

BODY IMAGE SATISFACTION AND SELF ESTEEM AMONG
UNDERGRADUATE FEMALE NURSING STUDENTS IN
SCHOOL OF HEALTH SCIENCES UNIVERSITI SAINS
MALAYSIA

JULIANA SIMBAH ANAK MUMIM

SCHOOL OF HEALTH SCIENCES
UNIVERSITI SAINS MALAYSIA

2021

BODY IMAGE SATISFACTION AND SELF ESTEEM AMONG
UNDERGRADUATE FEMALE NURSING STUDENTS IN
SCHOOL OF HEALTH SCIENCES UNIVERSITI SAINS
MALAYSIA

by

JULIANA SIMBAH ANAK MUMIM

Dissertation submitted in partial fulfillment of the requirements for the degree
of Bachelor of Nursing (Honours)

June 2021

ACKNOWLEDGEMENT

In the name of God, I would like to express my greatest gratitude to God for giving me the time, opportunity, strength and guidance in completing the dissertation successfully.

I would like to express my special thanks of gratitude to my lovely supervisor, Puan Salwismawati binti Badrin who gave me the golden opportunity and her full support in guiding, supervising and encouraging me throughout the preparation for completion the dissertation. Without her guidance throughout the process, this dissertation would have never been accomplished.

The most important, a special gratitude to my caring, loving and supportive parents. None of this could have happened without them. Thank you for the endless support and encouragement. They are my backbone and my source of inspiration to succeed in order to complete this dissertation.

Last but not least, I would like to express my gratitude to my friends and respondents for the support and willingness to spend some times with me to answer the questionnaires.

TABLE OF CONTENTS

CERTIFICATE	ii
DECLARATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF ABBREVIATIONS	x
ABSTRAK	xi
ABSTRACT	xii
CHAPTER 1: INTRODUCTION	1
1.1. Background of the study	1
1.2. Problem Statement	2
1.3. Research Question.....	4
1.4. Research Objective.....	4
1.4.1 General Objective.....	4
1.4.2 Specific Objective	5
1.5. Research Hypothesis	5
1.6. Significance of The Study	5
1.7. Conceptual and Operational Definitions	6
CHAPTER 2: LITERATURE REVIEW	7
2.1. Introduction.....	7
2.2. Review of literature.....	7
2.2.1. Physical appearance	7
2.2.2. Body image	7
2.2.3. Self esteem	9
2.2.4. Body image, self-esteem and undergraduate students.....	10
2.2.5. Body image, self-esteem and nursing students	11
2.3. Theoretical/Conceptual Framework.....	12

CHAPTER 3: RESEARCH METHODOLOGY	14
3.1 Introduction.....	14
3.2 Research Design.....	14
3.3 Study setting and population.....	14
3.4 Sampling plan	15
3.4.1. Sample criteria - Inclusion and exclusion criteria.....	15
3.4.2. Sample size estimation.....	15
3.4.3. Sampling method	17
3.5 Instrumentation	18
3.5.2. Translation of instrument	19
3.5.3. Validation and reliability of instrument	19
3.6 Variables	19
3.6.1. Variable Measurement	19
3.6.2. Variable Scoring.....	20
3.7 Data Collection Method	21
3.7.1. Procedure of data collection.....	21
3.7.2. Flow chart of data collection.....	22
3.8 Ethical consideration.....	23
3.9 Data Analysis	24
CHAPTER 4: RESULTS	25
4.1 Introduction.....	25
4.2 Results of The Study	25
4.2.1. Socio-demographic Characteristics.....	25
4.2.2. Level of body image satisfaction among undergraduate female nursing student in .	27
4.2.2. Level of self-esteem among undergraduate female nursing student in School of.....	31
4.2.3. Association between body image satisfaction and self-esteem among undergraduate	32
CHAPTER 5: DISCUSSION	34
5.1 Introduction.....	34
5.2 Discussion of result.....	34
5.2.1. Level of body image satisfaction among undergraduate female nursing student	34
5.2.2. Level of self-esteem among undergraduate female nursing student in School of.....	35

5.2.3. Association between body image satisfaction and self-esteem among undergraduate	35
5.3. Strength and limitation of the study	36
CHAPTER 6: CONCLUSIONS	37
6.1. Summary of the study findings	37
6.2. Implication and recommendation.....	37
6.2.1. Implications to nursing practice	37
6.2.2. Implications to nursing education	38
6.2.3. Recommendations for future research.....	38
6.3. Conclusion	38
REFERENCES	39
APPENDICES	46
Appendix A: Instrument.....	46
Appendix B: Research Information	52
Appendix C: Subject Information and Consent Form.....	60
Appendix D: Institutional Approval (Permission to Conduct the Study)	62
Appendix E: Ethical Approval	63

LIST OF TABLES

Table 3.1: Dependent and independent variables	19
Table 4.1: Frequency and percentage of respondents by socio-demographic	26
characteristics among undergraduate female nursing student in School	26
of Health Sciences, Universiti Sains Malaysia	26
Table 4.2: Body image satisfaction among undergraduate female nursing student in	27
School of Health Sciences, Universiti Sains Malaysia	27
Table 4.3: Body image satisfaction items	28
Table 4.4: Level of self-esteem among undergraduate female nursing student in	31
Table 4.5: Self-esteem items.....	32
Table 4.6: Simple logistic regression analysis to determine the body image	33
satisfaction associated with self-esteem among female undergraduate.....	33
nursing student in School of Health Sciences, Universiti Sains Malaysia	33

LIST OF FIGURES

Figure 2.1 Maslow's Hierarchy of Needs (1943).....	13
Figure 2.2 Conceptual framework of body image satisfaction and self-esteem.....	13
Figure 3.1 Study Flowchart of Data Collection.....	22

LIST OF ABBREVIATIONS

BMI	: Body Mass Index
BSQ	: Body Shape Questionnaire
COVID-19	: Coronavirus Disease
HREC	: Human Research Ethical Committee
PPSK	: Pusat Pengajian Sains Kesihatan
SPSS	: Statistical Package of Social Sciences
UMP	: University Malaysia Pahang
USM	: Universiti Sains Malaysia

**KEPUASAN IMEJ BADAN DAN KEYAKINAN DIRI DI KALANGAN PELAJAR
PEREMPUAN SARJANA KEJURURAWATAN DI PUSAT PENGAJIAN SAINS
KESIHATAN, UNIVERSITI SAINS MALAYSIA**

ABSTRAK

Dalam fasa kehidupan pelajar dan remaja, kesan kepuasan imej badan terhadap keyakinan diri sangat penting. Kajian penyelidikan ini dilakukan untuk menentukan tahap kepuasan imej badan dan keyakinan diri di kalangan pelajar perempuan Ijazah Sarjana Muda Kejururawatan di Pusat Pengajian Sains Kesihatan (PPSK), Universiti Sains Malaysia (USM). Kajian keratan rentas ini melibatkan 152 responden melalui persampelan mudah. Satu tinjauan soal selidik digunakan untuk pengumpulan data dari Oktober 2020 hingga Julai 2021. Ujian yang digunakan dalam kajian ini adalah statistik deskriptif dan ujian 'Simple Logistic Regression' menggunakan 'Statistical Package of Social Sciences' (SPSS) versi 26.0. Hasil kajian menunjukkan bahawa 80.9% responden mempunyai kepuasan imej badan yang positif manakala 19.1% responden mempunyai kepuasan imej badan yang negatif. Selain itu, hasil kajian juga menunjukkan bahawa 84.2% responden mempunyai keyakinan diri yang tinggi manakala 15.8% responden mempunyai keyakinan diri yang rendah. Tiada hubungkait di antara kepuasan imej badan dan keyakinan diri $p=0.07$ ($P<0.05$), namun didapati responden yang mempunyai kepuasan imej diri yang tinggi adalah 0.16 kali mempunyai keyakinan diri yang tinggi. Kesimpulannya, pembaharuan pendidikan dan kesedaran diperlukan untuk meningkatkan sikap imej badan yang positif.

**BODY IMAGE SATISFACTION AND SELF ESTEEM AMONG
UNDERGRADUATE FEMALE NURSING STUDENTS IN SCHOOL OF HEALTH
SCIENCES UNIVERSITI SAINS MALAYSIA**

ABSTRACT

The effect of body image on self-esteem is very important in the life phase of students and adolescents. This study is done to determine the level of body image satisfaction and self-esteem among undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia (USM). A cross-sectional study involving 152 respondents via convenient sampling. A questionnaire survey was used for data collection from October 2020 to July 2021. The test that used in this study was descriptive statistics and Simple Logistic Regression using Statistical Package of Social Sciences (SPSS) version 26.0. The findings revealed that 80.9% respondents had a positive body image while 19.1% respondents had a negative body image. Besides that, 84.2% respondents had high self-esteem while 15.8% respondents had low self-esteem. There was no association between body image satisfaction and self-esteem as $p = 0.07$ ($P < 0.05$), but it was found that respondents with positive body image satisfaction were 0.16 times had high self-esteem. In conclusion, new education and awareness strategies for promoting positive body image attitudes are needed.

CHAPTER 1: INTRODUCTION

1.1. Background of the study

Nowadays, the issue on the body image are increased and influence an individual of all ages. The body image refers to how a person perceives, thinks and feels about their body and appearance (National Eating Disorders Collaboration, 2017).

Generally, body image is an individual's self-perception, behaviors, and feelings of their own bodies and describes how the bodies are perceived to other people (Kamaria, Vikram, & Ayiesah, 2016). However, Neagu (2015) stated that body image satisfaction might be influenced by certain factors such as personal factors, interpersonal factors, biological factors and cultural factors.

Globally, the physical attractiveness may have linked with positive personal qualities because it has become a cultural belief. In real life, each individual had their own criteria in mind about their appearance but against their ideal (Mokslai, 2012). A study by Wong (2013) mentioned that positive body image is defined by realistic understanding and acceptance of the body size and shape of an individual. In addition, positive body image stated as a distinct from negative body image, holistic, stable and malleable, protective, linked to self-perceived body acceptance by others and shaped by social identities (Tylka & Wood-Barcalow, 2015).

Body image is not only important in an individual appearance. It is important in an individual appearance as well as psychological factor and socio-cultural

improvement that relates to personal and professional identity (Fernández-Balboa & González-Calvo, 2018).

The relationship between body image and self-esteem during adolescence has been discussed in several studies. Most studies indicate that girls are more susceptible to physical changes than boys (Gattiet al, 2014, Qaisy et al, 2016, Kamaria, Vikram, & Ayiesah, 2016). A previous study involving male and female population reported the changes of body dissatisfaction in adolescence to young adulthood is associated with an increase of body mass index (BMI) (Bucchianeri et al., 2013).

A study done in 2017 among a Mediterranean adult population had assess about body weight satisfaction, acceptance of body image, weight concern and dieting habit showed that women were more unsatisfied about being overweight, more satisfied about being underweight, and more concerned about losing weight than men (Bibiloni et al., 2017).

1.2. Problem Statement

The stigma of obesity will involve psychological effects includes depression, self-esteem, body image dissatisfaction, and unhealthy coping strategies. A study by Quittkat et al., (2019) stated when somebody dissatisfied with their appearance, they will invest and even need time to achieve their ideal appearance. An individual that having negative body image is not having a realistic understanding of their body size and shape because they feel embarrassed, disappointed, or anxiety about their appearance (Kamaria, Vikram, & Ayiesah, 2016). This study also involves undergraduate students that body shape affects their appearance.

A study reported by Elsherif, & Abdelraof (2018) noted a decreased of self-esteem among undergraduate students with body image dissatisfaction. This study also showed body image satisfaction and self-esteem due to the graduation is one of the factors. Support by study done by Taha et al. (2011) that also noted female students with low self-esteem were at risk for negative body image.

Low life satisfaction has many effects, both physically and emotionally. In study done by Fanaj, Melonashi, & Shkëmbi, (2015) showed that low life satisfaction could lead to eating disorder, reduced self-esteem, mental instability, depression, anxiety, alcohol and drug abuse.

Body image dissatisfaction and self-esteem undergraduate students are also associated with psychological consequences and ethnic groups. A study by Latner, Knight, & Illingworth, (2011) stated that cross-cultural differences in body image may be difficult as aspects of body image and perspectives are different in each culture. For example, Chinese cultures revealed that they less satisfied with their body image than Croatian cultures because of certain factors such as pressure from family, friends, and media about the standard beauty (Dakanalis et al., 2020).

In addition, Farshidfar, Dastjerdi, & Shahabizadeh, (2013) mentioned that cosmetic surgery is related with body-image and self-esteem. The result showed that cosmetic surgery has a relationship with positive body image but not level of self-esteem. Plus, young women that less satisfied with their appearance increased their desire to undergo cosmetic surgery because the influence of the social media (Walker, Krumhuber, Dayan, & Furnham, 2019).

There were a few previous researches on body image and self-esteem among undergraduate female students. This study will help to access body image satisfaction and self-esteem which later will enhance body image satisfaction among nursing students.

1.3 Research Question

In guiding the research study, the following research questions are formulated:

1. What is the level of body image satisfaction among undergraduate female nursing student in School of Health Sciences, USM?
2. What is the level of self-esteem among undergraduate female nursing student in School of Health Sciences, USM?
3. Is there any association between body image satisfaction association with self-esteem among undergraduate female nursing student in School of Health Sciences, USM?

1.4 Research Objective

1.4.1 General Objective

1. To determine the body image satisfaction and level of self-esteem among undergraduate female nursing student in School of Health Sciences, Universiti Sains Malaysia.

1.4.2 Specific Objective

1. To determine the level of body image satisfaction among undergraduate female nursing student in School of Health Sciences, Universiti Sains Malaysia.
2. To determine the level of self-esteem level among undergraduate female nursing student in School of Health Sciences, Universiti Sains Malaysia.
3. To determine the association between body image satisfaction and self-esteem among undergraduate female nursing student in School of Health Sciences, Universiti Sains Malaysia.

1.5 Research Hypothesis

- H_0 : There is no association between body image satisfaction and self esteem among undergraduate female nursing student in School of Health Sciences, Universiti Sains Malaysia.
- H_A : There are association between body image satisfaction and self esteem among undergraduate female nursing student in School of Health Sciences, Universiti Sains Malaysia.

1.6. Significance of The Study

Everyone has a feeling about their body image and how others think about them. Without a good way to determine body image, the degree of perception of people own body is hardly understood. Supported by Swami et al (2015), showed that women have happiness is through body appreciation. The problem with body image dissatisfaction may lead to multiple psychological problems. The association between feelings of depression, stress and misbehaviour with accurate weight perception for overweight among undergraduate was documented in previous studies (Sachdeva et

al. 2012, Toselli & Spiga, 2017, Yazdani et al., 2018). Besides, one of study was found a combination of healthy and unhealthy behaviors among students whom accurate weight perception (Khambalia, Hardy, & Bauman 2012). Thus, assessing body image can help heighten awareness and possibly encourage preventative programming to help avert negative health practices

Therefore, it is important to study the determine the body image satisfaction and self-esteem among undergraduate female nursing students and finding from this study will give preventive measure in order to increased satisfaction regarding body image and self-esteem among students.

1.7. Conceptual and Operational Definitions

Self-esteem : Self-esteem is an individual that have positive or negative attitude towards oneself and perceptions of their own emotions and feelings in relation to oneself (Rosenberg, 1965). In this study, self-esteem refer to level of self-esteem female students regarding their feeling by using a questionnaire.

Body image satisfaction : Body image satisfaction is described as the degree to which individuals are satisfied with their physical appearance, especially weight and shape (Pisitsungkagarn, Taephant, & Attasaranya, 2014). In this study, body image satisfaction refers to a level of scoring either satisfaction or dissatisfaction regarding body image using the questionnaire.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

This chapter will present a review of the literature regarding body image satisfaction and self-esteem.

2.2. Review of literature

2.2.1. Physical appearance

The physical appearance of an individual is the first characteristics that normally seen by others in daily interactions (Pop, 2016). For a woman, one of the important things is beauty. The most desired appearance criteria is a slender figure, individuals who are dissatisfied with body image will try to change their body to meet this expectation (Sachdeva et al., 2012). A study by Kuan et al. (2011) found that the majority of women in Malaysian universities prefer the underweight figure as their optimal model. As a result, they were often prone to many psychological problems, such as depression, anxiety and eating disorders (Al Saud et al., 2019).

Intra-sexual competition among female undergraduates is the factors that triggered their ideal physical characteristics and attractiveness (Fink et al., 2014). However, not all women are affected by the physical appearance social comparisons because of the coping style (Pinkasavage, Arigo, & Schumacher, 2015).

2.2.2. Body image

A study conducted among Australian women aged 18–75 years showed that positive body image has a relationship with age and body appreciation. As a result, older women had higher levels of body appreciation than young women (Tiggemann

& McCourt, 2013). Some studies found that positive body image is influenced by a great self-compassion (Wasylikiw, MacKinnon, & MacLellan, 2012), optimism (Dalley & Vidal, 2013), less attachment anxiety and avoidance, maladaptive perfectionism and depression (Iannantuono & Tylka, 2012). However, a study done among female university students from four universities in South Korea showed that obesity was negatively associated with body image, and no relationships between obesity and depression (Jun & Choi, 2014).

In the study Tufail & Khan (2016) showed that body image plays an important role in individuals who are overweight or obese and negative body image. A study conducted among female students found that self-esteem was negative with the risk of negative body image (Taha et al., 2011). However, a study by Mohammed (2017) found that there are also students who are overweight and obese have a positive body appreciation. Apart from that, Ouyang et al. (2020) show that gender and BMI can influence body image where women are shown to pay more attention to the changes of weight and appearance, than men.

Furthermore, a study by Swami, Miah, Noorani & Taylor (2014) that conducted among British Muslim women on religion showed that women who wore the hijab had more positive body image. Thus, some study identified factors include thin-ideal internalization and feminist beliefs (Myers et al., 2012), dance participation (Swami & Harris, 2012) and personality factors (Swami et al., 2013) as a protective measure of an individuals.

On the other hand, a study among adolescent aged between 12 and 16 years showed that body image have a relationship with physical activity (Slater & Tiggemann, 2011). This study supported by Sabiston et al. (2019) that positive body image was associated with greater participation in physical activity and sport and negative body image associated with lower physical activity and sport participation.

2.2.3. Self esteem

The level of self-esteem has a strong correlation with an individual perception of their body image as body image and self-esteem of each individual will be different (Nnaemeka & Solomon, 2014). Moreover, a study by Orth & Robins (2013) that design effective interventions to decrease the depression found that depression having a link with low self-esteem. This study supported by Nguyen et al. (2019) that low self-esteem are strongly associated with increased anxiety, depression, and suicidal ideation.

A study that assess the relationship between body image, self-esteem and sexual satisfaction and gender in college students in southern Taiwan mentioned that there was no significant difference between male and female in self-esteem (Lin & Lin, 2018). Female adolescence is a phase for critical development involving the formation of identity, physical, social and sexual appearance as well as increased self-awareness. A study by Murray, Rieger & Byrne (2015) showed a significant relationship between body dissatisfaction, peer stress and low self-esteem among students and findings from this study noted that students are more concerned with body satisfaction. Furthermore, a study by Gupta et al. (2016) stated a significant

association between poor general health, poor self-esteem and negative body image among adolescents.

According to Kumar (2016) mentioned that normal self-esteem is essential for a healthy academic life and majority of the students. Self-esteem is important among student because related with body image, support by study done by Nnaemeka & Solomon (2014) showed that low self-esteem is significantly correlated with body image. Next, a study that aimed to identify self-esteem among nursing students in a nursing college in Kathmandu revealed there is correlation between age, marital status, educational level and work experience with self-esteem but no association on the type of family (Shrestha et al., 2018).

2.2.4. Body image, self-esteem and undergraduate students

The effect of body image on self-esteem is very significant in the life phase of students and adolescents (El-etary & Zaki, 2018). Body satisfaction is an important component of global self-worth that established by males and females differently. In a study showed that for females, body satisfaction were links with global self-worth and body mass index (BMI), while for males, the feeling of global self-worth was strongly linked with body satisfaction (Sira & Ballard, 2011). Meanwhile the findings in the Hispanic college student sample suggested that greater body dissatisfaction was associated with females (Blow & Cooper, 2014). Virk & Singh (2020) also conducted a study to find out the relationship between body-image and self-esteem among undergraduate students in rural Haryana showed that moderately positive correlation ($r=0.384$, $p<0.001$) was observed between self-esteem and body image satisfaction.

Arshad, Muhammad, & Mahmood (2015) conducted a study to assess the self-esteem and academic performance among university students in Government College University, Faisalabad, Pakistan mentioned that strong positive correlation ($r = 0.863$) between self-esteem and academic performance among university students.

A study done in University Malaysia Pahang (UMP) showed that there are significant relationships between the levels of self-esteem and academic performance, but there were no significant relationships between university commitments and academic performance (Kharsah, 2016).

2.2.5. Body image, self-esteem and nursing students

Many studies done to evaluate association body image and nursing student. A study conducted at School of Nursing, with 120 undergraduate students, found that almost half (45.8%) of students showed dissatisfaction with body shape (Carreiro et al., 2018). Similar with a study done in middle east countries to evaluate and compare the level of body image and self-esteem among the three nursing colleges found that students from 20-25 years of age was positively correlated with positive perceptions of body image among female nursing students (94.2%, 65.5% and 86.3%) (Taha et al., 2011). Similar with a study done by El-etary & Zaki (2018) at Tanta University showed that statistically significant relationship between body image, self-esteem and quality of life among female nursing students whereas more than two-fifth of the female nursing students had low self-esteem and a quarter of them had poor perception of body image.

Sometime the level of self-esteem has significantly associated with social demographic, based on finding form study done by Belsiyal (2015) in India among nursing student regarding level of self-esteem showed that 24(68.6%) nursing students have normal level of self-esteem; whereas 11(31.4%) of them have low self-esteem.

A study done in Thailand among Thai female undergraduate students of Naresuan University also found that factors BMI, level of stress from education, and sociocultural pressure have significantly with body image dissatisfaction and disordered of eating behaviors (Pattanathaburt, Somrongthong & Thianthai, 2013).

Interpersonal relationship also important to improve nursing relationships among nursing college students. A study among undergraduate nursing students stated there is a relationship between the body image, self-esteem and the degree of interpersonal relations of nursing students and its factor (Park & Koo, 2020). As a result, Kim & Cha (2016) conducted a study on the physical appearance satisfaction and personal relationships in Korean that influenced the factors of depression in nursing college students.

2.3. Theoretical/Conceptual Framework

The purpose of the study is to understand the associations between body image satisfaction and self-esteem among undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia (USM). The framework to guide this study is Maslow's Hierarchy of Needs (1943). This theory had five levels of needs

such as physiological needs, safety needs, belonging needs, esteem needs and self-actualization needs (Aruma & Hanachor, 2017).

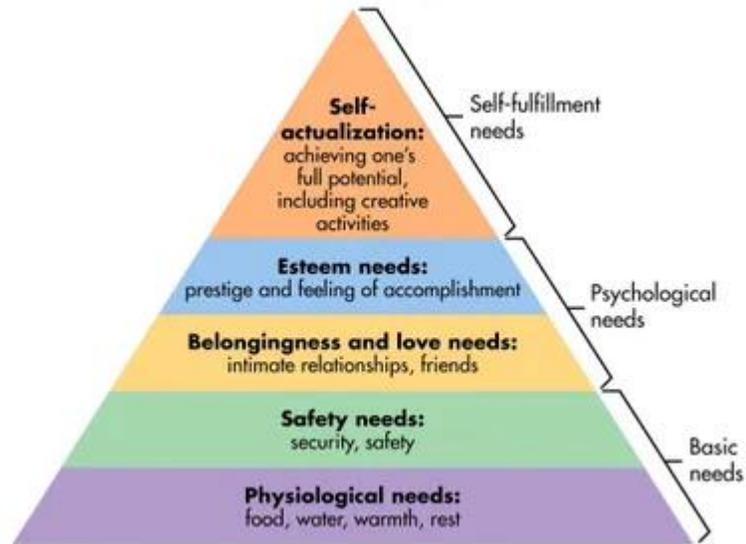


Figure 2.1 Maslow's Hierarchy of Needs (1943)

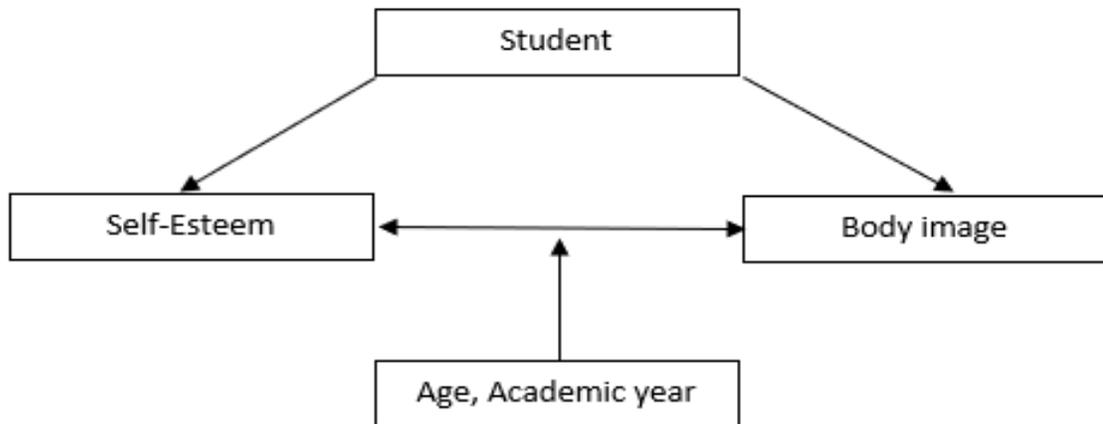


Figure 2.2 Conceptual framework of body image satisfaction and self-esteem

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter was explained the rationale used to support the chosen research methodology. The chapter begins with research design. This is followed by a description of the research location, duration, population, inclusion and exclusion criteria, sampling plan, sample size estimation, research instrumentation, variable, data collection plan, data analysis and expected outcome of this study. The final section explains the ethical considerations used in this study.

3.2. Research Design

This study was a quantitative, cross-sectional study to determine the association between body image satisfaction and self-esteem among undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia, Kelantan.

During pandemic Coronavirus Disease (COVID-19), the students were not all involve in hostel accommodation, thus the researcher used google form for able to get large pool of respondents.

3.3. Study setting and population

This study was conducted from October 2020 until July 2021. For the purposes of this study, the research located in School of Health Sciences, Universiti Sains Malaysia, Kelantan. This study was conducted among undergraduate female nursing students from 2 programs which are female nursing student from diploma program and female nursing student from degree program in School of Health

Sciences, Universiti Sains Malaysia in Kelantan which likely composed of 280 nursing students respectively.

3.4. Sampling plan

3.4.1. Sample criteria - Inclusion and exclusion criteria

The inclusion criteria of this study are the subjects from diploma nursing students (Year 1, 2 and 3) and degree nursing students (Year 1, 2, 3 and 4). Female nursing students that are willingly interested to participate in this study are also include as a study subject.

The exclusion criteria of this study are the subjects advanced diploma students that are studying in School of Health Sciences, Universiti Sains Malaysia. Female nursing students that are refuse to participate in this study are excluded as a study subject. Students in another program in School of Health Sciences, Universiti Sains Malaysia are also excluded as a study subject.

3.4.2. Sample size estimation

The sample size estimation of this study was determined by calculating the sample size for the study objectives. The sample size estimation for the first and second objective used in this study is Raosoft Software.

What margin of error can you accept? 5% is a common choice	<input type="text" value="5"/> %
What confidence level do you need? Typical choices are 90%, 95%, or 99%	<input type="text" value="95"/> %
What is the population size? If you don't know, use 20000	<input type="text" value="280"/>
What is the response distribution? Leave this as 50%	<input type="text" value="50"/> %
Your recommended sample size is	163

The calculated sample size then needs to consider the 10% of drop out from study.

Hence, the total sample size needed is $n = 181$.

$$\begin{aligned}
 n &= \frac{10}{100} \times 163 \\
 &= 16.3 \\
 n &= \frac{\text{n calculated}}{1 - \text{dropout rate (10\%)}} \\
 &= \frac{163}{1 - 0.10} \\
 &= 181.1 \\
 &= 181
 \end{aligned}$$

For the association between body image satisfaction and self-esteem, it is calculated using double proportion formula. The p value obtained from the previous study about body image, self-esteem and sexual satisfaction of college students in Southern Taiwan.

$$n = \frac{p_1(1-p_1) + p_2(1-p_2)}{(p_1-p_2)^2} (Z_\alpha - Z_\beta)^2$$

n = sample size

p = anticipated population proportion

α = level of statistical significance, 0.05 ($z\alpha= 1.96$)

$1-\beta$ = power of the study, 80% power ($z\beta= 0.84$)

$p_1 = 0.143$, $p_2 = 0.044$

Calculation:

$$n = \frac{0.143 (1-0.143) + 0.044 (1-0.044)}{(0.143-0.044)^2} (1.96 + 0.84)^2 = 131.68$$
$$= 132$$

The calculated sample size then needs to consider the 10% of drop out from study.

Hence, the total sample size needed is $n= 147$.

$$n = \frac{10}{100} \times 132$$
$$= 13.2$$
$$n = \frac{n \text{ calculated}}{1 - \text{dropout rate (10%)}}$$
$$= \frac{132}{1 - 0.10}$$
$$= 146.67$$
$$= 147$$

The biggest sample size will be used in this study. Therefore, the sample size for this study is 181 undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia.

3.4.3. Sampling method

This study used non-probability method via convenient sampling to recruit the participants in this study.

3.5. Instrumentation

3.5.1. Instrument

A self-administered questionnaire was used in this study to collect the data from the undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia.

Two tools were administered for this study. It included Rosenberg Self-Esteem Scale (1965) and Body Shape Questionnaire (BSQ).

For self-esteem, Rosenberg Self-Esteem Scale (1965) is used (Rosenberg, 1965). It consisted of 10 items, of which five were to assess positive feelings (Item 1, 3, 4, 7, and 10) and five negative feelings (Item 2, 5, 6, 8, and 9). The example of positive item was “On the whole, I am satisfied with myself.” The example of negative item was “At times, I think I am no good at all” (Park & Park, 2019). The item was based on a four-point Likert scale ranging from strongly agree (3 points) to strongly disagree (0 point) (Elsherif, & Abdelraof, 2018).

For the body image satisfaction, the Body Shape Questionnaire (BSQ) that developed by Cooper et al used in this study. In this questionnaire, it is consisted of 34 items. Items were employed a 6-point Likert scale with responses ranging from 1 to 6, which 1 for never, 2 for rarely, 3 for sometimes, 4 for often, 5 for very often and 6 for always. (Elsherif, & Abdelraof, 2018).

3.5.2. Translation of instrument

The original Rosenberg Self-Esteem Scale (1965), questionnaire is provided in English version. However, the questionnaire was translated to Bahasa Malaysia to facilitate the understanding of the participants. The translated version had been checked and validated by three panels of experts with a background in nursing and public health. In addition, the language expert from the Language Center and Translation in School of Health Sciences, Universiti Sains Malaysia.

3.5.3. Validation and reliability of instrument

According to the study from Thomas & Warren-Findlow (2020), the reliability of the self-esteem was higher (Cronbach's $\alpha=0.91$). For the body image satisfaction by using Body Shape Questionnaire (BSQ), Cooper et. al (1987) tested the reliability (Cronbach's $\alpha= 0.96-0.97$).

3.6. Variables

3.6.1. Variable Measurement

The variables used in this study involved dependent and independent variable.

Table 3.1: *Dependent and independent variables*

Dependent variables	Independent variable
Self-esteem	Body image satisfaction

Self-esteem among undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia were displayed in positive and negative statements which include options such as “Strongly agree”, “Agree”, ‘Disagree”, and

“Strongly disagree”. The mean, median and standard deviation were calculated by sum up the total scores. By considering the mean, the total scores above the mean were classified as higher level of self-esteem while the total scores that below the mean were classified as lower self-esteem.

Body image satisfaction among undergraduate female nursing students in School of Health Sciences, Universiti Sains Malaysia were displayed which include options such as “Never”, “Rarely”, “Sometimes”, “Often”, “Very often”, and “Always”. The mean, median and standard deviation were calculated by sum up the total scores. By considering the mean, the total scores above the mean were classified as body image satisfaction while the total scores that below the mean were classified as body image dissatisfaction.

3.6.2. Variable Scoring

For self-esteem scoring, it is consisted of Strongly Agree=3, Agree=2, Disagree=1, Strongly Disagree=0. The negative item was reverse scored, that is, Strongly Agree=0, Agree=1, Disagree=2, Strongly Disagree=3 (Park & Park, 2019). Total the scores for the 10 items. The total scores divided into two. The total scores for low self-esteem are below 15 points, while the total scores for high self-esteem are between 16 until 30 points. The maximum score was 30 points and minimum score was 0 point. It is indicated that, when the total score is higher, the self-esteem was higher (Thomas, & Warren-Findlow, 2020).

For body image satisfaction scoring, it is consisted of Never=1, Rarely=2, Sometimes=3, Often=4, Very often=5, and Always=6. The score of the 34 items will be total. It had two level of scoring. BSQ score greater than 140 was indicates concern

with body shape. Scores below 140 indicate a less concern about their body shape (Fogarty, 2016). Higher scores point was indicated higher level of concern on body shape (Nergiz-Unal, Bilgiç, & Yabancı, 2014).

3.7. Data Collection Method

3.7.1. Procedure of data collection

The collection of data was conducted after received an ethical approval from Human Research Ethical Committee (HREC) Universiti Sains Malaysia. Firstly, researcher approached academic officer at Pusat Pengajian Sains Kesihatan (PPSK) to obtain email address nursing student in the PPSK. After that, the targeted sample based on the inclusion criteria has been contacted through Whatsapp application by researcher. The researcher explained to the subject regarding aim of study and briefly explained the instruction to complete questionnaire. Then, after the subject agree to participate, the link was given by the researcher and the subject fulfilled the consent form before answering the questionnaire. Researcher explained that participants must answer with honesty. Next, researcher explained that participation in this study was expected within 15 to 20 minutes and link for the questionnaire opened for 1 month. Finally, researcher checked for completeness of the questionnaire after participants finished. Figure 3.1 demonstrates the overall flow of the data collection process.

3.7.2. Flow chart of data collection

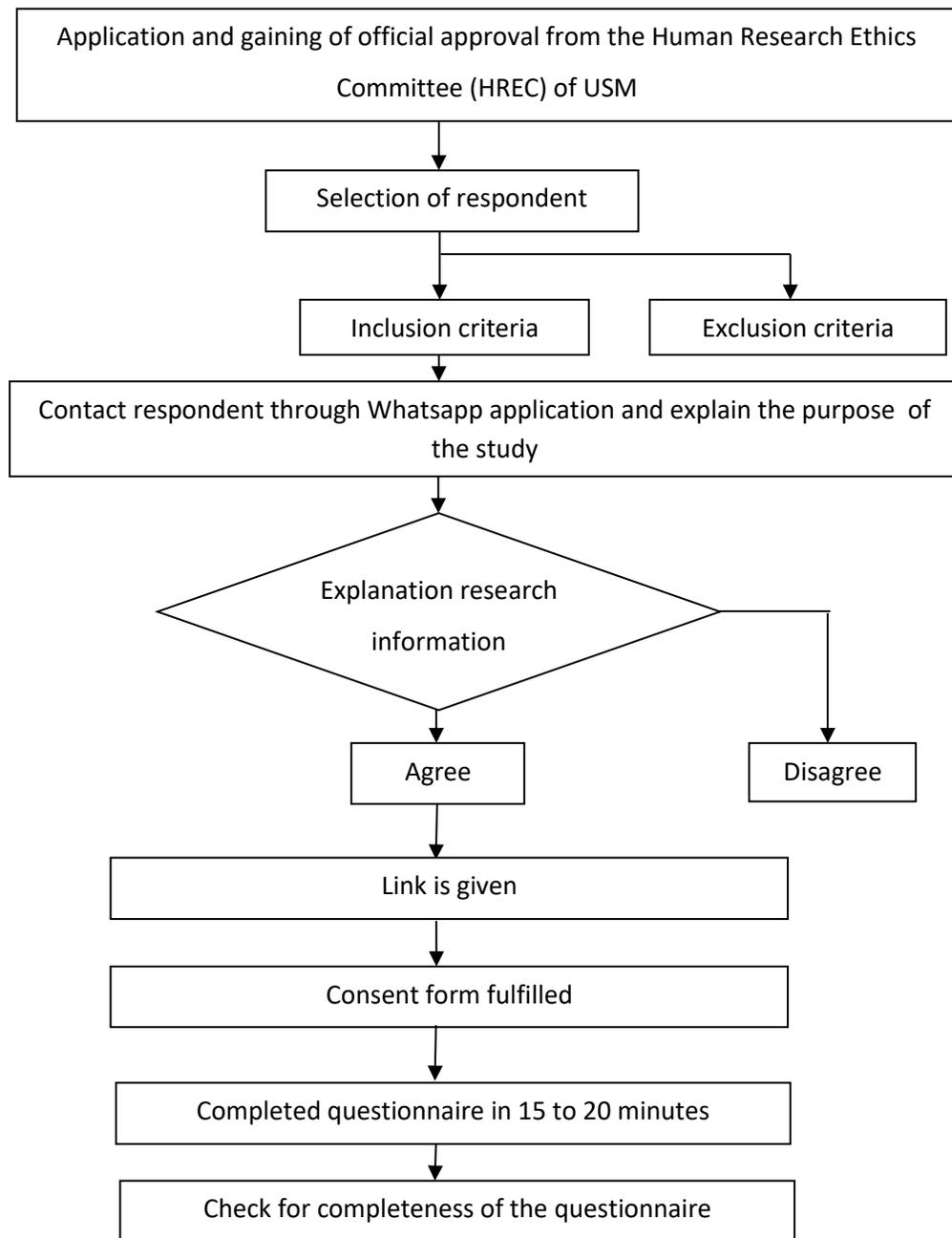


Figure 3.1 Study Flowchart of Data Collection

3.8. Ethical consideration

Firstly, the permission to conduct the study. Before conduct this study, an official permission was obtained from the Human Research Ethics Committee, University Sains Malaysia.

Second, the permission to use the questionnaire from the original author(s). Before using the instrument, the permission to use the original questionnaire was approved and given by the original author through the email.

Third is the subject vulnerability. Any risks of the study were explained to the participants by the researcher. Researcher also explained that the participants have a choice either willingly participate or refuse to participate on the study. Next, the objectives of the study were explained to the participants by the researcher. Most important, informed consent took from undergraduates female nursing students that are eligible to be the subject and willing to participate on the study. The participants right to stop while participating the study without worried and did not have any disadvantages also informed. Furthermore, the researcher informed the participants that this study did not cause any damage to physical, biological and emotional of the participants.

For the conflict of interest, there is no conflict of interest by the author or any compromise professional judgement in the research.

Next is privacy and confidentiality. Firstly, all the participants information, data including the consent form was keep highly confidential. In order to protect the participants information and data, it is only use for the academic and research

purpose. All participants were anonymous by assigning a number for each participant instead of their names to protect their privacy.

For the community sensitivities and benefits, this study was not only given the benefit to the undergraduate female students. It also given the perception and knowledge to the society about the important of body image in order to gain self-esteem. Besides that, a new or modified guidance to know the levels of self-esteem may be established in this study and determine the association of body image and self-esteem.

Lastly is honorarium and incentives. The participants received a small token of gratitude as participants.

3.9. Data Analysis

The collected data was analyzed using IBM SPSS version 26.0. The frequencies mean, median, variance and standard deviations of each component were shown. Simple logistic regression statistic used for the objective 3. The dependent variable was self-esteem. The independent variable was body image satisfaction.