56 -
4.2.5	Body Self Image Questionnaire Measurement Model .....	- 58 -
4.3	Confirmatory Factor Analysis.....	- 61 -
4.3.1	Socio-demographic Characteristics of the respondents .....	- 61 -
4.3.2	Item Descriptive Statistics.....	- 63 -
4.3.3	Assumptions Checking.....	- 64 -
4.3.4	Positive definiteness matrix .....	- 66 -
4.3.5	Multivariate Collinearity assessment .....	- 66 -
4.3.6	Measurement of Model Validity by Confirmatory Factor Analysis .....	- 66 -
4.3.7	Body Self Image Questionnaire CFA model.....	- 67 -
4.4	Multi-group Analysis .....	- 69 -
	CHAPTER 5 DISCUSSION.....	- 72 -
5.1	Demographic characteristic of participants .....	- 72 -
5.2	Exploratory Factor Analysis .....	- 72 -
5.3	Constructs in Body Self Image Questionnaire by CFA.....	- 75 -
5.4	Measurement model in Body Self Image Questionnaire .....	- 76 -
5.5	Invariance testing in Body Self-Image .....	- 77 -
5.6	Methods of Questionnaire Distribution .....	- 79 -
5.7	Response rate (method of administration) .....	- 80 -
5.8	Sample Size.....	- 80 -
5.9	Limitation of Study .....	- 81 -
5.10	Recommendation .....	- 82 -
	CHAPTER 6 CONCLUSION.....	- 83 -
	REFERENCES .....	- 84 -
	APPENDIX.....	- 93 -
A.	Grant Chart.....	- 93 -
B.	Permission from Original Author .....	- 94 -
C.	Ethics Approval .....	- 95 -
D.	English Version of Body Self Image Questionnaire – Short Form .....	- 98 -
E.	Borang Maklumat Subjek .....	- 99 -
F.	Malay Version of Body Self Image Questionnaire.....	- 102 -
G.	Online Survey Form.....	- 104 -
H.	Exploratory Factor Analysis – Univariate Normality .....	- 115 -
I.	Exploratory Factor Analysis – Positive Definiteness Matrix .....	- 120 -
J.	Exploratory Factor Analysis – Multicollinearity .....	- 121 -

K.	KMO and Bartlett's test .....	- 123 -
L.	Confirmatory Factor Analysis – Univariate Normality .....	- 124 -
M.	Confirmatory Factor Analysis – Bivariate Normality .....	- 129 -
N.	Confirmatory Factor Analysis - Positive Definiteness Matrix .....	- 133 -
O.	Confirmatory Factor Aanalysis - Multivariate Collinearity assessment.....	- 134 -
P.	Confirmatory Factor Analysis – Normality output using Mplus .....	- 136 -

## ACKNOWLEDGEMENT

First and foremost, I would like to express my foremost gratitude to my main supervisor, Dr. Siti Azrin Ab Hamid who shared her knowledge and expertise throughout the whole process of making a proposal, presentation, until the completion of the dissertation. Without her guidance, I would not be able to progress and complete my thesis. My deepest appreciation goes to her for her informative guidance and great patience.

I would like to send my gratitude to my co-supervisors, Dr. Najib Majdi Yaacob and Dr. Suhaily Mohd Hairon as well. I appreciate your expert and intellectual contribution to my research. Thank you for being so helpful and supportive whenever I face difficulties.

Not to forget Dr Kueh Yee Cheng (Erica) who always try her best to help me on the data analysis in this study. Without your expertise, patience and guidance I would not have gone so far. Thank you once again for all the help and time you spent on me.

I would also like to thank all the participants who participated in this study for their kindness and willingness to spend their time answering the questionnaire and make this research possible.

Besides, my appreciation also goes to all my colleagues for their support, encouragement, advice and guidance to finish this research.

Last but not least, I wish to thank my beloved family for their spiritual support that leads me to finish my thesis. May my beloved mother Kuek Siew Geok and siblings be blessed and happy throughout their life.

## LIST OF TABLES

Table 3.1	Items and Subscales in Body Self-Image Questionnaire.....	35
Table 3.2	Subscales / Item loadings (3 Item per scale).....	36
Table 3.3	Fit indices for body self-image measurement models among young adults.....	36
Table 3.4	Fit Indices and its cut off value.....	49
Table 4.1	Sociodemographic data of respondents for Exploratory Factor Analysis (n=188).....	53-54
Table 4.2	Item descriptive for Body Self-Image Questionnaire for Exploratory Factor Analysis (n=188).....	55
Table 4.3	Item factor loading and communalities for Exploratory Factor Analysis (n=188).....	57
Table 4.4	Item factor loading and communalities for 4 factors model.....	58
Table 4.5	Sociodemographic data of respondents for Confirmatory Factor Analysis and Multi-group Analysis (n=500).....	61-62
Table 4.6	Item descriptive for Body Self-Image Questionnaire for Confirmatory Factor Analysis and Multi-group Analysis (n=500).....	63
Table 4.7	Fit Indices for Body Self-Image Measurement Model among Young Adults.....	68
Table 4.8	Confirmatory Factor Analysis: Factor Loading for each model.....	69
Table 4.9	The Factor Loading for each item within male and female in the configural.....	70
Table 4.10	Body Self Image Questionnaire Baseline Model Fit Results and Tests of Measurement Invariance.....	71

## LIST OF FIGURES

Figure 2.1	Components of body image .....	9
Figure 2.2	Conceptual Framework of the Study.....	28
Figure 3.1	Flowchart of Study.....	40
Figure 3.2	Flowchart of Statistical Analysis.....	41
Figure 4.1	Initial Body Self-Image Questionnaire measurement model.....	59
Figure 4.2	Body Self Image Questionnaire measurement model – Exploratory Factor Analysis.....	60
Figure 4.3	Chi-Square versus Mahalanobis distance plot.....	65

## LIST OF ABBREVIATIONS AND ACRONYMNS

BSIQ	-	Body Self-Image Questionnaire
CFA	-	Confirmatory Factor Analysis
CI	-	Confidence Interval
CL fit	-	Close fit
CR	-	Construct reliability
EFA	-	Exploratory Factor Analysis
GOF	-	Goodness of fit
IQR	-	Interquartile range
ML	-	Maximum likelihood
MLR	-	Robust maximum likelihood estimator
RMSEA	-	Root mean square error of approximation
SRMR	-	Standardized root mean square residual
TLI	-	Tucker-Lewis Index
VIF	-	Variance Inflation Factor
WHO	-	World Health Organization

## LIST OF SYMBOLS

<i>df</i>	-	Degree of freedom
<i>P-value</i>	-	Probability value
<i>n</i>	-	Sample size
%	-	Percentage

## LIST OF APPENDIX

A.	Grant Chart.....	- 93 -
B.	Permission from Original Author .....	- 94 -
C.	Ethics Approval .....	- 95 -
D.	English Version of Body Self Image Questionnaire – Short Form .....	- 98 -
E.	Borang Maklumat Subjek .....	- 99 -
F.	Malay Version of Body Self Image Questionnaire.....	- 102 -
G.	Online Survey Form.....	- 104 -
H.	Exploratory Factor Analysis – Univariate Normality .....	- 115 -
I.	Exploratory Factor Analysis – Positive Definiteness Matrix .....	- 120 -
J.	Exploratory Factor Analysis – Multicollinearity .....	- 121 -
K.	KMO and Bartlett’s test.....	- 123 -
L.	Confirmatory Factor Analysis – Univariate Normality .....	- 124 -
M.	Confirmatory Factor Analysis – Bivariate Normality .....	- 129 -
N.	Confirmatory Factor Analysis - Positive Definiteness Matrix .....	- 133 -
O.	Confirmatory Factor Aanalysis - Multivariate Collinearity assessment.....	- 134 -
P.	Confirmatory Factor Analysis – Normality output using Mplus .....	- 136 -

# **PENGESAHSAHIHAN BORANG SOAL SELIDIK IMEJ DIRI BADAN VERSI BAHASA MELAYU DI KALANGAN BELIA DI MALAYSIA**

## **ABSTRAK**

**Pengenalan:** Tidak dapat dinafikan bahawa bagaimana individu mengamati penampilan mereka membawa impak yang cukup besar terhadap kualiti hidup mereka, daripada segi kehidupan social mereka, harga diri dan lain-lain. Masalah ini telah meningkatkan kesedaran penyelidik di seluruh dunia untuk menerokai dalam bidang ini. Borang Soal selidik Imej Diri Badan dihasilkan untuk mengukur persepsi imej badan; namun begitu, disebabkan oleh budaya, bahasa dan perbezaan persekitaran antara populasi barat dan timur, kesahihan dan kebolehpercayaan perlu ditentukan sebelum ia boleh diakplikasikan.

**Objektif:** Untuk menentukan kesahihan dan kebolehpercayaan Borang Soal Selidik Imej Diri Badan versi Bahasa Melayu di kalangan belia di Malaysia dan untuk menentukan ketakberubahan Borang Soal Selidik Imej Diri Badan versi Bahasa Melayu di antara jantina di kalangan belia di Malaysia.

**Kaedah:** Satu kajian keratan rentas yang melibatkan tinjauan berasaskan web telah dijalankan pada kalangan belia di Malaysia. Kajian ini mengandungi dua fasa: Fasa 1 EFA serta fasa 2 CFA dan analisis berbilang kumpulan. Subjek kajian dipilih secara pensampelan bola salji. Perihal, EFA, CFA dan analisis berbilang kumpulan telah digunakan dalam analisis statistik.

**Keputusan:** Sejumlah 688 responden telah menyertai kajian ini, Fasa 1 EFA mengandungi 188 responden; Fasa 2 CFA dan analisis berbilang kumpulan mengandungi 500 responden. Untuk kajian fasa 1, kebanyakan responden terdiri daripada golongan wanita (67%), Malayu (93.6%), bujang (80.9%) dan adalah pelajar (56.4%). Keputusan untuk EFA menunjukkan pemberatan faktor untuk semua item berada di antara 0.329 hingga 0.921, dan nilai komunaliti di antara 0.338 hingga 0.780. Model akhir menggunakan CFA mempunyai indek

padanan: CFI = 0.927, TLI = 0.913, SRMR = 0.075, RMSEA = 0.053 (90%CI: 0.047, 0.060), CF fit = 0.203. Indeks padanan berada di antara nilai yang boleh diterima. Komposit kebolehpercayaan berada dalam julat 0.736 hingga 0.857. Untuk analisis berbilang kumpulan, pengukuran ketakberubahan lemah telah diperolehi tetapi tidak kuat dan ketat pengukuran ketakberubahan.

**Kesimpulan:** Keputusan untuk EFA mengekalkan semua item dan pengumpulan semula kepada empat faktor. Model terakhir untuk CFA menunjukkan padan model yang bagus, sah, dan bolehpercayaan dicapai selepas mengeluarkan enam item. Soal selidik imej badan versi Bahasa Melayu mengandungi empat faktor dan 21 item. Keputusan pengukuran ketakberubahan mengesahkan ketakberubahan di kalangan jantina. Soal selidik ini dianggap sah dan boleh dipercayai untuk digunakan di golongan belia di Malaysia.

**Kata Kunci:** Borang soal selidik imej diri badan, golongan belia, Malaysia, kesahihan, kebolehpercayaan

# VALIDATION OF MALAY VERSION BODY SELF-IMAGE QUESTIONNAIRE AMONG MALAYSIA'S YOUNG ADULTS

## ABSTRACT

**Introduction:** It is undeniable that how an individual perceive their appearance brings substantial impact on their quality of life, in terms of their social life, self-esteem and others. The problem has increased the awareness of researchers worldwide to further explore in this area. Body Self-Image Questionnaire is developed to measure body image perceptions; nonetheless, due to the cultural, language and environmental differences between western and eastern population, the validity and reliability need to be established before it can be used.

**Objectives:** To determine the validity and reliability of the Malay version Body Self-Image Questionnaire among young adults in Malaysia, and to determine the invariance of the translated Malay version of Body Self-Image Questionnaire among gender in young adults in Malaysia.

**Methods:** A cross-sectional study involved web-based survey was employed in this study among young adults in Malaysia. The study had 2 phases: Phase 1 exploratory factor analysis (EFA) and Phase 2 confirmatory factor analysis (CFA) and multi-group analysis. Participants were recruited using snowball sampling method. Descriptive, exploratory factor analysis, confirmatory factor analysis and multi group analysis were applied in the statistical analysis.

**Results:** A total of 688 respondents participated in this study, Phase 1 EFA consisted 188 respondents; Phase 2 CFA and multi-group analysis consisted 500 respondents. For Phase 1 study, the majority of the respondents were female (67%), Malay (93.6%), single (80.9%) and students (56.4%). Results for EFA showed factor loading of all the items ranged from 0.329 to 0.921, and communalities ranged from 0.338 to 0.780. The final measurement model

using CFA had fit indices: CFI = 0.927, TLI = 0.913, SRMR = 0.075, RMSEA = 0.053 (90%CI: 0.047, 0.060), CF fit = 0.203. The fit indices were within the acceptable range. The composite reliability ranged from 0.736 to 0.857. For multi group analysis, weak measurement invariance was achieved but not strong and strict measurement invariance.

**Conclusion:** The results of EFA retained all the items and re-grouped them into 4 factors. The final model for Confirmatory Factor Analysis showed good model fit, valid and reliable after removing six items. The translated Malay version of Body Self-Image Questionnaire consisted of four factors with 21 items. The Measurement of Invariance test's results among gender showed that gender is invariant in the measurement models. The questionnaire is valid and reliable to be used among young adults in Malaysia.

Keywords: Body Self-Image Questionnaire, young adults, Malaysia, validity, reliability

## CHAPTER 1 INTRODUCTION

### 1.1 Background of Study

Body self-image means the picture of our body which we form in our mind. In other words it is the way we see ourselves when we look in the mirror or in our mind. It consists of what we believe about our appearance including our memories, assumptions and generalizations; and also tells us how we feel about our physical appearance including our height, shape and weight. Body image is greatly influenced by the people around us and our culture (Bąk-Sosnowska Monika *et al.*, 2016).

Body image is our attitude towards our physical appearance. How we perceive, think and feel about our appearance and how we think others perceive us. Our body image is greatly influenced by our own attitudes and beliefs, so do the society such as media and peer groups. We do not develop our body image all by our own, but greatly influenced by our surroundings, our culture and people around us.

Apart from that, natural aging process and also our life experience also influence our physical appearance too. As our body changes, our perception towards our own body becomes different. In certain time of our life, such as puberty or menopause, are the time when a person's appearance may change. Body image is greatly affected when a person is hurt, sick or disabled as well. Not to forget emotional state also plays an important role in influencing our body image too. Many people noticed that their body image is affected when they experience stress in their work or relationships.

A healthy body image, or positive body image, is being happy in our own body, being comfortable most of the time with our physical appearance and feels good with ourselves. It is more about how we value ourselves rather than how we look like. Individual who has

positive body image accept the way they look and feel positive about their appearance most of the time. Although their appearance may not match the ideals of the society, they learned to be proud of their body image.

Negative body image, or body dissatisfaction, develops when an individual feels that his or her body does not meet the standard of family, social or medial ideals. People who have negative body image may not see themselves as they truly are, and are often very dissatisfied.

Negative body image is unhealthy, whereby we think our body is unsightly or imperfect. For example, thinking that we are not pretty or muscular enough. Someone with negative body image may become addicted on trying to change the way they look and indulged in unhealthy attempts in order to make him looks better, bring impacts to the person physically as well as emotionally.

Literature on the prevalence of body image concerns is increasing and social psychology demonstrated the impact of an individual's physical appearance on how others perceive and interact with him or her. The impact of body dissatisfaction has consistently demonstrated. Studies have shown individuals with unattractive appearance receive negative evaluations from their peers and reduced social contact (Berscheid, Dion, Walster, & Walster, 1971; Langlois & Stephen, 1981). The findings showed that body image do play an important role in the social interactions of an individual.

Furthermore, body dissatisfaction brings significant negative consequences to the health status of an individual in the form of excessive dieting (Stice et al, 1998) and eating disorders (Thompson et al., 1995). Excessive dieting and eating disorders impact the health status of a person by losing weight or not gaining enough nutrition, consequently leading to poorer health such as anemia, tooth decay, low blood pressure and others.

People who are dissatisfied with their body image tend to have lower self-esteem than others as well. Lower self-esteem greatly impact of the social life of an individual as they are less confident and feel uneasy to meet new social groups and therefore, quality of life affected.

Social isolation and low self-esteem affect the personality and emotional stability of an individual, especially young adult who might not be good enough to control their emotion and thinking. Relationship has been found in young adults with emotional instability, depression, anxiety or substance abuse (Hilt, Hanson, & Pollak, 2011).

There are many inconsistencies in the literature concerning the association of body image with psychosocial functioning for both gender, most probably to reflect the use of wide range of different instruments (Davison and McCabe, 2006). Body image is most commonly measured based on the evaluation of the individuals regarding their appearance, such as satisfaction or dissatisfaction with a range of physical attributes or general attractiveness.

There is a great deal of evidence that body image is experienced negatively by the majority of women, and men too are beginning to experience body dissatisfaction (Marika, 2011). Many of the women are not happy with their body, particularly with their appearance, body size and weight. Apart from hoping to have a better appearance; they wish to be thinner, so much so that lower weight has been described as 'a normative discontent' for them. Men started to experience body dissatisfaction too, in the direction of wishing to be more muscular, although they are at lower rate of dissatisfaction than female.

Study conducted by Davison and McCabe (2006) suggested a strong association between negative body image and low self-esteem for both gender, although girls were more likely to hold a negative image than boys. Individuals with lower self-esteem are less confident on their appearance, perceived lower self-worth, as well as are more concern about other's negative evaluation on their appearance.

The majority of the body image instruments failed to consider the influence of social context on the body image evaluation and behaviours. Nevertheless, this is one of the important aspects of body image as it is plausible that perceptions of one's appearance through the eyes of others and comparison between own appearance with others affect individual's evaluation of his body image.

Body Self-Image Questionnaire (BSIQ) overcomes the limitation faced by other body image instruments as it covers a very comprehensive aspect of body image self-evaluation. It makes the collection of a multidimensional measure of body image possible using a similar format for all items. Although there are several questionnaires that measure the dimension of body image similar to those in Body Self-Image Questionnaire, but they use quite different format, making it difficult to obtain a complete profile of body image as respondents have to adapt to the widely varying response format (Rowe *et al.*, 1999).

## **1.2 Justification of Study**

### **1.2.1 Problem Statement**

It is undeniable that how an individual perceive their appearance brings substantial impact on their quality of life, in terms of their social life, self-esteem and others. The problem has increased the awareness of researchers worldwide to further explore in this area. Questionnaires have been developed to measure how people perceive their body image and have been translated into different type languages. Body Self-Image Questionnaire (BSIQ), developed by Rowe *et al.* (1999), appears to contribute to the research of body image by providing a very straightforward and multidimensional measure of body image.

Negative body image brings numerous consequences to the health status of an individual, physically as well as emotionally. Studies had found out that negative body image could lead to excessive dieting, eating disorder, lower self-esteem, emotional instability, depression,

anxiety and substance abuse (Stice et al, 1998; Thompson et al., 1995; Hilt, Hanson, & Pollak, 2011).

It is crucial to increase the awareness of public on the consequences of negative self-image can lead to, especially Eastern society. Studies need to be conducted to explore how individuals perceived their own body image and how this affects their quality of life in term of health status, self-esteem, social isolation, and behaviours. There are more literatures related to body image were published in Western countries as researchers are aware of the rising trend of this issue.

The researcher realised that the awareness of the impact of negative body image are relatively low and very little study has been conducted in the local context to explore body image. The condition might be most probably due to the low awareness on the impact that negative body image could bring and lack of appropriate measurement tools to measure body image.

Although Body Self-Image Questionnaire is a validated and reliable measurement tool, it has not been translated to Malay version before. It is difficult to conduct a study using the original English version of Body Self-Image Questionnaire in Malaysia as English is not the primary language for this country and therefore, a translated Malay version of the questionnaire is crucial for the researcher to explore the issues related to body image in the local context.

### **1.2.2 Significance of Study**

Appearance, or body image in particular, have become very important constructs not only in contemporary Western societies but instead, worldwide. Rising rates of body image among girls and women in non-Western countries have been attributed due to ‘Westernization’ and exposure to media portrayals of an ultrathin feminine attractiveness idea imported from the United States, United Kingdom as well as European Union countries (Jackson *et al.*, 2016).

Everyone has body image, feelings about the way they look as well as how others think about them. Overall body image can range from very positive to very negative. Without a good instrument to measure body image, degree of own body perception is hardly known. Thus, development of a validated and reliable instrument to measure body image perception is crucial.

Studies employing questionnaire as one of the instruments often face practical data collection challenges in which participants may feel tired or refused to answer multiple and/or lengthy questionnaires. This issue is greatly influenced by the number of the item on a questionnaire.

Body Self-Image Questionnaire was first developed by Rowe, Benson, & Baumgartner in the year 1999. The original form of the questionnaire consists of 9 subscales with 3-7 items per subscales, or 51 items in total. This questionnaire was ameliorated, and shorter form version with 27 items (3 items per subscales) was validated to overcome the challenge mentioned above.

This study added great value to local research on body image as it validates the Malay version of Body Self-Image Questionnaire translated from the original English version. More research could be done with the presence of Malay version of the questionnaire as Bahasa Malaysia is the primary language of this country.

Translated and validated Malay version of Body Self-Image Questionnaire enables more and thorough researches to be conducted in the local context in future to explore the body self-image perceptions of Malaysian, especially young adults. Validated body self-image questionnaire can be used to identify individuals who have the potential, or at risk for emotional disturbance, thus early intervention can be taken to avoid further consequences. Furthermore, the equivalent of this questionnaire can be confirmed in this study to ensure both gender in Malaysia understand and interpret the items in the questionnaire a similar way.

### **1.3 Research Objectives**

#### **1.3.1 General Objectives**

To validate the Malay version of Body Self-Image Questionnaire (BSIQ) among young adults in Malaysia.

#### **1.3.2 Specific Objectives**

1. To determine the validity and reliability of the translated Malay version of Body Self-Image Questionnaire among young adults in Malaysia using Exploratory Factor Analysis (EFA).
2. To determine the validity and reliability of the translated Malay version of Body Self-Image Questionnaire among young adults in Malaysia using Confirmatory Factor Analysis (CFA).
3. To determine the invariance of the translated Malay version of Body Self Image Questionnaire among gender in young adults in Malaysia.

### **1.4 Research Questions**

1. Is the Malay version of Body Self Image Questionnaire a valid and reliable questionnaire to measure body image among young adults in Malaysia?
2. Is the Malay version of Body Self Image Questionnaire invariant among gender in Malaysia young adults?

### **1.5 Research Hypothesis**

1. The Malay version of Body Self-Image Questionnaire is valid and reliable to measure body image perception among young adults in Malaysia.
2. The Malay version of Body Self Image Questionnaire is invariant among gender in Malaysia's young adults.

## CHAPTER 2 LITERATURE REVIEW

The concept of 'body image' was first formulated as a crucial and integral psychological phenomenon by Schilder, a German writer in his monograph 'The Image and Appearance of the Human Body', which was published in 1935. In the last decade, research interest in body image has been growing (Cash, 2004). Appearance esteem and body satisfaction are one of the major contributors to overall levels of global self-esteem as they represent how an individual perceives about himself as a whole.

Dissatisfaction with body image has been implicated as a contributory factor in the development of eating disorders such as anorexia nervosa and bulimia nervosa (Brown, Cash & Lewis, 1989; Thompson, 1996; Williamson, Cubic & Gleaves, 1993). There remains a lack of consensus about the theoretical or operational definition of the term body image and the appropriateness of methods for its measurement (Rowe *et al.*, 1999). There is a general agreement that body image is a multidimensional construct (Fisher, 1990), and a wide variety of instruments were created to measure body image including image distortion techniques (Glucksman & Hirsch, 1969; Traub & Orback, 1964), photograph ratings (Counts & Adams, 1985) and others.

Despite a large number of instruments, many of them were lack of construct validity evidence to indicate they measure the same construct (Rowe *et al.*, 1999). A validated instrument is essential as an instrument without construct validity evidence might mislead the direction of the study by yielding an unreliable result.

### **2.1 Component of Body Image**

Body image is a multidimensional concept reflecting perceptual, cognitive, affective and behavioural aspects (Cash and Pruzinsky, 2002; Thompson et al., 1999). Body image can be experienced positively or negatively (Cash and Smolak, 2011).

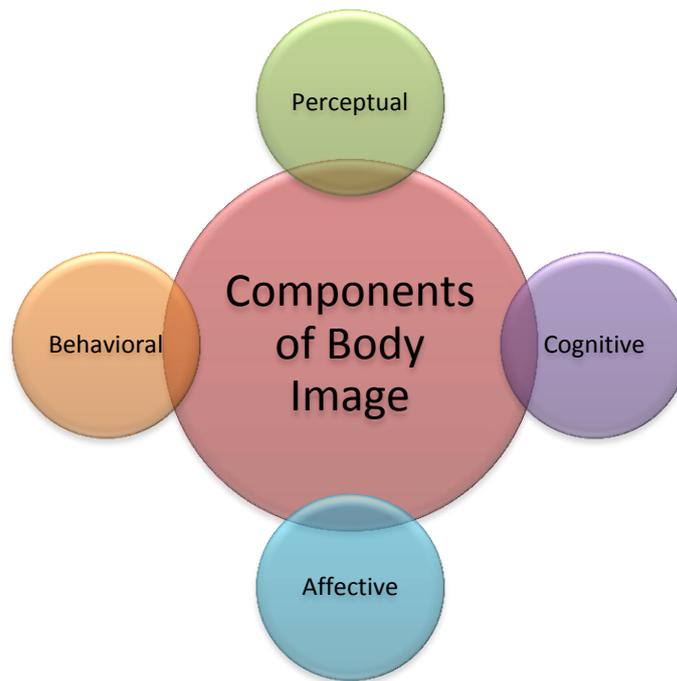


Figure2.1: Components of body image (Banfield and McCabe, 2002)

### **2.1.1 Perceptual Measures**

Perceptual body image is the way a person view himself, and might not always be a correct representation of what a person look like. For example, a person may perceive themselves to be fat, yet in reality, they are underweight. Perceptual body size distortion happens when there is the difference between a person actual and perceived body size. This condition is associated with a number of negative outcomes and therefore, often been used to measure negative body image. There are various technique to assess body size distortion, including those that measure specific body sites or use whole body assessments (Gardner and Brown, 2014).

Perceptual measures, with the exception of figure rating scales, tend to be used in small-scale and clinically oriented studies. Body site techniques involve getting an individual to judge their body, and make comparison between these measurements to the actual body size of that person. In recent years, computer-based methods have been developed to allow individuals to

adjust and distort discrete body parts of onscreen representations of their body to match their own perceptions. These techniques allow individuals to make more precise alterations to the width of particular body sites, and also allow the researcher to monitor body size distortion more precisely.

### **2.1.2 Affective Measures**

Affective body image is the way a person feel about the way they look. Affective measures explore the emotional part of an individual in relation to their appearance beyond satisfaction or dissatisfaction with their body. Emotions can be anxiety, distress and shame, and can be expressed towards particular body sits in general. This emotion can be contextual, whereby a lady may become self-conscious about her looks in specific places or situation. Body dissatisfaction often experienced when a person feels unable to meet the perceived cultural ideals of appearance.

### **2.1.3 Cognitive Measures**

Cognitive body image is the thought and beliefs a person feel about his body. Cognitive aspects of body image include thoughts, beliefs, interpretations and attributions. Cognitive measures also explore belief about appearance ideals, cognitive investment in appearance, and self-schemas regarding the level of importance that appearance plays in an individual's self-concept and feeling of self-worth such as the assessment of a person's satisfaction with his specific body parts.

### **2.1.4 Behavioural Measures**

Behavioural body image is the things a person do about the way they look. There are many behavioural expressions of body image and the use of self-reported behavioural measures is growing. The behavioural manifestation of body image includes mirror checking, measuring

body weight on the frequent basis. On the other hand, avoidance of mirrors, weighing may indicate an individual's anxiety in relation to their appearance.

## **2.2 Prevalence of Misperception on Body Image**

Issues on body image have gained the attention of public health professionals, and increasingly recognised as a public health concern particularly among young adults. This issue is supported by few large-scale studies in Australia and the UK which documented the widespread prevalence of negative body image. National Survey of Young Australians in late 2010 found that body image was reported as one of the main over 50,000 Australians aged 11 to 24 years old (Mission Australia, 2011). Body image was perceived as one of the top personal concerns among the respondents. Young adults are so concerned with their appearance that may end up engaging in unhealthy behaviours in order to have a physical appearance that meets media ideals. A study conducted by Diedrichs *et al.* (2011) on more than 800 adolescents from the UK with an average age of 14 years found that 49% of the respondents had dieted in an attempt to alter their body shape.

## **2.3 Negative Body Self-Image**

Negative body image develops when a person feels that his body does not meet family, social or medial ideals. Such people are often very dissatisfied, which is very distinct from person with positive body image. They may not see themselves as they truly are. People who have a negative body image may look into the mirror and see themselves as larger or smaller or more dissatisfied as the way they really are. Furthermore, they may feel self-conscious or awkward, even shame about their body. Having a negative body image may be harmful on one's health and well-being.

Negative body self-image, or commonly called body dissatisfaction, is common in men and women of all ages. The prevalence of body image dissatisfaction is considered high in both

developed and developing countries (Nikniaz *et al.*, 2016). Misperception on one's body image can occur when a person perceives his or her own body image too differently from ideal. El Ansari *et al.* (2010) found that misconception of body image is greatly impacted by mass media and diverse socio-cultural pressure by increasing the awareness of being thin as ideal. Altered body image perception has gained the attention of health care professionals as an important public health care issue (Nichols *et al.*, 2009).

Body dissatisfaction is increasing and being recognized as one of the risk factors for various unhealthy behaviours. It is usually associated with low self-esteem and depression (Pimenta *et al.*, 2009; Vasile, 2015), impaired sexual function and disordered eating behaviour (Allen and Walter, 2016). Zinovyeva *et al.* (2016) also found that body dissatisfaction contributes to the subjective feeling of loneliness, avoidance of social contacts, and underestimation of self-significance among peers.

Given to know its health impact, extensive studies have been conducted to explore body dissatisfaction; nonetheless, very little study has been conducted in local context. This might be most probably due to the lack of appropriate validated and reliable instrument to measure body image as the Bahasa Melayu primary language in Malaysia rather than English.

#### **2.4 Positive Body Self-Image**

People who accept the way they look and feel satisfied about their bodies most of the time have a positive body image. They feel proud of the way they look, even though their appearance may not match the family's or media ideals. It is not necessary to have perfect physical traits in order to have a positive body image. Having a positive body image is more concerned on how a person feels about the way he looks, appreciates and accepts himself as he really is.

Over the past decade, research has begun to explore the construct of positive body self-image, shifting from sole focus on the negative body self-image to a wider investigation of other facets, such as positive body image which is sometimes operationalized as body appreciation. Research into positive body image promotes the development of ways to promote psychological well-being as well as alleviate distress. In general, positive image can be explained as holding love, confidence, respect, appreciation and acceptance of one's physical appearance and abilities, and is distinct from an absence of body dissatisfaction (Andrew *et al.*, 2016).

As originally defined by Avalos *et al.* (2005), body appreciation is exemplified by an international choice to:

- a. accept one's body regardless of its size or bodily imperfections;
- b. respect and take care of one's body by attending to its needs through engaging in health-promoting behaviours; and
- c. protect one's body by resisting the internalization of unrealistically narrow standards of beauty promulgated in the media.

Studies found considerable evidence proving body appreciation to have wide range of positive psychological constructs and indicators of good health, associated with factors related to well-being such as self-esteem, adaptive coping, life satisfaction, positive affect and optimism (Swami *et al.*, 2008; Tylka and Kroon Van Diest, 2013). Moreover, body appreciation also proven to have protective effect against media-induced body dissatisfaction in young women too (Andrew *et al.*, 2015).

There is a firm empirical foundation of the study of positive body image and the literature has begun to address age, gender, ethnicity, culture, developmental issues, as well as the promotion of positive body image (Halliwell, 2015). Nonetheless, additional research is still

needed to extend the understanding and knowledge of the conceptualization of positive body image, predictors and consequences of positive body image, and last but not the least, positive body image promotion.

## **2.5 The Relationship between Positive and Negative Body Image**

The nature of the relationship between positive and negative body image is not well established. In general, positive and negative body image are two independent constructs; positive body image involves accepting and appreciating own body as it is while negative body image is feeling of dissatisfaction towards own body. Both positive and negative body image represents two main factors in measuring body image, comprising a number of lower-order dimensions.

Although there are different voices about the number of dimensions contributing to negative body image, there is solid proof for distinct perceptual, evaluative, affective, cognitive (investment and distortion), and behavioural components (Halliwell, 2015). Each dimension has its respective specific measures to be specifically applied in measuring negative body image. Positive body image, however, is less well developed compared to negative body image as research addressing positive body image just began over the past decades.

The Body Appreciation Scale (BAS) is the most widely used instrument in measuring positive body image, which consists of 4 components including:

- a. body acceptance.
- b. favourable opinions of one's body.
- c. attention to bodily needs.
- d. protective cognitive style to be influenced by negative media messages.

BAS has been revised recently by Tylka and Wood-Barcalow (2015) and the revised BAS-2 retains five original items and includes additional 5 items based on the new findings in their study. Tylka and Wood-Barcalow (2015) modified the focus on body appreciation, defining it as beauty, body acceptance, and inner positivity influencing outer demeanor.

There are more validated instruments on negative body image than positive body image. Furthermore, its literature is more established and specific to lower-ordered components, such as body shame. This difference brings out the implications for the interpretation of the relationship between the two constructs.

Study by Tylka and Wood-Barcalow (2015) found moderate to large negative correlations between positive and negative body image: for women,  $r = -0.73$  for BAS-2 and a short form of Body Shape Questionnaire while for men,  $r = -0.64$  for BAS-2 and the Male Body Attitudes Scale. Positive body image is positively correlated with favourable appearance evaluation and negatively correlated with body dissatisfaction, body surveillance and body shame.

Both positive and negative body image plays a unique role in body image research. Body appreciation predicts additional variation in well-being after accounting for body dissatisfaction (Avalos *et al.*, 2005; Tylka and Wood-Barcalow, 2015). For example, body appreciation and body dissatisfaction proven to have distinct relationships with age. Despite the negative correlation between positive and negative body image, research findings found that both may increase with age. Body dissatisfaction is either uncorrelated or positively correlated with age while body appreciation tends to be positively associated with age in women (Swami *et al.*, 2015; Tiggemann and McCourt, 2013).

Overall, positive and negative body image are correlated to each other, enabling the evaluation and exploration of body self-image to be more extensive. Nonetheless, the lack of

delineation of specific components of positive body image limits the ability to evaluate the structure of positive body image construct (Halliwel, 2015). Therefore, further research should be conducted not only to explore negative body image, but also positive body image as well as the relationship between them.

## **2.6 Gender Differences in Body Image Perception**

### **2.6.1 Male**

Body satisfaction in men is seen to be made up of three core areas: physical attractiveness, upper body strength and physical condition (Franzoi and Shields, 1984). Body image concerns often perceived as woman's problem; nevertheless, male body concern has become more apparent recently, proven by the increased cases of male anorexia cited in media (McNeill and Firman, 2014). In contrast, Grieve and Helmick (2008) found that the notable effect of advertising on male's body satisfaction is a rise in cases of muscle dysmorphia; a disease opposite to anorexia where predominantly males view themselves as too small and have an unhealthy obsession with gaining muscle.

The increased preference for a muscular physique has become a recent topic of interest, and researches had been conducted to elucidate the reason behind (Arbour and Ginis, 2006). Mass media has been one of the main sources to deliver the idealized, gender-specific physical standards. When men watch television or read a magazine, they tend to manifest body ideals of a lean, V-shaped body. This is supported by Daniel and Bridges (2010) stating that men who have the highest levels of internalised media body ideals have the highest drive to increase muscularity. Feelings of dissatisfaction regarding own body arises when manifested body ideals cannot be achieved.

Body dissatisfaction, often refers to the negative and dysfunctional feelings and cognitions regarding one's body, has been an extensive issue for men. Dissatisfaction regarding own

body has been linked to numerous consequences among men including steroid use, disordered eating, muscle dysmorphia, depression and low self-esteem (Galioto and Crowther, 2013).

Most of the men concern about muscularity, showing the desire to increase the muscularity and dissatisfaction in muscle size. Furthermore, research also indicates that male face pressure to be very lean, and thus lead to concerns about body weight. In a quantitative study conducted by Frederick *et al.* (2007) found that 83-90% of the participants reported dissatisfactions with their muscle size. Taken together, there is no doubt that males experience significant body dissatisfaction and have a desire to obtain a muscular and lean body.

Research has shown a positive association between exposure to media and body dissatisfaction in men (Jonason *et al.*, 2009). Increased exposure to male fitness magazine was related to higher concern with physical appearance, negatively impacts body esteem which lead to an increase in body dissatisfaction (Galioto and Crowther, 2013). Nevertheless, study conducted by Ogden and Munday (1996) found that college-aged men reported greater body satisfaction and rate themselves as less fat, more sexy, more toned, more fit and perceive less of difference between their physical appearance and their preferred body size after viewing photographs of thin men compared to women who viewed photographs of thin women.

Social comparison theory by Festinger (1954) hypothesizes that people tend to compare themselves with others when they need to know more on their own performance. The theory makes three assumptions:

1. People compare themselves to relevant others, such as peers

2. People compare to their superior on some particular dimension, called upward comparison; which tends to lower their self-esteem.
3. People compare to someone inferior than them, called downward comparison, giving self-enhancing effect.

Men tend to make downward comparison rather than upward comparison when referencing their body image (Strahan *et al.*, 2006). They tend to make comparison to those they perceive as similar, such as peers. However, Strahan *et al.* (2006) also found that when cultural norms about body image become salient, upward comparisons to professional models elicited, consequently brings up the feeling of negativity about their appearance. These findings showed that dissatisfaction on body self-image is affected by the frequency of making upward comparison.

Westernization in these recent years had raised the awareness to have an ideal body shape on young men in Malaysia. However, it makes the process to measure body self-image perception difficult due to language barrier as Malay is the primary language in Malaysia. Thus it is crucial to have a validated and reliable instrument for more studies to be conducted in future.

### **2.6.2 Female**

Body image concerns can be one of the significant sources of distress among young adult women due to the increase awareness on female beauty. Body image concerns manifest in different way including body dissatisfaction, which can be described as negative subjective evaluation of one's physical body; body shame, the notion that one is bad if her body fails to meet the sociocultural body standards; and body surveillance, which refers to continuous body monitoring and concern about how one's body appears to others (Toole and Craighead, 2016).

Globalization and presence of internet access creates the opportunity for both information and cultural values to merge and unify. Media reports concerning the standard of feminine beauty are clear and reach equally to Europe and Asia with the ease of internet access. Meanwhile, pattern of cultures, standards and stereotype about women's image should not be neglected. Different country might have different traditional symbols of female beauty. For example, Japanese concern about their skin, feet, petite physique while for Polish, symbols of femininity are breasts, buttocks and lips (Bąk-SosnowskaMonika *et al.*, 2016). Study also showed an interesting finding that for Polish women, the most important attribute was health while for Japanese women, it was the beauty.

Gender differences in the development of negative body image have constantly been explored and well-established in the literature. Study found that female reporting greater dissatisfaction than male (Lawler and Nixon, 2011), and level of dissatisfaction increases from middle school to young adulthood (Bucchianeri *et al.*, 2013). Nichols *et al.* (2009) found that female were at higher risk for disordered eating behaviour such as use of laxatives, dieting, preoccupation with the need to be thinner.

It is clearly shown that unlike male who place importance on muscularity in general, the attributes that female concern differ based on cultures, traditional symbols of beauty, and standards. Thus it is worthwhile to study the perception of body self-image among young women in Malaysia to explore their primary concern about femininity, female beauty and how they perceive their body image.

## **2.7 Other Questionnaires related to Body Self-Image**

### **2.7.1 Body Shape Questionnaire (BSQ)**

Body Shape Questionnaire, a self-reported scale, was originally developed by Cooper *et al.* (1987) to assess body dissatisfaction on body fat. The questionnaire was created with initial

intention to measure body shape concern among women with anorexia nervosa and bulimia nervosa. Items in Body Shape Questionnaire were derived via semi-structured interviews on women with anorexia nervosa and bulimia nervosa and also women in the community. The BSQ investigates the concern about body shape in development, treatment and maintenance of several eating disorders. Psychometric evaluation of the 34 item version has confirmed its retest reliability, unifactorial structure, construct and discriminant validity, internal consistency and also its sensitivity to detect changes related to treatment (Cooper *et al.*, 1987).

Although BSQ has proven its good validity and reliability, the length of the instrument has encountered widely varying receptions. BSQ assesses the concept of body dissatisfaction in a very broad sense and this broad conceptualization has been taken to be the reason for the scale's high treatment sensitivity (Pook *et al.*, 2008). Thus, modifications were done and several short version of the instruments have been developed.

Evans and Dolan (1993) introduced six different forms in his study. Instead of 34 items, two were excluded due to low factor loading at initial stage. The remaining 32 items were then further divided into four and two parts. All the six newly derived versions showed satisfactory psychometric properties in non-clinical sample.

Another version of BSQ was introduced by Dowson and Henderson (2001), consisting 14 items in the instruments, reported to have good psychometric properties when applied to small clinical sample. This version is further supported by Ghaderi and Scott (2004) who found excellent psychometric properties evaluating the same version of questionnaire in Swedish female, a clinical sample and also a student sample.

Although several short version were developed, little is known whether the version of Dowson and Henderson (2001) or Evans and Dolan (1993) performs better. Study by Pook *et*

*al.* (2008) found that the full version of BSQ might be legitimated by historical reasons, and thus, this questionnaire is not used this study.

### **2.7.2 Body Appreciation Scale (BAS)**

Body Appreciation Scale (BAS) was first developed by Avalos *et al.* (2005). Four studies were conducted to examine its psychometric properties with U.S. college women. 16 Items were originally developed. Exploratory and Confirmatory Factor analysis were conducted and 13 out of 16 items retained, assessing the three aspects of body appreciation, which are body acceptance, body respect and body protection by resisting media appearance influence.

BAS has relatively strong psychometric properties, showing the estimates supported scores' internal consistency reliability ( $\alpha=0.91-0.94$ ) and stability over a 3-week period ( $r=0.90$ ). Its convergent validity was garnered via its positive relationship with body esteem and appearance evaluation; and also negative relationship with body preoccupation, body dissatisfaction, disordered eating, body surveillance, and body shame. The BAS was not related to social desirability to uphold its discriminant validity.

The BAS was originally gender specific to evaluate women, containing gender specific item such as 'I do not allow unrealistically thin images of women presented in the media to affect my attitudes toward my body'. Although gender-specific item for men 'I do not allow unrealistically muscular images of men presented in the media to affect my attitudes toward my body' was offered, it was never be examined. Tylka and Kroon Van Diest (2013) later compared both model and found both version's score to be internally consistent (male BAS  $\alpha=0.92$ , female BAS=0.94). Invariance analysis also found that items loaded on the same factor (configural invariance), the magnitude of factor loadings were the same (factor loading invariance), and regression intercepts relating each item to the factor were similar (intercept

invariance) for both male and female. These results justified that BAS measures the same construct equally for both gender.

Although BAS is a validated, reliable instrument with strong psychometric property, it is not used in this study as it only measure positive body image which is not comprehensive enough to explore perception of body self-image. Furthermore, previous study conducted, utilising BAS on Malaysian and Chinese women, found that several of its item do not load on its primary factor (Swami and Chamorro-Premuzic, 2008). Thus, caution should be taken when utilizing BAS to calculate an overall score across different cultures.

## **2.8 Original Version of Questionnaire (51 Items)**

Body Self-Image Questionnaire was first developed in the year 1999 (Rowe *et al.*, 1999) to measure body image in young adults. The development of this questionnaire involved the collections of data in 3 separate studies. In Study 1, open-ended questions were developed from a review of body image literature and review of instruments available to measure body related traits. The aim of Study 1 was to develop statement items for Body Self Image Questionnaire. While for Study 2 and Study 3, exploratory factor analyses and item-subscale correlations were used to guide revisions to the questionnaire.

The results of Study 2 and 3 revealed nine factors consisting Overall Appearance Evaluation, Fatness Evaluation, Health/Fitness Evaluation, Negative Affect, Health/Fitness Influence, Social Dependence, Investment in Ideals, Attention to Grooming, and Height Dissatisfaction. This questionnaire consisted 51 items with internal consistency reliabilities for the subscales ranged from 0.68 to 0.92. Factor loading in Study 3 supported the 9-factor structure, with one exception. There are some ambiguity existed in 2 subscales (Negative Affect and Social Dependence), whose factor loadings suggested the possibility of a single factor.

The preliminary results showed that Body Self Image Questionnaire is a validated and reliable instrument by offering a multidimensional measure of body image. It was developed using a comprehensive, multistage process; nevertheless, further research is needed to build on this evidence using confirmatory factor analyses and external validity evidence.

## **2.9 Body Self-Image Questionnaire – Short Form (27 Items)**

Further research was conducted in the year 2005 to support the validity Body Self Image Questionnaire. The purpose of this study was to simplify the original version of Body Self Image Questionnaire from 51 items to 27 items. The original author realised the issue faced by length questionnaire, which is the response burden, needed to be taken into consideration while developing a questionnaire.

The short form of Body Self Image Questionnaire remains nine subscales, with three items in each subscale. Two cohorts were recruited for Factorial validity and Cross validity testing of the short form of the questionnaire. Factorial validity showed satisfactory results ( $X^2 = 2210.19$ , CFI = 0.93, NNFI = 0.92, RMSEA = 0.04) with meaningful item loadings in both samples, factor loading for cohort 1 ranged from 0.62 to 0.96 while the factor loading for cohort 2 ranged from 0.55 to 0.94. The model fit was achieved without resorting to correlated errors or cross loading ( $X^2 = 2427.54$ , RMSEA = 0.41 (90%CI = 0.039 – 0.043, CFI = 0.927, NNFI = 0.923).

As for cross validation, all the elements of the measurement model cross-validated satisfactorily via ad hoc fit indices; however, the invariance of the factor inter-correlation matrix and uniqueness were not as well supported by the more stringent  $X^2$  difference test. Therefore, Body Self Image Questionnaire- Short Form offers a theoretically and empirically supported questionnaire to measure nine dimensions of body image. The short form of the

Body Self Image Questionnaire provides practical advantages over the 51-item version in large sample structural equation modelling studies.

Response burden is often defined as the effort required to answer a questionnaire; and factors affecting response burden include questionnaire length, density of sampling, cognitive load required completing the survey and layout of the reporting format (Rolstad *et al.*, 2011). A strong focus has been on questionnaire length and thus, potential response burden is often a rationale for researcher to reduce the number of items in the questionnaire (e.g., the short version of the Short-Form Health Survey) and is driving the development of questionnaires with minimum of items.

The body self-image questionnaire- short form is developed to avoid response burden, which has been proposed to lead to poorer response rate, lower completion and reduced data quality (Rolstad *et al.*, 2011). Low response rate has been an issue faced by web based survey and with shorter form of questionnaire, the researcher is hoped to achieve targeted sample size within the time proposed due to the time limitation.

## **2.10 Advantages and Disadvantages of Online Survey Research**

The technology of online survey research is evolving. Availability of survey authoring software packages and online survey services make online survey research and data collection more efficient. Nonetheless, many researchers are still unaware of the advantages and disadvantages associated with conducting research online.

### ***2.10.1 Advantages***

#### ***2.10.1.1 Access to Unique Populations***

The advantage of online survey research is that it has the ability of the internet to provide access to groups and individual who would be difficult to reach through other channels