ASSOCIATIONS BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND BODY DYSMORPHIC DISORDER (BDD) AMONG UTAR KAMPAR UNDERGRADUATE STUDENTS

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By

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ABSTRACT

ASSOCIATIONS BETWEEN

SOCIO-DEMOGRAPHIC FACTORS

AND

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AMONG UTAR KAMPAR UNDERGRADUATE STUDENTS

Ng Jia Poh

Body dysmorphic disorder (BDD) is a mental disorder when a person is excessively preoccupied with a minor or imagined defect in their appearance until it significantly affects their social functioning. BDD patients can be severely disabled and suicidal. Hence, the complication of BDD should not be underestimated and should be valued by society. Students are the pillar of the nation and play significant roles in the country's development, thus identifying the BDD issues among students is essential. Besides, the association between socio-demographic factors and BDD should be examined to allow the clinician to screen for those who have a high risk of BDD to give the appropriate treatment subsequently. Therefore, a cross-sectional

study was conducted among 110 undergraduate students who studied at Universiti Tunku Abdul Rahman (UTAR), Kampar to determine the association between socio-demographic factors and BDD. A self administred Body Image Disturbance Questionnaire (BIDQ) was distributed physically to subjects that were selected through convenient sampling method. The obtained information was analyzed using Statistical Package for Social Science (SPSS), version 26.0 software. The chi-square test was used to analyze the association between socio-demographic factors and BDD and the association between gender and body foci of concerns among the respondent. In this study, the prevalence of BDD was 4.5%. No significant association was found between gender, age groups, type of faculties, monthly household income, and marital status with BDD ($p>0.05$). A strong and significant association was found between body fats ($X^2=5.495$, $p=0.019$, $\Phi=0.224$) and height ($X^2=5.044$, $p=0.025$, $\Phi=0.214$) with gender. Females were significantly more concern about their body fats whereas males were significantly more worried about their height. The current study may raise social awareness towards BDD so that it can be diagnosed in an early stage and manageable.

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DECLARATION

I hereby declare that this final year project report is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UTAR or other institutions.

NG JIA POH

APPROVAL SHEET

This final year project report entitled **"ASSOCIATIONS BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND BODY DYSMORPHIC DISORDER (BDD) AMONG UTAR KAMPAR UNDERGRADUATE STUDENTS"** was prepared by NG JIA POH and submitted as partial fulfillment of the requirements for the degree of Bachelor of Science (Hons) Dietetics at Universiti Tunku Abdul Rahman.

Approved by:

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PERMISSION SHEET

It is hereby certified that **NG JIA POH** (ID No: **19ADB03818**) has completed this final year project report entitled "ASSOCIATIONS BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND BODY DYSMORPHIC DISORDER (BDD) AMONG UTAR KAMPAR UNDERGRADUATE STUDENTS" under the supervision of Dr. Chang Sui Kiat from the Department of Allied Health Science, Faculty of Science.

I hereby give permission to the University to upload the softcopy of my final year project report in pdf format into the UTAR Institutional Repository, which may be made accessible to the UTAR community and public.

Your truly,

(NG JIA POH)

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LIST OF ABBREVIATIONS

DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
BDD	Body Dysmorphic Disorder
UTAR	Universiti Tunku Abdul Rahman
BIDQ	Body Image Disturbance Questionnaire
SPSS	Statistical Package for Social Science

CHAPTER 1

INTRODUCTION

1.1 Background

Based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria, Body Dysmorphic Disorder (BDD) is defined as a psychiatric disorder with three criteria. Firstly, BDD patients have an excessive preoccupation with the imaginary or minor flaw in a facial feature or bodily portion (Mohammed AlShahwan., 2020). The second criterion is this kind of concern reaches a significant intense level and affects an individual's social and occupational functioning. Thirdly, this condition is not better accounted for by another mental disorder. This means that if the person's concern is being fat and the person meets the diagnosis criteria of other disorders such as anorexia nervosa or bulimia nervosa, then the person is diagnosed with that eating disorder rather than BDD (Bjornsson, Didi, and Phillips, 2022).

BDD is a relatively common but often underdiagnosed disorder. Eskander, Limbana, and Khan (2020) said that many people that suffered from BDD do not apply to a psychiatrist. The reason may be many patients are too uncomfortable and

ashamed of their appearance concerns to raise them with a clinician (Conroy, et al., 2008 cited in Eskander, Limbana, and Khan, 2020, p.12). Instead, they choose to consult with a cosmetic doctor to improve their appearance rather than a psychiatrist. This reason can be supported by the evidence from Alotaibi, et al. (2022) which concluded that all the BDD patients wished to undergo cosmetic surgery. Moreover, since BDD is still a relatively unknown disorder, which has only just received attention from the media, hence, the patients themselves may not be aware that they are suffering from BDD (Eskander, Limbana, and Khan, 2020). Those who diagnose with BDD usually spend between 3 and 8 hours a day checking on their appearance, they are unable to control their behavior (Mohammed AlShahwan, 2020). They may have concerns about any of the body parts, but more common are skin, body fat, and head hair (Alsaidan, et al., 2020).

Patients with BDD can be severely disabled and suicidal. There was a study by Rief, et al. (2006) revealed that individuals who suffered from BDD had a higher rate of suicidal ideation (19% vs 3%) and a rate to attempt suicide also higher (7% vs 1%) than those who did not diagnose as BDD. A systematic review by Veale, et al. (2016) reported that the prevalence of BDD among students ranged from 1.2% to 5.8%. For instance, studies from Taqui, et al. (2008) found that it has a high prevalence of BDD among University students at 5.8% in a Pakistani medical student population, and a study by Bohne, et al. (2002) showed a prevalence rate of 5.3% in a German college student sample. Among students, some researchers reported

that BDD has caused students to drop out of school and interfere with their academic performance (Phillips, et al., 2006). Many factors might be associated with BDD, and one of them is socio-demographic factors. Socio-demographic factors have shown significant association with the prevalence of BDD based on previous studies while some have not. Thus, more studies should be conducted to observe this association.

1.2 Problem Statements

Since BDD is associated with significant impairment in occupational, social, or other important areas of functioning, and its prevalence was high in the student population, it should be diagnosed so that proper treatment can be provided. However, although studies have been conducted on BDD overseas about socio-demographic factors with BDD among University students, to the best of my knowledge, only a study has been conducted in Malaysia regarding BDD and had been published online (Kang, et al., 2022). However, that study focused on BDD and depression, which is not so detailed on BDD and the targeted sample of that study was only males. This highlighted that data regarding BDD in Malaysia were fewer and more research should be conducted.

Not only that, research carried out on BDD among the student population is outdated, most of the studies focused on dermatology patients or patients who pursued cosmetic surgeries from 2019 to 2023, which highlighted that more studies should be conducted on the student population to observe current BDD issues. This is because students are the pillar of nation if BDD is not diagnosed, it will bring adverse effects to the student population such as poor academic performance and withdrawal from school, which may indirectly affect countries' development (Phillips, et al., 2006).

Besides, there were some contradictions among different studies. Some studies claimed a significant association was observed between socio-demographic factors and BDD whereas others showed different outcomes. Therefore, research should be conducted to find out whether is BDD significantly associated with socio-demographic variables among undergraduate students.

1.3 Significance of Study

Different studies have shown different results, hence, due to the uncertainty, more research is in needs to be conducted to contribute more consistent results. The result of this study can provide new findings as compared to previous studies. Especially the students, who are the pillars of nation in the future, play important roles in the

development of the country, thus by identifying the prevalence rate of BDD among students, this study can help to provide early warning of BDD issues which can raise social awareness towards BDD.

Moreover, as BDD contributes to a higher suicide rate and causes functional impairment (Rief, et al., 2006; Phillips, et al., 2006), it is important to treat BDD subsequently to reduce the mortality rate and adverse effects due to BDD. To do so, it is necessary to identify the risk factors such as socio-demographic factors that might be associated with BDD to allow the clinicians to more accessible screen more for those at exceptionally high risk of BDD and in turn, guide prevention, and intervention efforts. Additionally, since there were less data available in Malaysia, the present study seeks to open the door for further study in this field, in which BDD was the main subject to be studied and both genders were included.

1.4 Objectives

1.4.1 General Objective

To determine the association between socio-demographic factors and BDD among UTAR Kampar undergraduate students.

1.4.2 Specific Objectives

1. To determine the prevalence rate of BDD among UTAR Kampar undergraduate students.
2. To determine the socio-demographic factors, such as gender, age, family monthly income, faculty, and marital status among the UTAR Kampar undergraduate students.
3. To evaluate whether there is a significant association between the socio-demographic factors (gender, age, monthly household income, faculty, and marital status) and BDD among UTAR Kampar undergraduate students.
4. To determine the common body foci of concerns among UTAR Kampar undergraduate students.
5. To assess whether there is a significant association between foci of concerns and gender.

1.5 Hypothesis

1.5.1 Null Hypotheses

1. The socio-demographic factors are not significantly associated with BDD.
2. Gender is not significantly associated with body foci of concern.

1.5.2 Alternative Hypotheses

1. The socio-demographic factors are significantly associated with BDD.
2. Gender is significantly associated with body foci of concern.

CHAPTER 2

LITERATURE REVIEW

2.1 Prevalence of BDD

BDD is often under-recognized as patients normally would not raise the issues by themselves to the physician unless they are asked by the physician. Hence, it is strongly believed that the reported prevalence is far lower than the exact rate (Grant, Kim, and Crow, 2001). The student population has a high prevalence rate of BDD and is significantly associated with adverse effects such as withdrawal from school. Several studies have reported the prevalence rate of BDD among students as shown in Table 2.1.

Table 2.1: List of prevalence of BDD among students.

Author (s)	Location, Subject	Results
Bohne, et al., 2002a	German, 133 college students	5.3%
Bohne, et al., 2002b	American, 101 college students	4.0%
Taqui, et al., 2008	Pakistan, 156 medical students	5.8%
Liao, et al., 2010	China, 487 medical students	1.3%
Boroughs, Krawczyk, and Thompson, 2010	South-eastern American, 1041 undergraduate students	4.9%
Dlagnikova and Van Niekerk, 2015	South African, 395 undergraduate students	5.1%
Shaffi Ahamed, et al., 2016	Saudi Arabia, 365 female medical students	4.4%
Alomari and Makhdoom, 2019	Jeddah, 495 female students	12.3%
Hakim, et al., 2021	Jeddah, 1016 governmental university students	13.9%
Aflakseir, Jamali, and Mollazadeh, 2021	Shiraz, 750 college students	4.5 %
Alotaibi, et al., 2022	Saudi Arabia, 286 female college students	14.68%

The prevalence of BDD ranged from 1.3% to 14.68% among the student population. The highest prevalence was reported by Alotaibi, et al. (2022) while the lowest prevalence rate was reported by Liao, et al. (2010), which the outcomes indicated that only females (1.3%) screened positive for the diagnosis of BDD while no male students screened positive for BDD. The reason for such low prevalence may be attributed to the cultural issues in which eastern cultures place more value on other aspects such as intellectual ability whereas western young culture could place more emphasis on the individual and judging others by appearance. This possible explanation is supported by Bohne, et al. (2002b), the author said that cultures that put a greater value on physical attractiveness, tend to develop more concerns regarding body image.

When comparing the prevalence rate of students with BDD with the community population, which the prevalence rate were 1.7% and 2.4% from the studies of Rief, et al. (2006) and Koran, et al. (2008), the student population has a higher prevalence rate of BDD. Taqui, et al. (2008) and Shaffi Ahamed, et al. (2016) explained that this may be due to the community sample having included more people aged more than 30 so that it only reflects those with BDD that persisted into late adulthood. In the opinion of Dlagnikova and Van Niekerk (2015), BDD is more prevalent among students when compared to the community population may be due to a reflection of the difference in methodology or because students are more willing to reveal their concerns to the clinician.

2.2 Association of Socio-demographic Factors and BDD

2.2.1 Association between Gender with BDD

The association of gender with BDD has been studied by researchers before although their results were not consistent. Some said that there was a significant association between gender and BDD whereas some showed different opinions saying that there is no significant association between them. The results that were found by the previous studies were elucidated in Table 2.2.

Table 2.2: Association between gender and BDD.

Author (s)	Location, Subject	Results	BDD (%)
Bohne, et al., 2002a	German, 133 college students	Insignificantly association	Female: 5.1% ; male: 5.7%
Taqui, et al., 2008	Pakistan, 156 medical students	Insignificantly association	Female: 4.5% ; male: 7.5%
Boroughs, Krawczyk, and Thompson, 2010	South-eastern America, 1041 undergraduate students	Females endorsed significantly more BDD symptoms	Female: 6.2% ; male: 2.3%
Dlagnikova and Van Niekerk, 2015	South African, 395 undergraduate students	No statistically significant difference	Female: 4.2% ; male:7.1%
Grant, Lust, and Chamberlain, 2019	Chicago, 3459 University students	Significantly association	Female: 1.0 % ; male: 2.5 %
Alsaidan, et al., 2020	Saudi Arabia, 1010 young social media users	Insignificant association	Female: 4.6% ; male: 3.7%
Mohammed AlShahwan, 2020	Saudi Arabia, 497 dermatology patients	Significantly association	Female: 16.8% ; male: 5.7%
Mohammad Morshad Alam, et al., 2022	Bangladesh, 1204 Undergraduate university students	Significantly associated with BDD symptomatology	Female: 14.8% ; male: 9.8%
Alghamdi, et al., 2022	Saudi Arabia, 520 general population	Significantly association	Female: 11.7% ; male: 5.8%

Bohne, et al. (2002a) showed that gender was not significantly associated with BDD. The authors reported that BDD influences males and females in approximately equal numbers in non-clinical samples. However, the refusal rate of 33% limits them to generalize their data. This finding was consistent with a study from Taqui, et al. (2008) which was conducted on the university student population, and research by Dlagnikova and Van Niekerk (2015) that was conducted on university students, both studies said that BDD was not significantly associated with gender. Also, the results from Alsaidan, et al. (2020) which focused on young social media users concluded that there is no significant association between gender and BDD.

In contrast, Grant, Lust, and Chamberlain (2019) concluded a significant association between gender and BDD, in which males were more prone to BDD. From another point of view, a study by Alghamdi, et al. (2022) and Mohammed AlShahwan (2020) showed a significant association between gender and BDD, in which BDD is more common in females. The findings were parallel with a study by Boroughs, Krawczyk, and Thompson (2010) in which the target population is undergraduate students and concluded that females endorsed more BDD symptoms than males. Furthermore, Mohammad Morshad Alam, et al. (2022) who targeted undergraduate university students also showed that BDD is more common in females. The reason why females showed a higher prevalence than males, may be explained by Quittkat, et al. (2019). In the research of Quittkat, et al.

(2019), males were found to be more satisfied with their body image than females when they were asked to self-rate their attractiveness. Besides, beauty is always an important character of the female role stereotype, and females with an unattractiveness appearance might be seen as more of a social liability than males' physical unattractiveness (Alomari and Makhdoom, 2019).

2.2.2 Association of Age with BDD

A series of studies have studied the association between BDD and age groups. Some of the age groups may show a higher prevalence of BDD. The association between age groups and BDD was studied by a few authors previously, and the previous studies' outcomes were shown in Table 2.3.

Table 2.3: Association between age and BDD.

Author (s)	Location, Subject	Results
Bohne, et al., 2002a	German, 133 college students	No difference in age were found for BDD and non-BDD groups
Koran, et al., 2008	United States, 2048 adults	Significantly associated with BDD ≤ 44 years age group: 4.0% ; > 44 years age group: 1.3%
Dlagnikova and Van Niekerk, 2015	South African, 395 undergraduate students	Significant difference in the severity of BDD BDD scores of respondents >21 years old was lower than <21 years old groups Significant associated with prevalence of BDD Late adolescents (up to 21 years of age) (n=12; 60.0%) Young adults (≥ 21 years of age) (n=8; 40%)
Alsaidan, et al., 2020	Saudi Arabia, 1010 young social media users	Significant associated with prevalence of BDD <20 years age group: 6.6% ; 20 to 25 years age group: 3.5% >25 years age group: 1.3%
Mohammad Morshad Alam, et al., 2022	Bangladesh, 1204 Undergraduate university students	Significantly associated with BDD symptomatology <20 years age group: 10.7 % ; 20 to 24 years age group: 13.0 % >24 years age group: 4.7 %
Alghamdi, et al., 2022	Saudi Arabia, 520 general population	Significantly associated with significant BDD symptoms < 40 years age group: 10.1% ; ≥ 40 years age group: 3.4%

Based on Table 2.3, research by Bohne, et al. (2002a) that was conducted in Germany among college students, concluded that age has no significant difference in the BDD group and non-BDD group. However, studies by Alsaidan, et al. (2020) and Mohammad Morshad Alam, et al. (2022) concluded that age was significantly associated with BDD. While the results from both studies were different. Mohammad Morshad Alam, et al. (2022) declared that the highest prevalence of body concern was found in the age group of 20 to 24 years old (13.0%) whereas Alsaidan, et al. (2020) stated that the highest prevalence of BDD was found in those who are less than 20 years old (6.6%).

Meanwhile, Dlagnikova and Van Niekerk (2015) reported that there was a significant association between age groups and the prevalence of BDD in which late adolescents (< 21 years of age) have a higher prevalence of BDD %) than young adults (≥ 21 years of age). However, the authors claimed that young adults have higher BDD severity scores than late adolescents. The author explained that the reason could be that this is the period that young adults just want to initiate intimate relationships, and they fear being rejected which causes them to experience more pressure than other age groups, which contributes to the development of appearance preoccupation. Another reason may be young adults were undergoing physical and psychological changes, which play a significant role in developing their opinion about their appearance. Also, they tend to suffer from pressure from peers, family, and media which causes them to develop a concern about their body appearance

and personality (Shaffi Ahamed, et al., 2016). On the other hand, a study by Harris and Carr (2001) manifested that the concern about physical appearance was the highest during the late teens and early twenties, which is the period that appearance plays an important role in relationships and social activity.

Moreover, Koran, et al. (2008) which was carried out in the United States on adults, and a study by Alghamdi, et al. (2022) that was conducted in Saudi Arabia on the general population elucidated that age was significantly associated with BDD. They summarized that younger participants have a higher prevalence than older participants. The evidence given by them was BDD prevalence and symptoms decreased after ages around 40 years old.

2.2.3 Association of Education with BDD

Several studies have observed the association between the studies courses with BDD. Kang, et al. (2022) which was conducted at Malaysia University among male undergraduate students concluded students from faculty creative industries (9.1%) had a higher prevalence of BDD although the association was insignificant. However, the findings by Veale, Ennis, and Lambrou (2002 cited in Taqui, et al., 2008, p.5) have shown a significant association between BDD and education in art and design.

In addition, studies from Taqui, et al. (2008) and Shaffi Ahamed, et al. (2016) that targeted medical students, have a slightly higher prevalence of BDD (4.4% and 5.8%) than another study that focused on college students (4%) (Bohne, et al., 2002b). Taqui, et al. (2008) explained that medical students might have more body concern than students from other fields due to the high expectations of society for the appearance of doctors. While there is not much research observed on the association between types of faculties and the prevalence of BDD, their association could be examined in the future.

On top of that, the association between the type of university (public or private) and BDD has also been studied by previous researchers. Mohammad Morshad Alam, et al. (2022) said that BDD symptoms were significantly associated with BDD symptomatology, where BDD symptoms are more commonly presented in private university students (15%) than public university students (9.1%). Students of private universities had 1.7 times higher odds in comparison to the students of public universities. The author explained that more students from private universities had BDD symptoms may be due to the majority of the students of private universities being from financially established families. This significant association also emphasizes that more studies should be conducted to observe the high prevalence of BDD among students from private universities.

2.2.4 Association of Monthly Household Income with BDD

The results of whether the household monthly income is associated with BDD are mixed. Some studies showed a significant association while some said no significant association between household monthly income and BDD. The results were demonstrated in Table 2.4.

Table 2.4: Association between monthly household income and BDD.

Author (s)	Location, Subject	Results
Fontenelle, et al., 2006	Brazil, 20 patients with BDD	Majority of BDD patients were economically unproductive (n= 17; 85%)
Rief, et al., 2006	German, 2552 general population	Significantly difference between the BDD and non-BDD group Mean household income was lower in the BDD group
Alsaidan, at al. 2020	Saudi Arabia, 1010 young social media users	Insignificantly associated with prevalence of BDD
Mohammed AlShahwan, 2020	Saudi Arabia, 497 dermatology patients	Insignificantly associated with prevalence of BDD
Mohammad Morshad Alam, et al., 2022	Bangladesh, 1204 Undergraduate university students	Significantly associated with BDD symptomatology ≤25 000: 14.1% 25 001 to 50 000: 10.3% 50 001 to 100 000: 12.1% >100 000: 19.8%
Alghamdi, et al., 2022	Saudi Arabia, 520 general population	Insignificantly associated with significant BDD symptoms

Based on Table 2.4, studies by Alghamdi, et al. (2022), Alsaidan, et al. (2020) and Mohammed AlShahwan (2020) that focused on the general population, social media users, and dermatology patients in Saudi Arabia, respectively summarized that there was no significant association between monthly household income and BDD.

On the other hand, a study from Fontenelle, et al. (2006) which focused on patients with BDD in Brazil showed that major BDD patients were economically unproductive (n=17, 85%). The plausible reason why the majority of BDD patients were considerable economic disability was that excessive concern with physical appearance will influence the daily living, psychological aspects, and even job performance which leads to poor economic status (Harris and Carr, 2001). This reason was supported by the fact that 51.7% of the BDD patients showed significant impairment in academic or job performance in this study. In addition, results from Rief, et al. (2006) in which the targeted participants are the general population, supported the study of Fontenelle, et al. (2006) who reported that a significant difference was found between the BDD and non-BDD groups in terms of mean household income, where the BDD group had a lower mean household income than the non-BDD group

Nonetheless, Mohammad Morshad Alam, et al. (2022) that studied undergraduate students in Bangladesh reported that a significant association was found between BDD symptomatology and household income, in which the richest group had the highest prevalence which contradicts the result from Fontenelle, et al. (2006) and Rief, et al. (2006). The reason rich people are more prone to BDD may due to they have greater access to cosmetic surgery and other intervention that can help them to change their physical appearance which may increase the likelihood of developing BDD (Veale, 2018).

2.2.5 Association of Marital Status with BDD

Those who have married or are in a relationship may gain more support from their partner than those who are single, which reduces their concern about their appearance. Otherwise, they may experience more stress than those who are single in the case of struggling with their appearance to attract their partner (Abramowitz, et al., 2007 cited in Masoumi, Shirkhouii, and Asghari, 2022, p.61). The association between marital status and the prevalence of BDD was studied in previous research and the findings of previous research were summarized in Table 2.5.

Table 2.5: Association between marital status and BDD.

Author (s)	Location, Subject	Results
Fontenelle, et al., 2006	Brazil, 20 patients with BDD	Great majority of BDD patients were single, separated or divorced (n = 18; 90%)
Koran, et al., 2008	United States, 2048 adults	Great majority of BDD patients were single (34.0%)
Grant, Lust, and Chamberlain, 2019	Chicago, 3459 University students	Significantly associated with prevalence of BDD Single: 2.3% Dating: 1.5%
Alsaidan, et al., 2020	Saudi Arabia, 1010 young social media users	Insignificantly associated with prevalence of BDD Single: 4.6% Married: 1.4%
Mohammed AlShahwan, 2020	Saudi Arabia, 497 dermatology patients	Insignificantly associated with prevalence of BDD Single: 11.9% Married: 16.2%
Alghamdi, et al., 2022	Saudi Arabia, 520 general population	Significantly associated with prevalence of BDD Single: 12.0% Married: 5.3%
Mohammad Morshad Alam, et al., 2022	Bangladesh, 1204 Undergraduate university students	Insignificantly associated with BDD symptomatology Unmarried: 12.4% Married: 14.6%

Based on Table 2.5, Mohammed AlShahwan (2020) and Mohammad Morshad Alam, et al. (2022) both said that there is no significant association between BDD and marital status. Plus, Alsaidan, et al. (2020) also claimed that there was no significant association between marital status and BDD.

In contrast, Grant, Lust, and Chamberlain (2019) conducted a study on University students, the results demonstrated that BDD was significantly associated with a higher rate of being single. These results can be supported by the following study which concluded similar findings although the targeted population is different. A study from Alghamdi, et al. (2022) in which the targeted sample is the general population, supported the outcomes of Grant, Lust, and Chamberlain (2019), saying that BDD was significantly associated with marital status, in which BDD is more prone in unmarried respondents. Additionally, studies by Fontenelle, et al. (2006) which the targeted population was BDD patients, and Koran, et al. (2008) which focused on the general population, both stated that a larger proportion of BDD patients were never married. The reason why those who were married showed lower prevalence may be because they gain moral support from their partner which reduces their concern about appearance (Abramowitz, et al., 2007 cited in Masoumi, Shirkhouii, and Asghari, 2022, p.61).

2.3 Body Foci of Concern

2.3.1 Common Body Foci of Concern

Numerous facial or body parts can make BDD patients feel extremely concerned, such as skin, hair, nose, fat, breast, and many others. In general, the most common body focus of concern is skin. They might be concerned with their acne, scar marks, or other perceived imperfections. The common body foci of concerns that were observed by previous researchers were listed in Table 2.6.

Table 2.6: Body foci of concerns.

Author (s)	Location, subject	Results
Taqui, et al., 2008	Pakistan, 156 medical students	Being fat (31.4%), head hair (24.4%) and skin (20.5%)
Shaffi Ahamed, et al., 2016	Saudi Arabia, 365 female medical students	Skin (50.6%) and hair (45.3%)
Alomari and Makhdoom, 2019	Jeddah, 495 female students	Skin (18.4%), hair (10.7%), teeth (9.9%), and nose (9.5%)
Hakim, et al., 2021	Jeddah, 1016 governmental university students	Skin (81.6%), waist (68.8%), and nose (43.3%)
Alsaidan, et al., 2020	Saudi Arabia, 1010 young social media users	Skin (64.2%), hair (42.3%), the shape or size of belly (39.6%)
Aflakseir, Jamali, and Mollazadeh, 2021	Shiraz, 750 college students	Skin (21.5%), hair (14.2%), nose (13.6%),
Alghamdi, et al., 2022	Saudi Arabia, 520 general population	Hair (33.5%), breast (17.9%), and skin (9.6%)
Mohammad Morshad Alam, et al., 2022	Bangladesh, 1204 Undergraduate university students	Acne (12.5 %), thin hair (9.5 %), scar marks (6.4 %), teeth problems (5.7 %), and nose problems (3.1 %)

In the studies of Shaffi Ahamed, et al. (2016), Alomari and Makhdoom (2019), Hakim, et al. (2021), Aflakseir, Jamali, and Mollazadeh (2021), and Mohammad Morshad Alam, et al. (2022) all said that skin was the most common body foci of concern among students. The possible reason given by Shaffi Ahamed, et al. (2016) is that college students who are constantly under stress conditions will cause the development of acne, which explains why skin becomes the most concern claimed by them. Other than skin, dissatisfaction with their hair, such as thin hair, is also a commonly reported concern (Taqui, et al., 2008; Alsaidan, et al., 2020; Alghamdi, et al., 2022; Mohammad Morshad Alam, et al., 2022). Other aspects, such as nose, teeth, and being fat also became a concern to them.

2.3.2 Body Foci of Concern Among BDD Patients

The body foci of concern of BDD respondents were different from those who are not positively screened as BDD. The body foci of concern reported by BDD patients from the previous studies were summarized in Table 2.7.

Table 2.7: Body foci of concern among BDD patients.

Author (s)	Location, subject	Results
Shaffi Ahamed, et al., 2016	Saudi Arabia, 365 female medical students	Skin (75%), fat (68.8%), and nose (56.3%)
Alomari and Makhdoom, 2019	Jeddah, 495 female students	Obesity/overweight concern (50.0%), nose (42.6%) and skin (37.4%)
Alsaidan, et al., 2020	Saudi Arabia, 1010 young social media users	Skin (78.6%), the shape or size of nose, mouth, jaws or lips (47.6%), and hair (35.7%)

The most common body feature of concern among BDD respondents was skin (75%), followed by body fat (68.8%) as revealed by Shaffi Ahamed, et al. (2016). The authors also reported that those who chose skin and being fat as concerns were more likely to be diagnosed with BDD. For instance, the respondents who report skin as part of their concern were 3.93 times more likely to have BDD, when compared with the respondents who did not report skin as the body foci of concern. Research by Alomari and Makhdoom (2019) that was conducted on students also concluded that body fat was the frequently reported concern among those who screened positive for BDD. However, Alsaidan, et al. (2020) reported that when comparing the BDD group and the non-BDD group, body fats were more common concerns in the non-BDD group of which the finding was not consistent with Shaffi Ahamed, et al. (2016) and Alomari and Makhdoom (2019). Alsaidan, et al. (2020) explained that this was possibly due to the use of the Body Dysmorphic Disorder Questionnaire (BDDQ), which excluded the respondents from not having the main concern of being thin or fat from the BDD group.

2.3.3 Association between Genders with Body Foci of Concerns

Gender influences the body of concern. As reported by Malcolm, et al. (2021), the common concerns among males were skin (46.2%) and nose (34.6%) whereas among females were skin (52.3%), weight or body fat (38.6%), and legs, calves or thighs (36.4%). Besides, Hakim, et al. (2021) declared that the common body foci

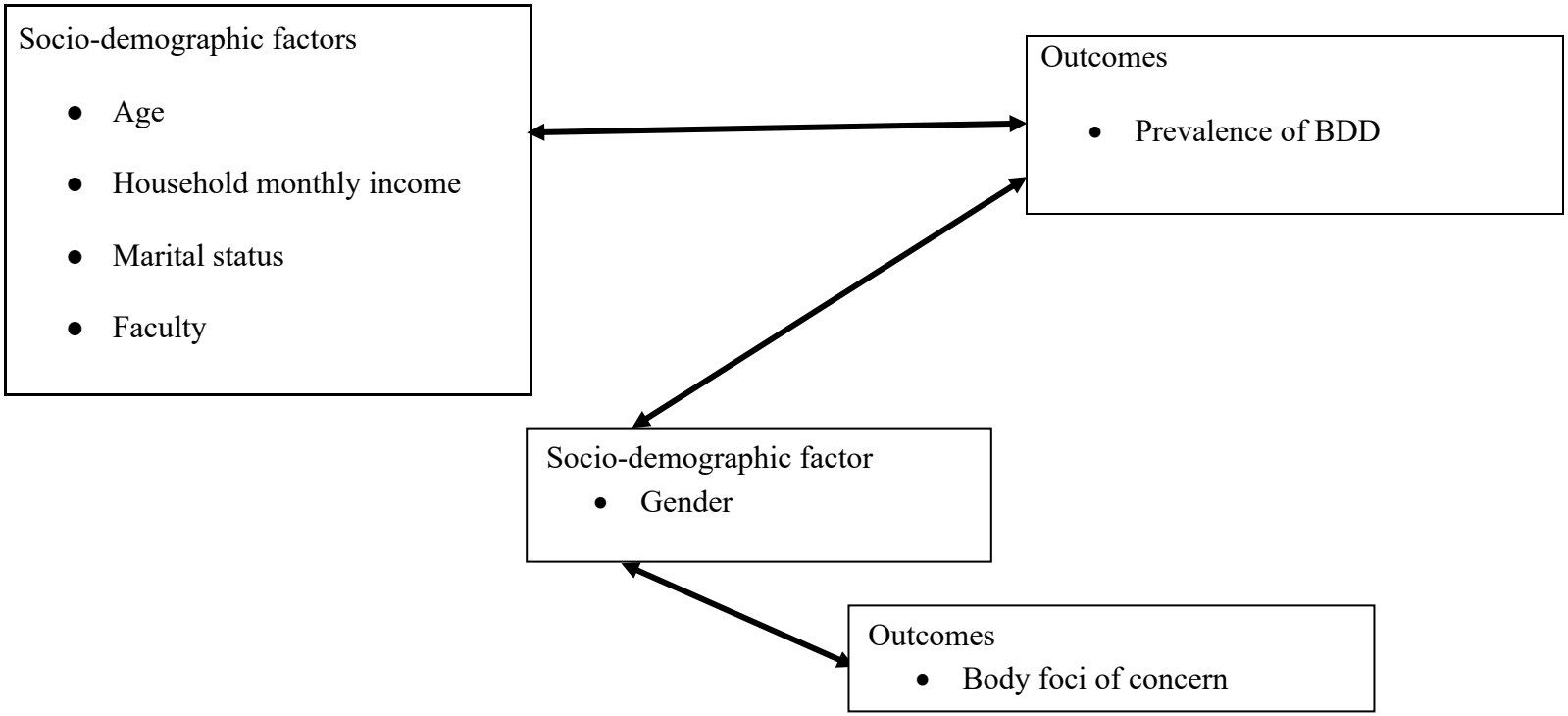
of concern among females were: skin (89.8%), waist (74.5%), and breast (49.0%), in that order whereas the common concerns among males were: skin (62.8%), waist (55.8%), and nose (39.5%). Both authors reported almost similar findings.

In terms of the association between gender and body foci of concerns, females showed significantly greater concern about being fat whereas males were found to be significantly more worried about being thin and about head hair (Taqui, et al., 2008). The reason females worried about body fatness and struggled for becoming thin could be the media describing thin as an ideal body image for females (Garner, et al., 1980 cited in Taqui, et al., 2008, p.7). Also, the concept: of 'the thinner the prettier', is what the fashion industry keeps on emphasizing nowadays (Shaffi Ahamed, et al., 2016).

Furthermore, Malcolm, et al. (2021) claimed that gender was significantly associated with legs and muscles. For example, females were significantly more worried about their legs such as calves or thighs than males. Also, males were significantly more worried about their body muscles than females. This might be due to in males, there was a stereotype that males must be masculine, which resulted in them becoming more anxious about whether their body image is thin (Drummond, 2002 cited in Taqui, et al., 2008, p.7).

The findings from Hakim, et.al. (2021) who studies university students found that skin was significantly associated with gender, with more females concerned about this ‘defect’ than were males. However, Malcolm, et al. (2021) showed the opposite findings, in which females were not significantly more concerned with their skin than males. This discrepancy might relate to a slightly smaller sample size and the use of a more conservative alpha adjustment. Moreover, Hakim, et.al. (2021) said that waist was also significantly associated with gender, with females being more worried about this site defect than males.

2.4 Conceptual Framework



CHAPTER 3

METHODOLOGY

3.1 Ethical Considerations

Ethical approval for the questionnaire was obtained from the UTAR Scientific and Ethical Review Committee. The proof was shown in Appendix A. Verbal consent was obtained from the respondents before asking them to complete the questionnaire. The purpose of the study was explained, and assurance of confidentiality was given. The respondents were informed that they could withdraw from the study at any time.

3.2 Study Design and Study Site

A descriptive, cross-sectional study was conducted from November 2022 to December 2022 among undergraduate students of Universiti Tunku Abdul Rahman, a private University in Kampar, Malaysia. This study followed the Personal Data Protection Act 2010 and was permitted by the UTAR Scientific and Ethical Review Committee (U/SERC/31/2023). The samples were selected through convenience sampling which means collecting data from the samples that full filled the inclusion criteria and were available around the location. This can ensure the efficiency of

the research. A self-administered Body Image Disturbance Questionnaire (BIDQ) was applied as a tool to assess the prevalence rate of BDD among undergraduate UTAR students in Kampar.

3.3 Inclusion and Exclusion Criteria

All undergraduate UTAR students in Kampar who filled out the questionnaires completely were eligible for participation. Those who were undergraduate UTAR Kampar students and Malaysian were included. Any subject who is currently studying foundation and non-student was excluded from the research. In addition, students who submitted incomplete or unclear responses and cannot be connected back for clarification were not included in the study as well.

3.4 Study Sample

The sample size was calculated based on Danial (1999) single population proportion formula, which is

$$n = \frac{z^2 p(1-p)}{d^2}$$

n = sample size

Z = Statistic for a level of confidence (z-score = 1.96 when 95% confidence level)

P = Expected prevalence or proportion

d = Precision (5% accuracy)

The expected prevalence rate of BDD used in the calculation is 5.8%, which was obtained from Taqui, et al. (2008). So, the sample population required in this research with a 95% of confidence level and precision of 0.05 was 84 students.

$$n = \frac{1.96^2 \, 0.058 \, (1-0.058)}{0.05^2}$$

$$= 83.96 \approx 84$$

$$84 \times \frac{120}{100} = 101$$

After considering the incomplete response and drop-out rate, the sample size was increased by 20%, so the final sample size required for this research was 101 ≈ 110 students.

3.5 Questionnaire

The BIDQ was adopted from Taqui, et al. (2008). The internal consistency of BIDQ is high. It has a Cronbach's alpha of 0.89 to 0.90 for females and 0.87 to 0.89 for males (Cash, et al., 2004). The alpha value is counted as reliable when the value is from 0.84 to 0.90 (Taber, 2017). This questionnaire also has a test-retest reliability of 0.88 (above 0.75: excellent) (Matheson, 2019). The questionnaire can be found

in Appendix B. The questionnaire has two major sections, section A and section B, with a total of 13 questions.

3.5.1 Section A

This section covered four closed-ended questions and one open-ended question regarding socio-demographic factors: gender (male/female), age (open-ended), type of faculty (Faculty of Arts and Social Science (FAS), Faculty of Business and Finance (FBF), Faculty of Engineering and Green Technology (FEGT), Faculty of Information and Communication Technology (FICT), Faculty of Science (FSc), Institute of Chinese Studies (ICS)), household monthly income (B40: RM 1-4850, M40: RM 4851-10,970, and T20: >RM 10,970 and above), and marital status (single, in a relationship, married, divorced, and widowed).

3.5.2 Section B

This section consists of an open-ended question asking about the foci of concerns and seven closed-ended questions to diagnose BDD. All seven questions evaluateD responses according to DSM-IV criteria. Each question had responses in the form of a five-point Likert scale: (1) concern about some body part(s) being unattractive (rated from 1 = “not at all concerned” to 5 = “extremely concerned”); (2) mental

preoccupation with these concerns (rated from 1 = “not at all preoccupied” to 5 = “extremely preoccupied”); (3) suffered from emotional distress over the concerns (rated from 1 = “no distress” to 5 = “extreme and disabling”); (4) impairment in social, occupational, or other significant aspects of functioning (rated from 1 = “no limitation” to 5 = “extreme, incapacitating”); (5) effect on social life (rated from 1 = “never” to 5 = “very often”); (6) interference with school or role functioning (rated from 1 = “never” to 5 = “very often”); (7) avoidance of things due to the “defect” (rated from 1 = “never” to 5 = “very often”). The final score to diagnose BDD was the mean score obtained from the seven-item questionnaire. A mean score greater than three was considered the cut-off for diagnosing BDD. This score can identify 98% of individuals with BDD according to Cash, et al. (2004).

3.6 Data Collection

3.6.1 Questionnaire Distribution

We walked around the school to collect information from students that full filled the inclusion criteria. The questionnaires were printed out and distributed to the UTAR Kampar undergraduate students physically. A short brief was given to the students on how they should mark the question before they start to answer the questionnaire. By distributing the questionnaire to students face-to-face, we can save time waiting for collecting the responses and reduce biased responses. The reason is through online platforms, students may choose to ignore the questionnaire

which causes more time needed to collect the response. Besides, when the students have a query on the question stated they can obtain the explanation from the coordinator, which causes the chance of students simply answering the questionnaire is reduced. The questionnaire is self-administered by the students themselves, and the coordinators are not allowed to give ideas to assist the students to answer the questions, except if the students have queries on the question stated, then the coordinators can explain about the questions.

3.7 Statistical Analysis

Data obtained through printed BIDQ were filtered first by considering the inclusion and exclusion criteria, before entering into the SPSS, version 26.0. The data view was shown in Figure 3.1a and Figure 3.1b whereas the variable view was shown in Figure 3.2. The scores obtained from BIDQ were used to categorize the respondents either as BDD or non-BDD based on the cut-off point. A score greater than three was used as a cut-off point to diagnose BDD (Cash, et al., 2004).

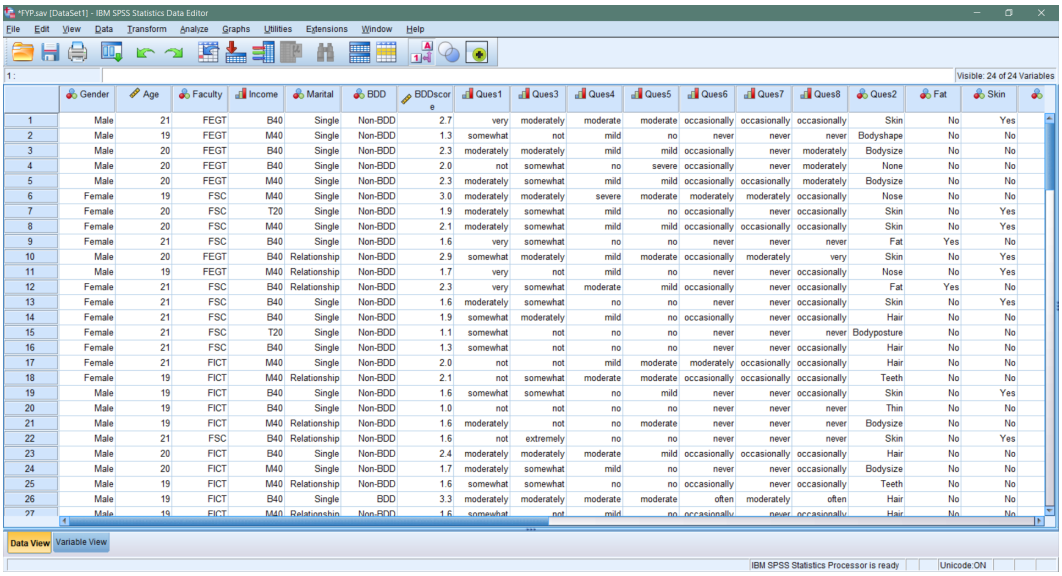


Figure 3.1a: Data view in SPSS version 26.0.

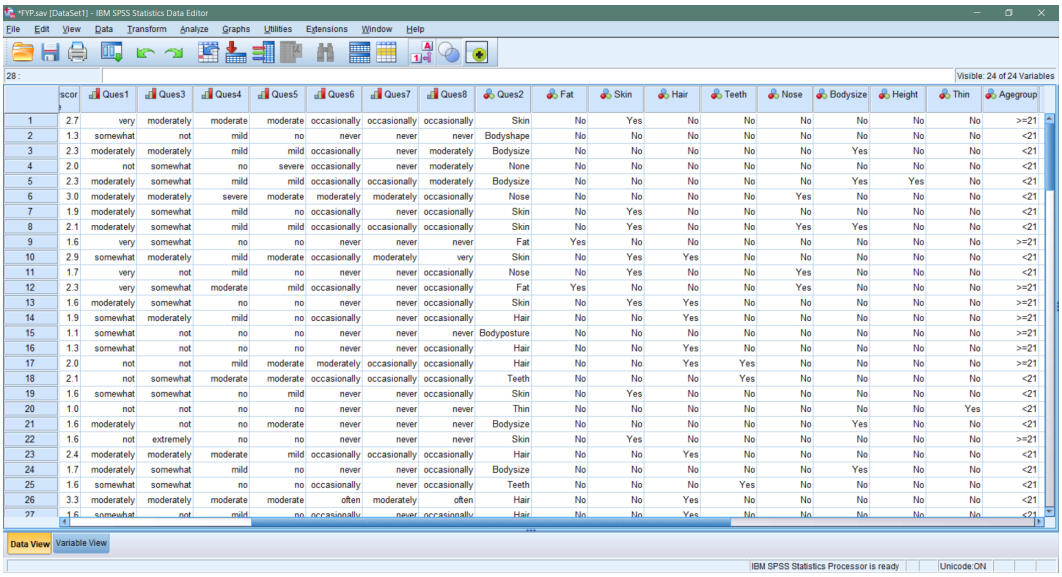


Figure 3.1b: Data view in SPSS version 26.0.

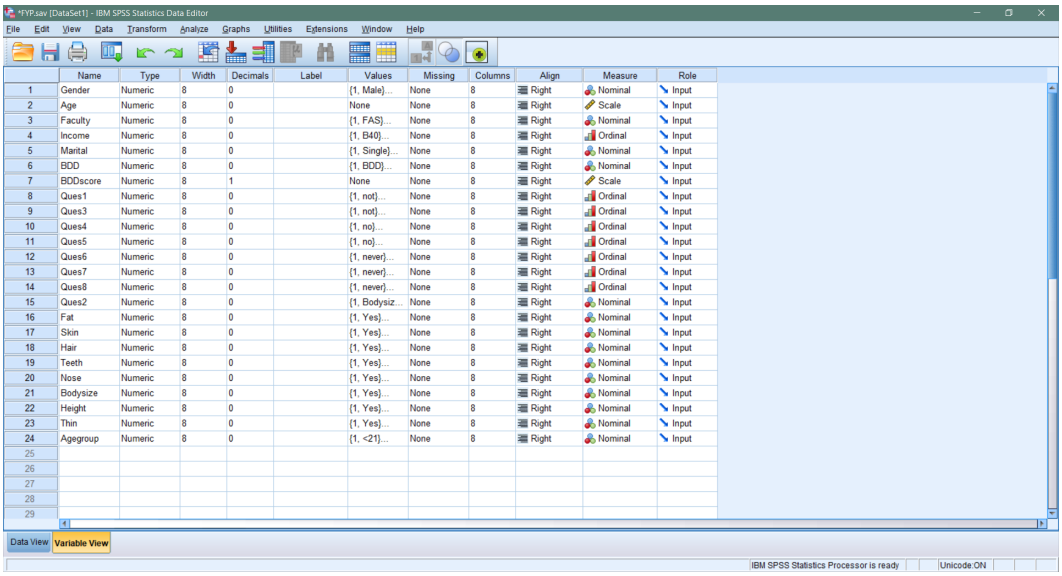


Figure 3.2: Variable view in SPSS version 26.0.

A variety of statistical tests were utilized to interpret the obtained data. In this research, descriptive statistics were applied to report categorical data such as gender, age groups, monthly household income, marital status, type of faculty, and body foci of concern of the respondents. All these categorical variables were expressed as frequencies and percentages (%) in the tables. The purpose of using descriptive statistics is to assist in the presentation and interpretation of information. Data analysis was shown in Figure 3.3.

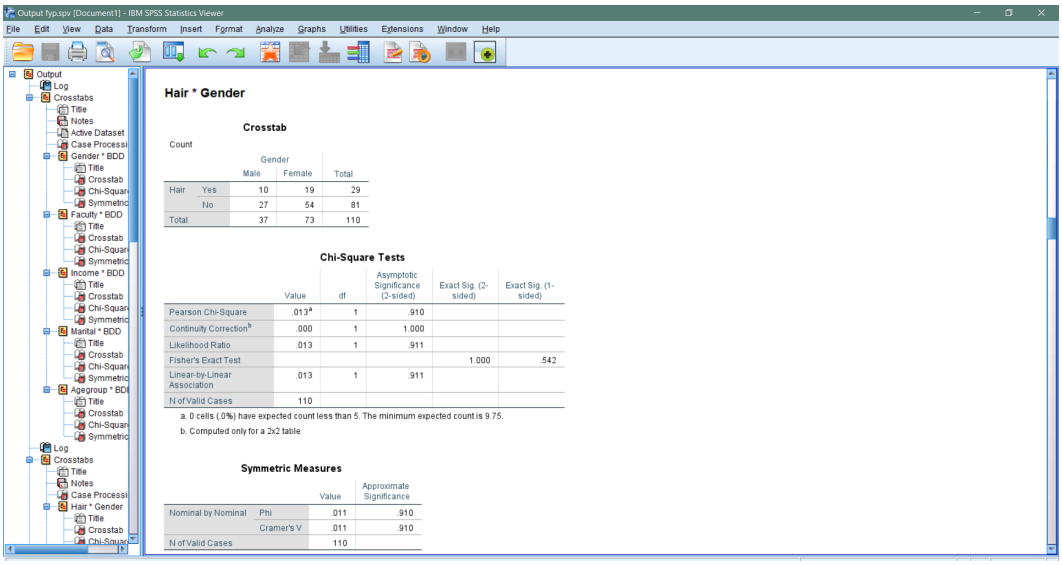


Figure 3.3: Analysis output in SPSS version 26.0.

The top three BDD scores obtained from respondents were also summarized in the form of frequencies and percentages. It is important to know the BDD scores obtained by the majority of the students to understand whether their scores are close to being diagnosed as BDD. Moreover, the number of students who obtained BDD scores of more than three was also counted and recorded. The prevalence of BDD was reported as the percentage of BDD patients relative to the total population of students who are eligible to participate in the study.

The chi-square test was used to determine the association between categorical variables (gender, age, household monthly income, marital status, and faculty) and the binary outcome (BDD or non-BDD). Also, it was applied to find whether there

is a significant association between foci of concern among male and female respondents. The strength of an association between two categorical variables for a 2 x 2 table was measured by Phi (Akoglu, 2018). The interpretation of Phi was elucidated in Table 3.1.

Table 3.1: Interpretation of Phi.

Phi	**Interpretation**
>0.25	Very strong
>0.15	Strong
>0.10	Moderate
>0.05	Weak
>0	No or very weak

Other than that, tables were applied for comprehensive viewing of the results. The statistical significance (p-value) was set as <0.05 for all tests that were applied in this research.

CHAPTER 4

RESULTS

4.1 Characteristics of the Respondents

A total of 110 Body Image Disturbance Questionnaires were distributed to the students that fulfilled the inclusion criteria around the campus. Since all the questionnaires were completed fill up, 110 responses were included. The characteristics of the respondents were analyzed.

4.1.1 Gender

The number of male and female students was calculated and expressed in Table 4.1 and Figure 4.1.

Table 4.1: Frequency and percentage analysis for gender.

Gender	Frequency	Percentage
Female	73	66.4%
Male	37	33.6%

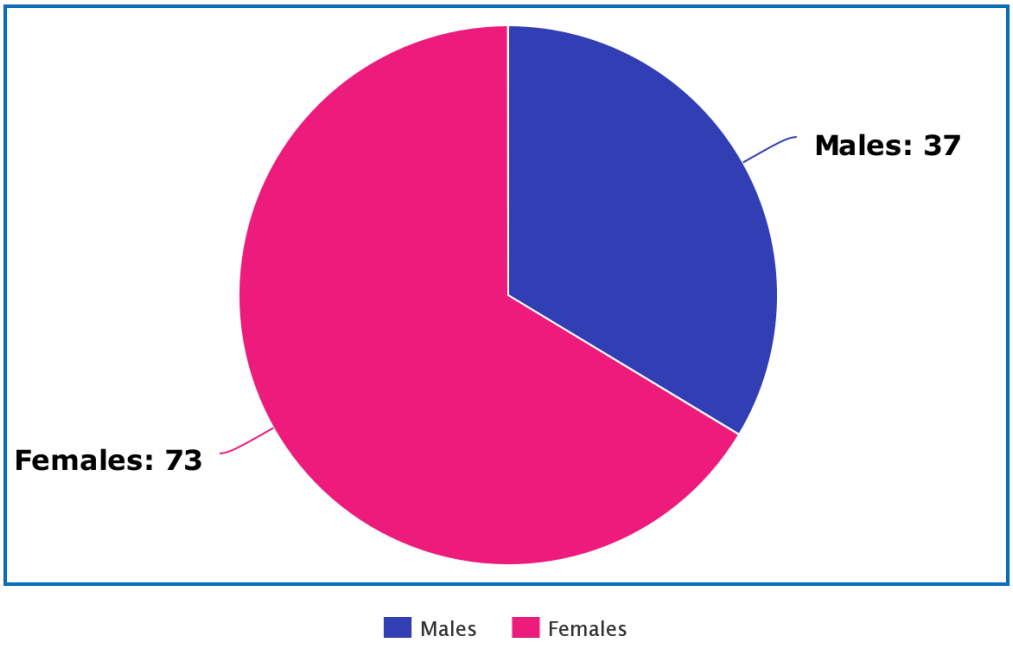


Figure 4.1: Frequency analysis for gender.

Based on Table 4.1 and Figure 4.1, out of 110 students, 37 (33.6%) respondents were males and 73 (66.4%) of them were females. Mostly of them were females.

4.1.2 Age Groups

Moreover, the age of students was divided into < 21 and ≥ 21 age groups. The frequency and percentage of students in both age groups were showed in Table 4.2 and Figure 4.2.

Table 4.2: Frequency and percentage analysis for age groups.

Age group	Frequency	Percentage
< 21	50	45.5%
≥ 21	60	54.5%

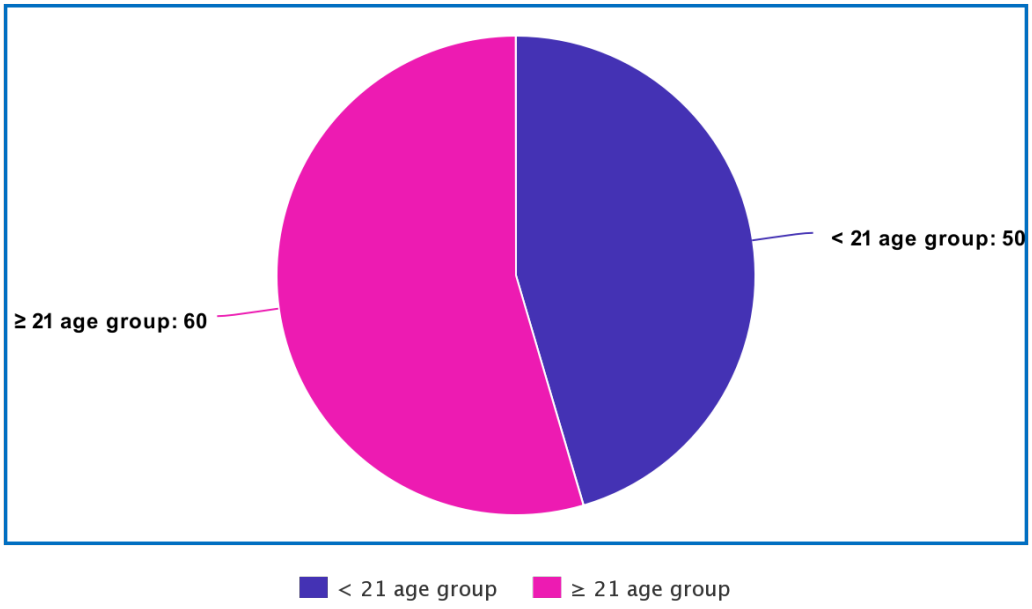


Figure 4.2: Frequency analysis for age groups.

As shown in Table 4.2 and Figure 4.2, 60 (54.5%) of them were aged 21 and above and the remaining (50, 45.5%) were less than 21 years old. Two age groups have a roughly similar number of respondents.

4.1.3 Type of Faculties

In terms of faculty, the number of students from different types of faculty such as the Faculty of Arts and Social Science (FAS), Faculty of Business and Finance (FBF), Faculty of Engineering and Green Technology (FEGT), Faculty of Information and Communication Technology (FICT), Faculty of Science (FSc), and Institute of Chinese Studies (ICS) was counted and recorded in Table 4.3 and Figure 4.3.

Table 4.3: Frequency and percentage analysis for type of faculties.

Type of faculties	Frequency	Percentage
FAS	10	9.1%
FBF	37	33.6%
FEGT	7	6.4%
FICT	15	13.6%
FSc	33	30.0%
ICS	8	7.3%

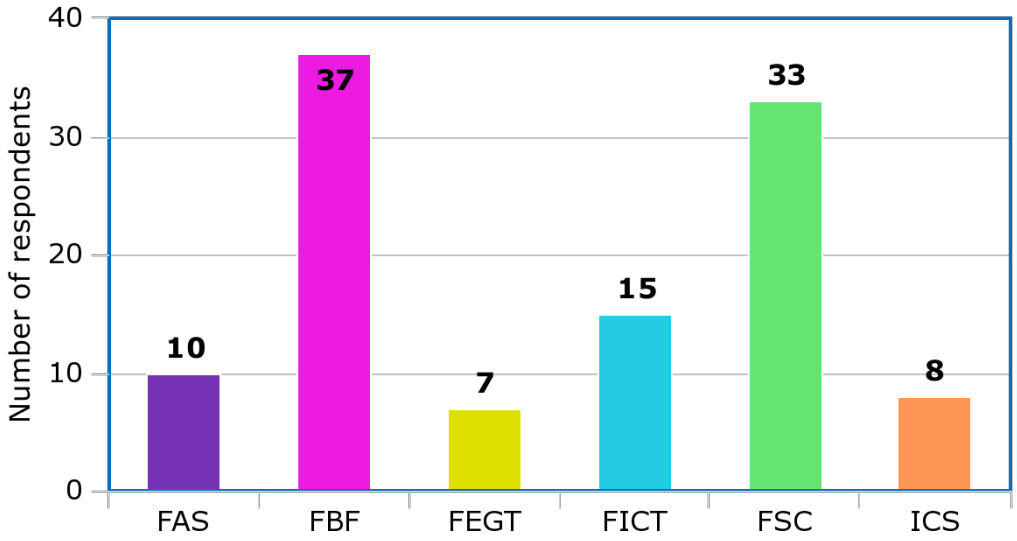


Figure 4.3: Frequency analysis for type of faculties.

Based on Table 4.3 and Figure 4.3, the majority of the respondents were from FBF (37, 33.6%), followed by FSC (33, 30.0%). Meanwhile, 10 (9.1%) of the respondents were from FAS, seven (6.4%), 15 (13.6%), and eight (7.3%) respondents were from FEGT, FICT, and ICS, respectively.

4.1.4 Monthly Household Income

Besides, in terms of the monthly household income, the results were shown in Table 4.4 and Figure 4.4.

Table 4.4: Frequency and percentage analysis for monthly household income.

Monthly Household Income	Frequency	Percentage
B40 (RM 1-4850)	58	52.7%
M40 (RM 4851-10,970)	42	38.2%
T20 (>RM 10,970 and above)	10	9.1%

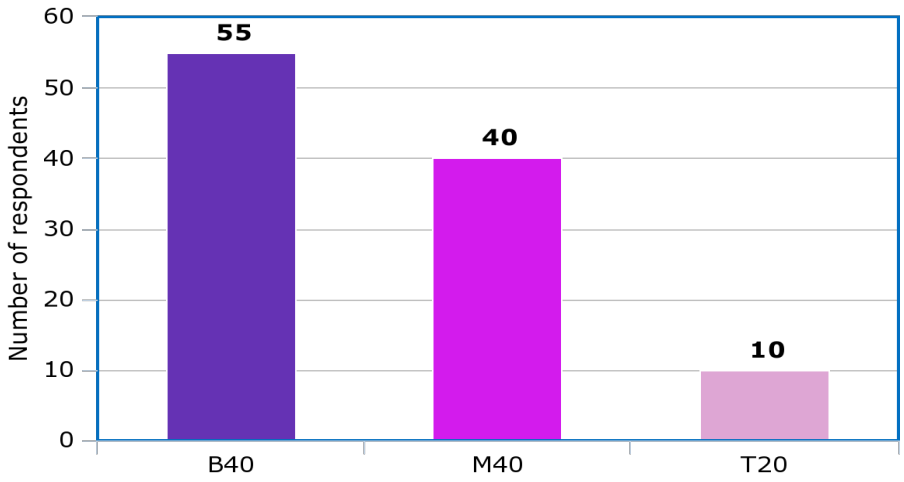


Figure 4.4: Frequency analysis for monthly household income.

Based on Table 4.4 and Figure 4.4, most of them were from B40 (RM 1-4850) families, which is 58 (52.7%) students. While only a minority of the students were from T20 (>RM 10, 970 and above) families, which is only 10 (9.1%) respondents. Also, 42 (38.2%) respondents were from M40 (RM 4851-10, 970) families.

4.1.5 Marital Status

Lastly, in terms of marital status, the students were classified into single and relationship groups. The results were elucidated in Table 4.5 and Figure 4.5.

Table 4.5: Frequency and percentage analysis for marital status.

Marital Status	Frequency	Percentage
Single	81	73.6%
In a relationship	29	26.4%

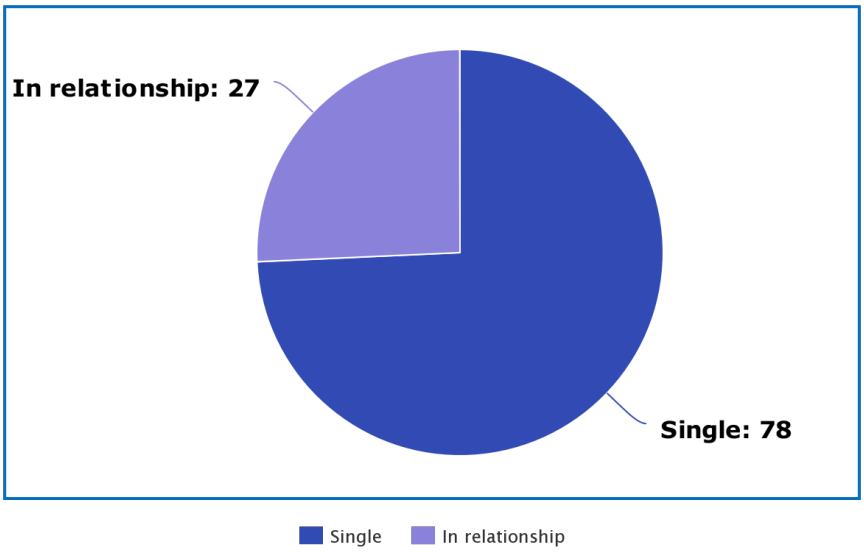


Figure 4.5: Frequency analysis for marital status.

As shown in Table 4.5 and Figure 4.5, 81 (73.6%) students were single whereas the remaining (29, 26.4%) were in a relationship.

4.2 Responses to Body Image Disturbance Questionnaire

BIDQ consists of eight questions (one open-ended and seven closed-ended). Question one and three which was regarding their concern about some body part(s) being an unattractive and mental preoccupation with these concerns. The responses to these two questions were summarized in Table 4.6.

Table 4.6: Concern about some body part(s) being unattractive and mental preoccupation with these concerns.

Questions	**Responses** Frequency (percentage %)				
	Not at all	Somewhat	Moderately	Very	Extremely
1. Are you concerned about the appearance of some part(s) of your body, which you consider especially unattractive?	13 (11.8%)	37 (33.6%)	46 (41.8%)	11 (10.0%)	3 (2.7%)
3. If you are at least somewhat concerned, do these concerns preoccupy you? That is, you think about them a lot and they're hard to stop thinking about?	25 (22.7%)	53 (48.2%)	25 (22.7%)	4 (3.6%)	3 (2.7%)

Based on Table 4.6, there were 46 (41.8%) students who reported that they were moderately concerned about the body parts that they considered unattractive, followed by ‘somewhat concerned’, ‘not at all concerned’, and ‘very concerned’. Moreover, there were only three (2.7%) students extremely concerned about these body ‘defects.

In terms of whether these concerns will preoccupy their mental health, nearly half of them chose ‘somewhat preoccupied’ as their response (53, 48.2%). The number of students that chose ‘not at all preoccupied’ and ‘moderately preoccupied’ was an equal number which was 25 (22.7%). Only a minority of students were extremely preoccupied with their concerns (3, 2.7%).

Besides, questions four and five were asking about whether these concerns caused emotional distress and resulted in impairment in social, occupational, or other significant areas of functioning. How much do these concerns bring the effects were recorded in Table 4.7.

Table 4.7: Emotional distress over the concerns and impairment in social, occupational, or other significant aspects of functioning.

Question	Responses	Frequency (Percentage %)
4. Has your physical "defect" caused you a lot of distress, torment, pain, or difficulty? How much?	No distress	29 (26.4%)
	Mild, and not too disturbing	52 (47.3%)
	Moderate and disturbing, but manageable	25 (22.7%)
	Severe, and very disturbing	4 (3.6%)
	Extreme and disabling	0 (0.0%)
5. Has your physical "defect" caused you impairment in your social, occupational, or other important areas of functioning? How much?	No limitation	45 (40.9%)
	Mild interference, but overall performance not impaired	44 (40.0%)
	Moderate, definite interference but still manageable	18 (16.4%)
	Severe, causes substantial impairment	1 (0.9%)
	Extreme, incapacitating	2 (1.8%)

Based on Tale 4.7, more than half of the students (52, 47.3%) reported that those concerns only caused mild, and not too disturbing distress, torment, pain, or difficulty to them. While there was four (3.6%) students said that this physical 'defect' caused severe, and very disturbing emotional distress. Something to highlight here, there was no one chose 'extreme and disabling' as their option.

In the matter of whether these concerns affect their social, occupational, or other important areas of functioning, the majority of students chose 'no limitation' as their response, which is 45 (40.9%) students. The number of students that chose 'mild interference, but overall performance not impaired', only differ slightly from the former option, which is 44 (40.0%). There were 18 (16.4%) students who chose 'moderate, definite interference but still manageable' as their option, followed by 'severe, causes substantial impairment' and 'extreme, incapacitating', which were 1 (0.9%) and 2 (1.8%), respectively.

Next, questions six and seven were asking about how frequently these concerns interfered social life, education, or role functioning of the respondents. The last question query on how often respondents avoid things due to this physical 'defect'. The responses were recorded as elucidated in Table 4.8.

Table 4.8: Interference with social life, school, role functioning, and avoidance of things due to the "defect".

Questions	**Responses** Frequency (percentage %)				
	Never	Occasionally	Moderately often	Often	Very often
6. Has your physical "defect" significantly interfered with your social life? How much?	45 (40.9%)	48 (43.6%)	14 (12.7%)	3 (2.7%)	0 (0.0%)
7. Has your physical "defect" significantly interfered with your education or your ability to function in your role? How much?	69 (62.7%)	30 (27.3%)	10 (9.1%)	1 (0.9%)	0 (0.0%)
8. Do you ever avoid things because of your physical "defect"? How often?	38 (34.5%)	44 (40.0%)	21 (19.1%)	4 (3.6%)	3 (2.7%)

Based on Table 4.8, 48 (43.6%) of the respondents said that this physical 'defect' has occasionally interfered with their social life. However, there were also many students, 45 (40.9%) of them answered that these concerns have never influenced them. Remaining of the respondents chose 'moderately' and 'often' as their answer, which was 14 (12.7%) and 3 (2.7%) students, respectively. However, no one chose 'very often' as their option.

In terms of education and role functioning interference, more than half of them (69, 62.7%) reported that they were never affected by this physical 'defect'. Meanwhile, 30 (27.3%) respondents declared that these concerns have occasionally interfered with their educational or role functioning, followed by the option: 'moderately often' and 'often'. While none of the respondents chose 'very often' as their answer.

Surprisingly, three (2.7%) students reported that they very often avoid things because of their physical 'defect'. This is the option that has not been chosen by the students in questions six and seven. Furthermore, majority of the respondents (44, 40.0%) said that they only occasionally avoid things, followed by 'never', 'moderately often', and 'often'.

4.3 BDD Scores

The obtained BDD scores of the respondents were summarized in Table 4.9.

Table 4.9: Top three BDD scores obtained and BDD scores of BDD patients.

BDD scores	Frequency (percentage %)	BDD/ non-BDD
1.6	16 (14.5%)	Non-BDD
2.0	15 (13.6%)	Non-BDD
2.1	12 (10.9%)	Non-BDD
3.1	1 (0.9%)	BDD
3.3	3 (2.7%)	BDD
4.1	1 (0.9%)	BDD

Based on Table 4.9, in the non-BDD group, major students (14.5%) obtained 1.6, followed by 2.0 (13.6%) and 2.1 (10.9%). For anyone who obtained a mean BDD score that was more than 3.0 will be considered as BDD. Among the five cases of BDD, one person obtained 3.1, which was the lowest among them. Three people gained the same score, which was 3.3. The remaining person scored the highest BDD score, which was 4.1.

4.4 Prevalence of Body Dysmorphic Disorder among UTAR Kampar Undergraduates Students

The respondents were assigned into BDD groups and non-BDD groups according to their BDD scores. For anyone who obtained a mean BDD score that was more than 3.0 will be considered as BDD. The findings were recorded in Table 4.10 and Figure 4.6.

Table 4.10: BDD group and non-BDD group.

Group	Frequency (percentage %)
BDD	5 (4.5%)
Non-BDD	105 (95.5%)

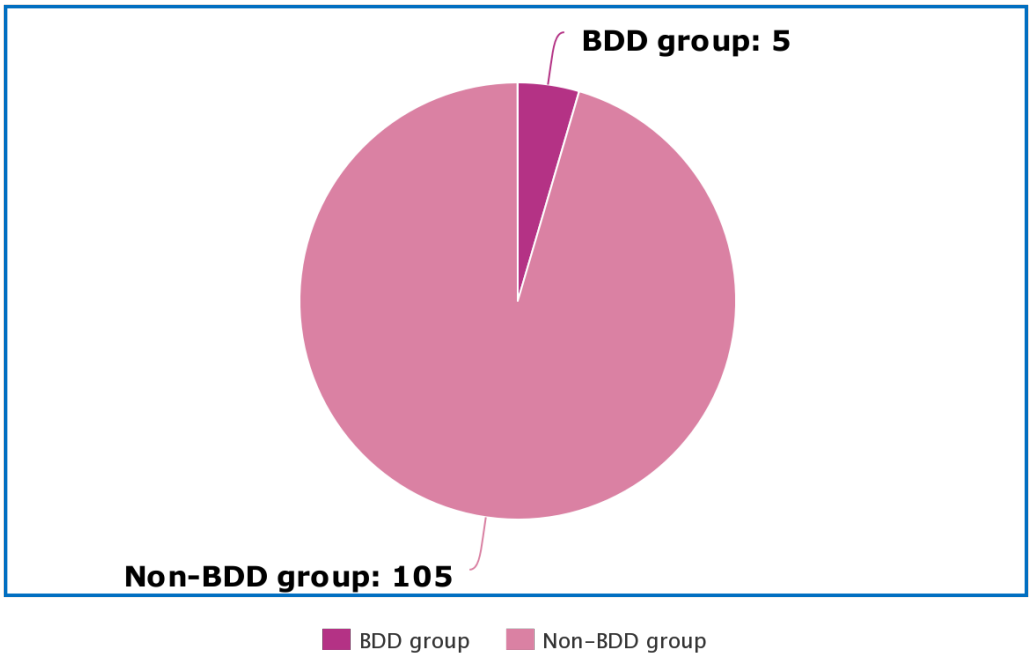


Figure 4.6: Prevalence of BDD among UTAR Kampar undergraduate students.

After the analysis of data, the prevalence of BDD among UTAR, Kampar undergraduates' students was 4.5%, which means five students out of 110 students have BDD.

4.5 Association of Body Dysmorphic Disorder with Gender, Age, Income Level, Marital Status, and Education

4.5.1 Association of Body Dysmorphic Disorder and Gender

The association between socio-demographic factors was interpreted using the Chi-square test. The association between gender, age groups, monthly household income, type of faculty, and marital status with BDD was reported in table form. The association between gender and prevalence of BDD was shown in Table 4.11.

Table 4.11: Association between gender and BDD.

Socio-demographic factors	**BDD**		**X^2 (P value)**
	No (n, %)	Yes (n, %)	
Gender			
Male	35 (94.6)	2 (5.4)	0.095 (0.758)
Female	70 (95.9)	3 (4.1)	

Based on Table 4.11, results showed that there was no significant association between gender and BDD with a p-value of 0.758 (p >0.05). There were three BDD patients were females and another two were males.

4.5.2 Association of Body Dysmorphic Disorder and Age Groups

Besides, the association between age groups and the prevalence of BDD was shown in Table 4.12.

Table 4.12: Association between age groups and BDD.

Socio-demographic factors	**BDD**		**X^2 (P-value)**
	No (n, %)	Yes (n, %)	
Age (years)			0.063 (0.802)
< 21	48 (96.0)	2 (4.0)	
≥ 21	57 (95.0)	3 (5.0)	

Based on Table 4.12, in the matter of age groups and BDD, there was no significant association (p=0.802). Three out of five of the BDD patients were aged 21 or more than that whereas the remaining two were from the < 21 age group.

4.5.3 Association of Body Dysmorphic Disorder and Type of Faculties

Furthermore, the association between the type of faculties and the prevalence of BDD was summarized in Table 4.13.

Table 4.13: Association between type of faculties and BDD.

Socio-demographic factors	**BDD**		**X^2 (P-value)**
	No (n, %)	Yes (n, %)	
Type of Faculties			2.603 (0.761)
FAS	10 (100.0)	0 (0.0)	
FBF	34 (91.9)	3 (8.1)	
FEGT	7 (100.0)	0 (0.0)	
FICT	14 (93.3)	1 (6.7)	
FSc	32 (97.0)	1 (3.0)	
ICS	8 (100.0)	0 (0.0)	

Based on Table 4.13, among types of faculties, there was no significant association with BDD as indicated by $p>0.05$ ($p=0.761$). Majority of the BDD patients were from FBF, which was three out of five of them whereas the remaining of them, one was from FICT and another was from FSc.

4.5.4 Association of Body Dysmorphic Disorder and Monthly Household Income

Moreover, the association between monthly household income and the prevalence of BDD was recorded in Table 4.14.

Table 4.14: Association between monthly household income and BDD.

Socio-demographic factors	**BDD**		**X^2 (P-value)**
	No (n, %)	Yes (n, %)	
Monthly Household Income			0.533 (0.766)
B40 (RM 1-4850)	55 (94.8)	3 (5.2)	
M40 (RM 4851-10,970)	40 (95.2)	2 (4.8)	
T20 (>RM 10,970 and above)	10 (100.0)	0 (0.0)	

Table 4.14 showed that monthly household income was not significantly associated with BDD with a p-value of 0.766 ($p>0.05$). The result showed that none of the students diagnosed with BDD was from the T20 group. Among five BDD respondents, three of them were from B40 and two of them were from M40.

4.5.5 Association of Body Dysmorphic Disorder and Marital Status

The association between marital status and BDD was elucidated in Table 4.15.

Table 4.15: Association between marital status and BDD.

Socio-demographic factors	BDD		X^2 (P-value)
	No (n, %)	Yes (n, %)	
Marital Status			0.502 (0.479)
Single	78 (96.3)	3 (3.7)	
In relationship	27 (93.1)	2 (6.9)	

Based on Table 4.15, no significant association was found (p=0.479) between marital status and BDD. Of those who were diagnosed with BDD, three were single and two were in a relationship.

4.6 Body Foci of Concern

4.6.1 Body Foci of Concern among UTAR Kampar Undergraduate Students

The number of reported and percentage of prevalence of physical 'defects' was concluded in Table 4.16 below.

Table 4.16: Body foci of concerns.

Body parts	Number of reported (n)	Percentage (%)
Skin	54	49
Body size	26	23.6
Nose	17	15.5
Fat	19	17.3
Teeth	19	17.3
Hair	29	26.4
Height	5	4.5
Thin	8	7.3
Eye	2	1.8
Other	5	4.5

Based on Table 4.16, the top three ranking body foci of concern were skin, followed by hair, and body size. The number reported were 54 (49%), 29 (26.4%), and 26 (23.6%), accordingly. The reported cases of concerns such as body fat (thigh or belly fat), teeth, and nose were in approximately equal number which was 19 (17.3%), 19 (17.3%), and 17 (15.5%), respectively. Meanwhile, height and thinness were also concerns of students although the reported cases were low which only accounted for 4.5% and 7.3%. Additionally, there were only two (1.8%) respondents who reported the eye as their concern. Last, other body parts accounted for 4.5%.

4.6.2 Body Foci of Concern among BDD Respondents

Those who were diagnosed with BDD were worried about their body fat, skin, hair, and nose. Results were summarized in Table 4.17.

Table 4.17: The body foci of concern among the BDD group.

Body foci of concern	**BDD group (n=5)**
	Number (%)
Skin	3 (60)
Hair	3 (60)
Body fats	2 (40)
Nose	1 (20)

According to Table 4.17, the top-ranking body parts reported by the BDD group were skin and hair. Three out of five of them (60% for each) raise these issues. Moreover, two BDD patients reported other foci, such as body fat (40%) and a person said she was concerned with her nose (20%).

4.6.3 Association of gender with body foci of concerns

The top three body foci of concern among female respondents were: skin (53.4%), hair (26.0%), body size (23.3%), and fat (23.3%). On the other side, the top three reported foci of concerns among male respondents were: skin (40.5%), hair (27.0%),

and body size (24.3%), in that order. The association between body foci of concern and gender was analyzed and summarized in Table 4.18.

Table 4.18: Comparison of body foci of concern among male and female respondents.

*Body foci of concern	Males (n = 37)	Females (n = 73)	X^2 (P-value)	Phi-coefficient (Φ)
	Number (%)	Number (%)		
Skin	15 (40.5)	39 (53.4)	1.631 (0.202)	-
Body size	9 (24.3)	17 (23.3)	0.015 (0.904)	-
Nose	3 (0.81)	14 (19.2)	2.303 (0.129)	-
Fat	2 (5.4)	17 (23.3)	**5.495 (0.019)	0.224
Teeth	4 (10.8)	15 (20.5)	1.629 (0.202)	-
Hair	10 (27.0)	19 (26.0)	0.013 (0.910)	-
Height	4 (10.8)	1 (1.4)	**5.044 (0.025)	0.214
Thinness	2 (5.4)	6 (8.2)	0.288 (0.591)	-

*These body foci of concern have multiple responses and percentages in the column will not add up to 100%
**Significant association

Based on Table 4.18, when comparing gender, body fat (p=0.019) and height (p=0.025) were significantly associated with gender. Nonetheless, for the other foci of concerns such as skin, body size, nose, teeth, hair, and thinness, there was no significant association observed. Body fat has a strong association (Φ=0.224) with gender. Females (17, 23.3%) were more concerned about becoming fat than males (2, 5.4%). The body parts they were concerned about were belly and thigh fat. Furthermore, height has a strong association (Φ=0.214) with gender which males (4, 10.8%) were more worried about their height than females (1, 1.4%).

CHAPTER 5

DISCUSSION

5.1 Prevalence of BDD

5.1.1 Prevalence of BDD among the Student Population

The prevalence of BDD among UTAR Kampar undergraduate students was 4.5%. This prevalence suggested that BDD was common in students which may attract social attention to BDD. Results were almost the same as the outcome obtained by Shaffi Ahamed, et al. (2016), in which the studied population was 365 female medical students, and the prevalence rate was 4.4%. Also, this prevalence was comparable to the findings of Bohne, et al. (2002b) and Boroughs, Krawczyk, and Thompson (2010) that focused on the student population, in which the prevalence rate was 4.0% and 4.9%.

However, when compared to the studies by Alomori and Makhdom (2019), Hakim, et al. (2019), and Alotaibi, et al. (2022), the obtained prevalence of BDD in this study was notably lower than their findings. These studies were conducted in Saudi Arabia and the targeted population was students. The prevalence obtained by them was 12.3%, 13.9%, and 14.68%. Alomori and Makhdom (2019), Hakim, et al.

(2019), and Alotaibi, et al. (2022), all gave the same explanation for the high BDD prevalence observed. They explain the creation of new social media applications, such as Snapchat, which is an application that reply to others' messages with pictures of oneself, magnifying the potential body foci of concerns. In turn, this increased the prevalence of BDD. Recent research also elucidated that those who spend more time viewing their selfie, editing photos, and using social media was associated with greater body and facial concerns (Sun and Rieder, 2022). The lower prevalence rate in this study may be due to Malaysian students not being familiar with this kind of social media application (Uma, et al., 2021).

In addition, the BDD prevalence of this study was slightly lower than the fieldwork that was conducted on medical students (5.8%) as reported by Taqui, et al. (2008). The possible reason might be that medical students placed more value on their physical appearance due to higher societal expectations towards doctors. In general, society assume doctors should look smart in their appearance, causing them to feel more stress which contributes to a higher prevalence of BDD (Taqui, et al., 2008). In this study, students from different study fields were included which may be the reason for obtaining different findings.

5.1.2 Comparison between Community and Student Population

When comparing the prevalence rate of BDD among the community population (1.7% and 2.4%) as reported by Rief, et al. (2006) and Koran, et al. (2008) with this research's results (4.5%), it was shown that student populations were more prone to develop BDD than community. The plausible explanation for such differences is due to age. Community samples included more people who are aged 30 or above, which only reflects those BDD patients that have persisted into adulthood (Shaffi Ahamed, et al., 2016). However, in this study, most of the students are aged 19 to 21. Moreover, Dlagnikova and Van Niekerk (2015) explained that this high BDD prevalence might be because students are more willing to disclose their BDD. Also, BDD often develops in adolescence or early adulthood, when they are still students (Harris and Carr, 2001).

5.1.3 Comparison with Western Countries

In terms of countries, Malaysia is an Asian country. The BDD prevalence rate that was stated by this study was 4.5% which is lower than the prevalence rate of BDD among students reported in German (5.8%) (Bohne, et al., 2002a). It can be explained that advertisements about ideal body image bring more negative impacts on Western cultures than on Asian cultures (Liao, et al., 2010). Other than that, most of the UTAR students are Chinese. As explained by Liao, et al. (2010), in

which eastern cultures placed more values on other areas, such as intellectual ability and showing respect to the elderly rather than judging others by appearance, which can reduce sociocultural pressure and explain this low prevalence rate. This finding highlighted that more research is required to validate the effects of social culture on BDD.

5.2 Association between Socio-demographic Factors and BDD

5.2.1 Association between Gender and BDD

In this research, gender showed no significant association with the prevalence of BDD. This study obtained similar results to Taqui, et al. (2008) and Dlagnikova and Van Niekerk (2015), in which gender was insignificantly associated with BDD. The possible reason may be BDD often develops in adolescence or early adulthood (Harris and Carr, 2001). Hence, it is likely that the prevalence of BDD was almost the same in both genders at a younger age (late adolescents or early twenties).

From another point of view, a study by Grant, Lust, and Chamberlain (2019) conducted in Chicago stated that males were significantly more susceptible to BDD. The possible reason why males showed a higher prevalence rate may be due to males being increasingly under stress to achieve unrealistic lean and muscular body sizes. Franchina and Coco (2018) reported that more and more movies, magazines,

music videos, and commercials have publicized the muscular images of males nowadays which has increased societal pressure on males' body images. However, the cultures between Malaysia and Chicago are different, which might be the possible reason to cause different findings. In some cultures, beauty standards may be stricter for a certain gender, which leads to a higher development of BDD. The beauty standard for males in Malaysia may be different from Chicago, United States leading to different results (Wong, 2019).

On the other hand, studies conducted by Mohammed AlShahwan (2020) and Alghamdi, et al. (2022) that were carried out in Saudi Arabia, reported gender was associated with BDD and females had a higher BDD prevalence. The authors explained that women in Saudi society may feel that their appearance will affect their choice concerning marriage, which has increased their concerns about body foci (Phillips and Diaz, 1997 cited in Alghamdi, et al., 2022, p.2907). Moreover, the cultural norms in Saudi Arabia that separate the students in college and school according to gender might affect how females perceived their appearance, which results in severe concern about their physical appearance (Weingarden, et al., 2016 cited in Alghamdi, et al., 2022, p.2907). Yet, the cultural and social norms between Malaysia and Saudi Arabia is different which means the perception of women in Malaysia and Saudi Arabia towards body image is different, in turn, the prevalence of BDD is also different (Puraikalan, 2018). Besides, UTAR does not segregate genders at school, hence this will not influence how females perceived their

appearance like women in Saudi Arabia. Hence, instead of the biological factors, such as gender, societal and cultural norms regarding body image and gender roles may be more associated with the prevalence of BDD.

5.2.2 Association between Age and BDD

The findings of this study indicated that there was no significant association between the age group and the prevalence of BDD. This result is consistent with the results from Bohne, et al. (2002a) which studied 133 college students, and showed no difference in age between BDD and non-BDD groups. The reason that age was not significantly associated with the prevalence of BDD may be due to the onset of BDD. BDD often develops in adolescence or early adulthood, which is the time they are still in school (Harris and Carr, 2001). Therefore, the prevalence of BDD may be similar across different age groups within the student population.

In contrast, this study was not parallel with a study by Mohammad Morshad Alam, et al. (2022) which was conducted in Bangladesh of which the targeted population was undergraduate students, and a study by Alsaidan, et al. (2020) that targeted young social media users. Both authors concluded that age was significantly associated with BDD. The reason that leads to the difference in results may be their studies have involved older students aged > 24 years old, and this study involved

students aged 19 to 24 years old. Hence, the division of age groups was different between the studies which possibly lead to inconsistent findings (Shaffi Ahamed, et al., 2016). Therefore, studies with wide age groups are needed to fully understand their association.

5.2.3 Association between Education and BDD

In this research, the type of faculties was not significantly associated with BDD. This result was similar to another study conducted by Kang, et al. (2022) said that the type of faculties was not significantly associated with BDD. The reason may be the students across different faculties shared the same stress and pressures (Shaffi Ahamed, et al., 2016). Therefore, these shared factors may affect all the students equally and lead to BDD, regardless of the type of faculties. On the other hand, this study contradicted the findings by Veale, Ennis, and Lambrou (2002 cited in Taqui, et al., 2008, p.5) that showed a significant association between BDD and education in art and design. The possible justification for obtaining different outcomes may be the inaccurate comparison was made due to none of the students being from the art and design in the present study. All in all, there limited studies observed on the association between types of faculties and the prevalence of BDD, and their association could be examined in the future.

5.2.4 Association between Monthly Household Income and BDD

In the present study, monthly household income was insignificantly associated with BDD. This finding was the same as Alghamdi, et al. (2022) which was conducted in Saudi Arabia, claiming that monthly income was not significantly associated with significant BDD symptoms. The possible reason that monthly household income is not associated with BDD may be because students may have other stressors or concerns in their life such as academic concerns which may take precedence over the economic concern related to body image concerns (Rafidah, et al., 2009). Individuals with BDD can come from different socio-economic backgrounds.

Nevertheless, this result was different from the study by Mohammad Morshad Alam, et al. (2022) that was carried out on undergraduate students in Bangladesh, which revealed that household income was significantly associated with BDD symptomatology. The authors said that the richest group was more prone to have BDD symptoms. The reason may be that they have greater access to cosmetic surgery and other interventions that can help them to change their physical appearance which may increase the likelihood of developing BDD (Veale, 2018). While this study claimed an insignificant association between monthly household income and BDD and the possible justification for obtaining different outcomes between this study and the study by Mohammad Morshad Alam, et al. (2022) may

be the inaccurate comparison was made due to none of the BDD patients being from the T20 (the richest) group in the present study.

Furthermore, this result contradicts a study by Rief, et al. (2006) in which the targeted participants are the general population, which concluded that a significant difference was found between the BDD and non-BDD groups in terms of mean household income, where the BDD group had a lower mean household income than the non-BDD group. Poor people are more prone to BDD may because they have low self-esteem which is associated with the prevalence of BDD (Doi, et al., 2019). However, no significant association was observed in this study. The discrepancy in results may be due to different targeted populations.

5.2.5 Association between Marital Status and BDD

In this research, marital status was not significantly associated with BDD. This result is parallel with the study by Alsaidan, et al. (2020) and Mohammad Morshad Alam, et al. (2022) which showed an insignificant association between marital status and the prevalence of BDD. A possible justification for this lack of significant association is that BDD is a complex mental disorder, which can be affected by a variety of factors, such as environmental, genetic, and psychological factors. Hence, marital status is unlikely to be the sole determinant of BDD.

Additionally, single individuals may be more under pressure to meet certain beauty standards to attract a partner whereas being in a relationship may have increased pressure to meet beauty standards to maintain attractiveness within the context of a romantic relationship. Therefore, being single or in a relationship may receive the same pressure so the likelihood of having BDD is not significantly different between single people and those who are in a relationship (Feusner, et al., 2010).

However, this study contradicted the results obtained by Grant, Lust, and Chamberlain (2019) that observed university students, reported marital status was significantly associated with BDD, in which people with BDD had a higher likelihood of being single. The authors explained that those who are diagnosed with BDD may be less likely to develop a long-term relationship. However, no significant association was found in this study. The possible justification causes the discrepancy may be attributed to the type of questionnaire being used (Danesh, et al., 2015). Our study used BIDQ for diagnosing BDD while Body Dysmorphic Disorder Questionnaire (BDD-Q) was used by Grant, Lust, and Chamberlain (2019) which leads to inconsistent findings.

Besides, Alghamdi, et al. (2022) also showed a significant association between marital status and BDD, in which most participants in the BDD group were single. Those who were single were more prone to BDD than those who were married

maybe those who have a partner receiving more mental and social support, thus, having lower stress levels which results in less prone to develop BDD (Abramowitz, et al., 2007 cited in Masoumi, Shirkhouii, and Asghari, 2022, p.61). However, none of the students in this study were married, hence, an accurate comparison cannot be made between this study and previous studies that said BDD was more prevalent in single people than married.

5.3 Body Foci of Concern

5.3.1 Common Body Foci of Concern

The highest reported foci of concern were skin. This result was parallel with the findings of Shaffi Ahamed, et al. (2016), Alomari and Makhdoom (2019), Hakim, et al. (2019), Aflakseir, Jamali, and Mollazadeh (2021), and Mohammad Morshad Alam, et al. (2022). All of these studies were observed in the student population, which is similar to the present study. Hence, the possible reason that contributed to the skin as the highest reported concern may be students were constantly exposed to stress which causes the formation of acne (Shaffi Ahamed, et al., 2016).

5.3.2 Body Foci of Concern among the BDD Group

In the present study, the common body parts reported by the BDD group were skin (60.0%), hair (60.0%), and body fats (40%). This result was similar to a study by Shaffi Ahamed, et al. (2016) which claimed that skin and body fats were the commonly reported concern in the BDD group and research by Alomari and Makhdoom (2019) which said that body fat was a frequently reported concern in the BDD group.

On top of that, hair (60.0%) was one of the top reported concerns in this study while in the studies by Shaffi Ahamed, et al. (2016) and Alomari and Makhdoom (2019), hair was not the top reported concern, with frequency percentage of 43.8% and 24.5%, respectively. The possible reason leads to the difference in results may be these two studies were conducted in Saudi Arabia, there was a cultural difference with Malaysia. Females in Saudi Arabia have a strict dress code in which they were required to cover their hair, which may affect their perception of their appearance (Zakaria and Yusuf, 2022). More, most of the respondents in this study are Chinese, they are not required to wear the headscarf, with hair being visible to the public, which may be a reason that raise their hair concerns. Despite that, more studies should be conducted regarding the high frequency of hair being reported as one of the body foci of concern.

The frequency of reported body fats was higher in the BDD group (40%) than in the non-BDD group (16.2%) in this study, which was not consistent with Alsaidan, et al. (2020) that revealed body fats were more common concerns in the non-BDD group than BDD group. The plausible reason that led to this difference was the usage of different questionnaires. In this study, BIDQ was adopted while Alsaidan, et al. (2020) applied BDDQ which excluded those respondents who did not report being thin and fat as the main concern from the BDD group. This caused an increase in the number of respondents that reported body fats as their concern but not as their main concern in the non-BDD group.

5.3.3 Association between Body Foci of Concern and Gender

The common concerns reported in males respondents were: skin (40.5%), hair (27.0%), and body size (24.3%), in that order whereas in females participants were: skin (53.4%), hair (26.0%), body size (23.3%), and fat (23.3%). One notable difference is that body fat was the top three concerns among females while not among males. In this study, body fat was significantly and strongly associated with gender, in which females were more worried about being fat than males. This was comparable with the study by Taqui, et al. (2008) which claimed females were significantly more concerned about body fat. The possible justification may be social media always portrays “thinness as beauty” in females, which causes women more preoccupied with being fat.

Likewise, height had a significant and strong association with gender, in which males were more preoccupied with their height. This finding was consistent with the study conducted by Taqui, et al. (2008) reported that males were more concerned with their height than females. On top of that, this result can support the study by Kang, et al. (2022) that reported most of the male respondents were unsatisfied with their height and they wish to become taller. The possible reason why males are more worried about their height might be due to the height-related stereotype. There is always a stereotype that perceived a tall man was associated with advantages such as better intelligence, socioeconomic status, and leadership skills (Stefanczyk, et al., 2021). They perceived taller height as a significant factor of masculinity. Besides, since height cannot be altered easily with no invasive method as the premise, which may further lead to increasing concerns about height in males (Kang, et al., 2022).

Something to highlight here is that a man has reported body muscle as one of his concerns and no females raise this concern in this study. This might link to the stereotype that claimed that males must be masculine, which results in increasing concerns about body muscles in males.

When compared to a study by Hakim, et al. (2021), none of the females in the present study wrote breast as a concern, while breast was the top three concerns

raised by female respondents in the study by Hakim, et al. (2021). The reason leading to such discrepancy may be the conservative culture in Malaysia. Even if females have concerns about their breasts, they could be hesitant in reporting these concerns.

5.4 Contributions of Findings

This study probably is the first study that observed BDD among males and females undergraduate students in Malaysia. The present research has successfully reported the prevalence of BDD among undergraduate students and assessed the association between socio-demographic factors and BDD. This can assist clinicians in easier screening those who have a higher risk to be diagnosed with BDD. Besides, this study identified the body foci of concern and the association between body foci of concern with gender. These findings can suggest suitable counseling for BDD patients. Since there was only one research related to BDD in Malaysia published online, this study seems to open the door for further study in this field. On top of that, raise awareness regarding BDD among the public in Malaysia.

5.5 Strengths of the Study

This study was low in response bias. This is because the questionnaire used in this study was short and simple, with only 13 questions in total. This can prevent respondents from feeling fatigue when answering and reduce the chance of obtaining biased results.

Plus, we chose to distribute the questionnaire to the respondents face-to-face which allowed us to keep track of them when filling out the questionnaire. This allow us to explain to participants when they faced difficulties in understanding the questionnaire, in turn, this raised the accuracy of respondents in answering the question as the possibility for them to simply choose an answer due to not understanding the question was reduced. Also, the questionnaire was validated previously which was able to produce reliable data.

In this research, the data was collected in the survey form. In the bargain, the BDD patients were often uncomfortable or ashamed to raise their concerns to a clinician unless specifically asked by the clinician (Grant, Kim, and Crow, 2001). Hence, they may be more willing to reveal their concerns in a survey form rather than an interview.

5.6 Limitations of Study

Due to limited time and resources, convenient sampling was used, and the study was only conducted among students from one university. Hence, the sample selected in the present study is less likely to be representative and does not reflect the characterization of the whole student population in Malaysia. Also, the convenience sampling method has caused this study to have limited external validity. The results obtained are difficult to be generalized to the population with different characteristics from the selected sample and from the population that was conveniently accessible. In other words, this result can only be generalized to the UTAR Kampar undergraduate students, and possibly to the undergraduate students in Kampar but is less reliable to students from other regions.

Moreover, this study is a cross-sectional study, hence, it cannot determine the causal inference which reduces the quality of information obtained from this research. Furthermore, the information obtained in this study was based on self-reports by the respondents because the tools and study design were limited. For instance, students in this study frequently report skin as their concern, while no confirmatory dermatological assessment was performed. Hence, it is unknown whether the perceived ‘defects’ by the respondents were a fact or they exaggerate their concern. This may reduce the reliability of the results.

Lastly, since those who diagnosed with BDD are frequently exhibit a lack of insight, it is highly likely that some respondents had BDD but were unaware of it. Therefore, the reported prevalence of BDD in this study tends to be underestimated.

5.7 Suggestions for Future Research

Considering the results of the present research, a few suggestions for future research have been outlined. First, in the future, if with sufficient resources and time, it is recommended to select a more representative sample through probability sampling methods such as cluster sampling. First, divide the population into clusters (based on region) and randomly select the cluster as the sample. With proper clusterization of the population, this randomization can ensure high external validity because the sample reflects the characteristics of a larger population.

Second, this study only focused on cisgender (females or males). Homosexuality may be associated with a higher prevalence of BDD. Therefore, future studies should consider the prevalence of BDD among transgender and gender-diverse people to explore this hypothesis more.

Third, the present study only included students from UTAR which is a private university, and did not include students from governmental universities. This is because it is difficult to approach students from governmental universities physically as different universities were widely geographically dispersed. It is plausible that students from governmental universities may show a different prevalence of BDD from private university students. Hence, students from governmental universities could be included in future research.

Fourth, the targeted sample in this study was students, which is the age BDD often developed. The prevalence of BDD was likely almost the same in both genders at a younger age (late adolescents or early twenties) while as time passed, BDD may impact more females than males. Hence, studies with a wide age range are required to investigate this statement more.

Lastly, due to the fewer data available relate to the association between type of faculty and BDD, hence, it is highly recommended to have further studies in this field provide new insight.

CHAPTER 6

CONCLUSION

In summary, the present study successfully delivered information regarding the prevalence rate of BDD among UTAR Kampar undergraduate students, which was 4.5%. Undoubtedly, BDD is relatively common in the student population. This outcome suggests more screening for BDD should be put on students. Besides, this study demonstrated that several factors such as males, ≥ 21 age group, in a relationship, from B40 families, and studying in FBF, had a higher prevalence of BDD, although the results were not statistically significant. Moreover, the top three common body foci of concern among UTAR Kampar undergraduate students were skin (49.0%), followed by hair (26.4%), and body size (23.6%). This study also indicated that body fat ($p=0.019$) and height ($p=0.043$) were significantly associated with gender. Females tend to be more concerned about being fat whereas males tend to be more worried about their height. These findings could help clinicians to figure out proper counseling and guidance control. Despite the limitations stated, it is hoped that results from this research can raise social awareness of BDD in Malaysia and can attract the attention of the related organizations to organize some awareness campaigns relate to BDD, thus, BDD can be diagnosed during the early stage and can be manageable. On top of that, further research is in need to validate the results of the present study.

REFERENCES

Aflakseir, A., Jamali, S. and Mollazadeh, J., 2021. Prevalence of body dysmorphic disorder among a group of college students in Shiraz. *Zahedan Journal of Research in Medical Sciences*, [e-journal] *23*(2). https://dx.doi.org/10.5812/zjrms.95247.

Akoglu, H., 2018. User's guide to correlation coefficients. *Turkish journal of Emergency Medicine*, [e-journal] *18*(3), pp.91-93. https://doi.org/10.1016/j.tjem.2018.08.001.

Alghamdi, W.A., Subki, A.H., Khatib, H.A., Butt, N.S., Alghamdi, R.A., Alsallum, M.S., Alharbi, A.A., Almatrafi, M.N., Alobisi, A.A., Al-Zaben, F. and Koenig, H.G., 2022. Body dysmorphic disorder symptoms: Prevalence and risk factors in an Arab Middle Eastern population. *International Journal of General Medicine,* [e-journal] 15, pp.2905–2912. https://doi.org/10.2147%2FIJGM.S329942.

Alomari, A.A. and Makhdoom, Y.M., 2019. Magnitude and determinants of body dysmorphic disorder among female students in Saudi public secondary schools. *Journal of Taibah University Medical Sciences*, [e-journal] *14*(5), pp.439-447. https://doi.org/10.1016/j.jtumed.2019.08.006.

Alotaibi, A.M., Almuzaini, M.M., Alotaibi, M.A. and Alotaibi, R.M., 2022. Prevalence and effect of body dysmorphic disorder in females at Madinah, Saudi Arabia. *Journal of Family Medicine and Primary Care*, *11*(10), pp.6280-6284.

Alsaidan, M.S., Altayar, N.S., Alshmmari, S.H., Alshammari, M.M., Alqahtani, F.T. and Mohajer, K.A., 2020. The prevalence and determinants of body dysmorphic disorder among young social media users: a cross-sectional study. *Dermatology Reports,* [e-journal] 12(3), pp.70-76. https://doi.org/10.4081%2Fdr.2020.8774.

Bjornsson, A.S., Didi, E.R., Phillips, K.A., 2022. Body dysmorphic disorder. *Dialogues in Clinical Neuroscience*, [e-journal] 12(2), pp. 221-232. https://doi.org/10.31887/DCNS.2010.12.2/abjornsson.

Bohne, A., Keuthen, N.J., Wilhelm, S., Deckersbach, T. and Jenike, M.A., 2002b. Prevalence of symptoms of body dysmorphic disorder and its correlates: a cross-cultural comparison. *Psychosomatics,* [e-journal] 43(6), pp.486–490. https://doi.org/10.1176/appi.psy.43.6.486.

Bohne, A., Wilhelm, S., Keuthen, N.J., Florin, I., Baer, L. and Jenike, M.A., 2002a. Prevalence of body dysmorphic disorder in a German college student sample. *Psychiatry Research,* [e-journal] 109(1), pp.101–104. https://doi.org/10.1016/S0165-1781(01)00363-8.

Boroughs, M.S., Krawczyk, R. and Thompson, J.K., 2010. Body dysmorphic disorder among diverse racial/ethnic and sexual orientation groups: prevalence estimates and associated factors. *Sex Roles,* [e-journal] 63(9-10), pp.725–737. https://doi.org/10.1007/s11199-010-9831-1.

Cash, T.F., Phillips, K.A., Santos, M.T. and Hrabosky, J.I., 2004. Measuring 'negative body image': validation of the Body Image Disturbance Questionnaire in a nonclinical population. *Body Image,* [e-journal] 1(4), pp.363–372. https://doi.org/10.1016/j.bodyim.2004.10.001.

Danesh, M., Beroukhim, K., Nguyen, C., Levin, E. and Koo, J., 2015. Body dysmorphic disorder screening tools for the dermatologist: a systematic review. *Practical Dermatology*, *2*, pp.44-49.

Dlagnikova, A. and Van Niekerk, R.L., 2015. The prevalence of body dysmorphic disorder among South African university students. *South African Journal of Psychiatry*, [e-journal] 21(3), p.3. https://doi.org/10.4102/sajpsychiatry.v21i3.668.

Doi, S., Fujiwara, T., Isumi, A. and Ochi, M., 2019. Pathway of the association between child poverty and low self-esteem: results from a population-based study of adolescents in Japan. *Frontiers in Psychology*, [e-journal] 10, p.937. https://doi.org/10.3389/fpsyg.2019.00937.

Eskander, N., Limbana, T. and Khan, F., 2020. Psychiatric comorbidities and the risk of suicide in obsessive-compulsive and body dysmorphic disorder. *Cureus*, [e-journal] 12(8). https://doi.org/10.7759/cureus.9805.

Feusner, J.D., Neziroglu, F., Wilhelm, S., Mancusi, L. and Bohon, C., 2010. What causes BDD: Research findings and a proposed model. *Psychiatric Annals*, [e-journal] *40*(7), pp.349-355. https://doi.org/10.3928%2F00485713-20100701-08.

Fontenelle, L.F., Telles, L.L., Nazar, B.P., de Menezes, G.B., do Nascimento, A.L., Mendlowicz, M.V. and Versiani, M., 2006. A sociodemographic, phenomenological, and long-term follow-up study of patients with body dysmorphic disorder in Brazil. *The International Journal of Psychiatry in Medicine,* [e-journal] 36(2), pp.243–259. https://doi.org/10.2190/B6XM-HLHQ-7X6C-8GC0.

Franchina, V., and Coco, G. L., 2018. The influence of social media use on body image concerns. *International Journal of Psychoanalysis and Education*, *10*(1), pp. 5-14.

Grant, J.E., Kim, S.W. and Crow, S.J., 2001. Prevalence and clinical features of body dysmorphic disorder in adolescent and adult psychiatric inpatients. *The Journal of Clinical Psychiatry,* [e-journal] 62(7), pp.517–522. https://doi.org/10.4088/jcp.v62n07a03.

Grant, J.E., Lust, K. and Chamberlain, S.R., 2019. Body dysmorphic disorder and its relationship to sexuality, impulsivity, and addiction. *Psychiatry Research*, [e-journal] 273, pp.260–265. https://doi.org/10.1016/j.psychres.2019.01.036.

Hakim, R.F., Alrahmani, D.A., Ahmed, D.M., Alharthi, N.A., Fida, A.R. and Al-Raddadi, R.M., 2021. Association of body dysmorphic disorder with anxiety, depression, and stress among university students. *Journal of Taibah University Medical Sciences*, [e-journal] *16*(5), pp.689-694. https://doi.org/10.1016/j.jtumed.2021.05.008.

Harris, D.L. and Carr, A.T., 2001. Prevalence of concern about physical appearance in the general population. *British Journal of Plastic Surgery,* [e-journal] 54(3), pp.223–226. https://doi.org/10.1054/bjps.2001.3550.

Kang, W.H., Loo, M.Y., Leong, X.M., Ooi, Y.F., Teo, W.Q., Neoh, T.J. and Ling, W.C., 2022. Body dysmorphic disorder and depression among male undergraduate students in a Malaysian University. *Frontiers in Psychiatry*, [e-journal] 13. https://doi.org/10.3389%2Ffpsyt.2022.977238.

Koran, L.M., Abujaoude, E., Large, M.D. and Serpe, R.T., 2008. The prevalence of body dysmorphic disorder in the United States adult population. *CNS Spectrums*, [e-journal] 13(4), pp.316–322. https://doi.org/10.1017/S1092852900016436.

Liao, Y., Knoesen, N.P., Deng, Y., Tang, J., Castle, D.J., Bookun, R., Hao, W., Chen, X. and Liu, T., 2010. Body dysmorphic disorder, social anxiety and depressive symptoms in Chinese medical students. *Social Psychiatry and Psychiatric Epidemiology,* [e-journal] 45(10), pp.963–971. https://doi.org/10.1007/s00127-009-0139-9.

Malcolm, A., Pikoos, T.D., Castle, D.J. and Rossell, S.L., 2021. An update on gender differences in major symptom phenomenology among adults with body dysmorphic disorder. *Psychiatry Research*, [e-journal] 295, p.113619. https://doi.org/10.1016/j.psychres.2020.113619.

Masoumi, F., Asghari, M. and Shirkhouii, S., 2022. The Evaluation of body dysmorphic disorder in adult orthodontic patients. *Cumhuriyet Dental Journal*, [e-journal] 25(1), pp.60-64. https://doi.org/10.7126/cumudj.986021.

Matheson, G.J., 2019. We need to talk about reliability: making better use of test-retest studies for study design and interpretation. *PeerJ,* [e-journal] 7(1), pp.1-25. https://doi.org/10.7717%2Fpeerj.6918.

Mishra, P., Pandey, C.M., Singh, U., Gupta, A., Sahu, C. and Keshri, A., 2019. Descriptive statistics and normality tests for statistical data. *Annals of Cardiac Anaesthesia*, [e-journal] *22*(1), p.67. https://doi.org/10.4103%2Faca.ACA_157_18.

Mohammad Morshad Alam, Nandita Basak, Md. Shahjalal, Mohammad Hayatun Nabi, Nandeeta Samad, Shah Mahmud Mishu, Saikot Mazumder, Supria Basak, Sanjana Zaman, Mohammad Delwer Hossain Hawlader, 2022. Body dysmorphic disorder (BDD) symptomatology among undergraduate university students of Bangladesh. *Journal of Affective Disorders,* [e-journal] 314, pp.333–340. https://doi.org/10.1016/j.jad.2022.07.019.

Mohammed AlShahwan., 2020. Prevalence and characteristics of body dysmorphic disorder in Arab dermatology patients. *Saudi Medical Journal*, [e-journal] 41(1), pp.73–78. https://doi.org/10.15537%2Fsmj.2020.1.24784.

Phillips, K.A., Didie, E.R., Menard, W., Pagano, M.E., Fay, C. and Weisberg, R.B., 2006. Clinical features of body dysmorphic disorder in adolescents and adults. *Psychiatry Research,* [e-journal] 141(3), pp.305–314. https://doi.org/10.1016/j.psychres.2005.09.014.

Puraikalan, Y., 2018. Obesity: perceptions of body image and obesity among cross culture: a review. *Obesity Research Open Journal*, *5*(1), pp.1-4.

Quittkat, H.L., Hartmann, A.S., Düsing, R., Buhlmann, U. and Vocks, S., 2019. Body dissatisfaction, importance of appearance, and body appreciation in men and women over the lifespan. *Frontiers in Psychiatry*, [e-journal] 10(864), pp.1-12. https://doi.org/10.3389%2Ffpsyt.2019.00864.

Rafidah, K., Azizah, A., Norzaidi, M.D., Chong, S.C., Salwani, M.I. and Noraini, I., 2009. The impact of perceived stress and stress factors on academic performance of pre-diploma science students: a Malaysian study. *International journal of Scientific Research in Education*, *2*(1), pp.13-26.

Rief, W., Buhlmann, U., Wilhelm, S., Borkenhagen, A. and Brahler, E., 2006. The prevalence of body dysmorphic disorder: a population-based survey. *Psychological Medicine,* [e-journal] 36(6), pp.877–885. https://doi.org/10.1017/s0033291706007264.

Shaffi Ahamed, S., Enani, J., Alfaraidi, L., Sannari, L., Algain, R., Alsawah, Z. and Ali Hazmi., 2016. Prevalence of body dysmorphic disorder and its association with body features in female medical students. *Iranian Journal of Psychiatry and Behavioral Sciences*, [e-journal] 10(2), pp.1-7. https://doi.org/10.17795%2Fijpbs-3868.

Stefanczyk, M.M., Wernecka, N., Sorokowski, P. and Sorokowska, A., 2021. Do blind people share the tall-man stereotype?. *Current Psychology*, [e-journal] 40(6), pp.3024-3029. https://doi.org/10.1007/s12144-019-00235-8.

Sun, M.D. and Rieder, E.A., 2022. Psychosocial issues and body dysmorphic disorder in aesthetics: review and debate. *Clinics in Dermatology*, [e-journal] 40(1), pp.4-10. https://doi.org/10.1016/j.clindermatol.2021.08.008.

Taber, K.S., 2017. The use of Cronbach's Alpha when developing and reporting research instruments in science education. *Research in Science Education*, [e-journal] 48(6), pp.1273–1296. https://doi.org/10.1007/s11165-016-9602-2.

Taqui, A.M., Shaikh, M., Gowani, S.A., Shahid, F., Khan, A., Tayyeb, S.M., Satti, M., Vaqar, T., Shahid, S., Shamsi, A., Ganatra, H.A. and Naqvi, H.A., 2008. Body dysmorphic disorder: gender differences and prevalence in a Pakistani medical student population. *BMC Psychiatry*, [e-journal] 8(1), pp.1-10. https://doi.org/10.1186/1471-244X-8-20.

Uma, E., Nieminen, P., Mani, S.A., John, J., Haapanen, E., Laitala, M.L., Lappalainen, O.P., Varghase, E., Arora, A. and Kaur, K., 2021, October. Social media usage among dental undergraduate students—a comparative study. *Healthcare*, 9(11), p. 1408.

Veale, D., 2000. Outcome of cosmetic surgery and 'DIY'surgery in patients with body dysmorphic disorder. *Psychiatric Bulletin*, [e-journal] *24*(6), pp.218-221. https://doi.org/10.1192/pb.24.6.218.

Veale, D., Gledhill, L.J., Christodoulou, P. and Hodsoll, J., 2016. Body dysmorphic disorder in different settings: a systematic review and estimated weighted prevalence. *Body Image*, [e-journal] 18, pp.168–186. https://doi.org/10.1016/j.bodyim.2016.07.003.

Wong, 2019. Beauty standards around the world. *Inrerrobang,* 55(14), pp.1-2.

Zakaria, N. and Yusuf, B.N.M., 2022. Sacrifices from relocation to a foreign land: Multifaceted challenges experienced by self-initiated expatriate female nurses during cross-cultural adjustment. *Current Psychology*, [e-journal] pp.1-17. https://doi.org/10.1007/s12144-022-02745-4.

Appendix A

Ethical Approval for Research from UTAR

UNIVERSITI TUNKU ABDUL RAHMAN DU012(A)
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Re: U/SERC/209/2022

3 November 2022

Dr Teh Lai Kuan
Head, Department of Allied Health Sciences
Faculty of Science
Universiti Tunku Abdul Rahman
Jalan Universiti, Bandar Baru Barat
31900 Kampar, Perak.

Dear Dr Teh,

Ethical Approval For Research Project/Protocol

We refer to the application for ethical approval for your students' research projects from Bachelor of Science (Hons) Dietetics programme enrolled in course UDDN3108. We are pleased to inform you that the application has been approved under Expedited Review.

The details of the research projects are as follows:

No	Research Title	Student's Name	Supervisor's Name	Approval Validity
1.	Association Between Depression and Added Sugar Intake Among Undergraduate Students	Chow Wan Yee	Dr Tan Chin Xuan	3 November 2022 – 2 November 2023
2.	Knowledge of Malaysian University Students Toward the Role of Dietary and Lifestyle Behaviors in Colorectal Cancer: A Cross-sectional Study	Lim Xin Yuan		
3.	The Relationship Between Eating Disorders, Stress, and Physical Activity Among Undergraduate Students in Malaysia	Goh Yining		
4.	Association Between Mindful Eating and Depressive Symptoms Among University Students	Sun Jia Yang		
5.	Association Between Physical Habits and Dietary Behaviors with Stress Levels Among Malaysian Young Adults	The Geik Qi		
6.	Knowledge, Attitude, and Practices Regarding the Risk of Cardiovascular Disease Among UTAR Students in Kampar, Perak	Chong Jing Yu	Mr Cheah Khang Jin	
7.	Nutritional Knowledge, Attitude and Practice Related to COVID-19 Among Young Adults in Malaysia	Tey Haw Tsyr		
8.	Association Between Weight Status and Social Media with Body Dysmorphic Disorder (BDD) Among UTAR Undergraduate Students	Chong Wan Lin	Dr Chang Sui Kiat	
9.	Associations Between Socio-demographic Factors with Body Dysmorphic Disorder (BDD) Among UTAR Kampar Undergraduate Students	Ng Jia Poh		
10.	Association Between Physical Activity and Depression with Body Dysmorphic Disorder (BDD) Among UTAR Undergraduate Students	Phua Jia Ying		
11.	The Association Between Psychological Distress, Sleep Quality, and Night Eating Syndrome (NES) Among Undergraduates in University Tunku Abdul Rahman (UTAR), Kampar Campus	Chow Hor Yan		

Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia
Tel: (605) 468 8888 Fax: (605) 466 1313
Sungai Long Campus : Jalan Sungai Long, Bandar Sungai Long, Cheras, 43000 Kajang, Selangor Darul Ehsan, Malaysia
Tel: (603) 9086 0288 Fax: (603) 9019 8868
Website: www.utar.edu.my

No	Research Title	Student's Name	Supervisor's Name	Approval Validity
12.	The Association Between the Physical Activity, Body Weight Status with Night Eating Syndrome (NES) Among Undergraduates in University Tunku Abdul Rahman (UTAR), Kampar	Lim An Ting	Dr Chang Sui Kiat	3 November 2022 – 2 November 2023
13.	The Association Between Sociodemographic Factors and Night Eating Syndrome (NES) Among Undergraduates in University Tunku Abdul Rahman (UTAR), Kampar Campus	Linett Chan Wei Er		
14.	Dietary Supplement Use, Knowledge and Perceptions Among Students of Faculty of Science at University Tunku Abdul Rahman (UTAR)	Chew Pei Yi	Dr Chee Huei Phing	
15.	Factors Associated with Dietary Supplement Use Among University Students at University Tunku Abdul Rahman (UTAR)	Ch'ng Jing Xuan		
16.	Knowledge, Perceptions and Usage of Dietary Supplements Use Among Students of University of Tunku Abdul Rahman (UTAR)	Hong Soo Keat		
17.	Assessment of Knowledge, Attitude and Practice of Dietary Supplement Use Among Health Science Undergraduates in Universiti Tunku Abdul Rahman (UTAR)	Low Xiang Yi		
18.	Knowledge, Attitude and Practices (KAP) of Dietary Supplements use among University Students in Kampar, Perak	Yap Zhi Qian		

The conduct of this research is subject to the following:

(1) The participants' informed consent be obtained prior to the commencement of the research;

(2) Confidentiality of participants' personal data must be maintained; and

(3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines.

(4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

Should the students collect personal data of participants in their studies, please have the participants sign the attached Personal Data Protection Statement for records.

Thank you.

Yours sincerely,

Professor Ts Dr Faidz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c Dean, Faculty of Science
Director, Institute of Postgraduate Studies and Research

Kampar Campus : Jalan Universiti, Bandar Barat, 31900 Kampar, Perak Darul Ridzuan, Malaysia
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Appendix B

Body Image Disturbance Questionnaire (BIDQ)

Section A Socio-demographic factors

1. Gender:
□ Male
□ Female

2. Age
_____

3. Faculty
□ Faculty of Arts and Social Science (FAS)
□ Faculty of Business and Finance (FBF)
□ Faculty of Engineering and Green Technology (FEGT)
□ Faculty of Information and Communication Technology (FICT)
□ Faculty of Science (FSc)
□ Institute of Chinese Studies (ICS)

4. Household monthly income
□ B40: RM 1-4850
□ M40: RM 4851-10,970
□ T20: >RM 10,970 and above

5. Marital status:
□ Single
□ In a relationship
□ Married
□ Divorced
□ Widowed

Section B Body Dysmorphic Disorder

1. Are you concerned about the appearance of some part(s) of your body, which you consider especially unattractive?
□ Not at all concerned
□ Somewhat concerned
□ Moderately concerned
□ Very concerned
□ Extremely concerned

2. Which aspect/feature (e.g. skin, hair, nose, teeth, body size: thin or fat etc) .You can list more than one. _____

3. If you are at least somewhat concerned, do these concerns preoccupy you? That is, you think about them a lot and they're hard to stop thinking about?
□ Not at all
□ Somewhat preoccupied
□ Moderately preoccupied
□ Very preoccupied
□ Extremely preoccupied

4. Has your physical "defect" caused you a lot of distress, torment, pain or difficulty? How much?
□ No distress
□ Mild, and not too disturbing
□ Moderate and disturbing, but manageable
□ Severe, and very disturbing
□ Extreme and disabling

5. Has your physical "defect" caused you impairment in your social, occupational or other important areas of functioning? How much?
□ No limitation
□ Mild interference, but overall performance not impaired
□ Moderate, definite interference but still manageable
□ Severe, causes substantial impairment
□ Extreme, incapacitating

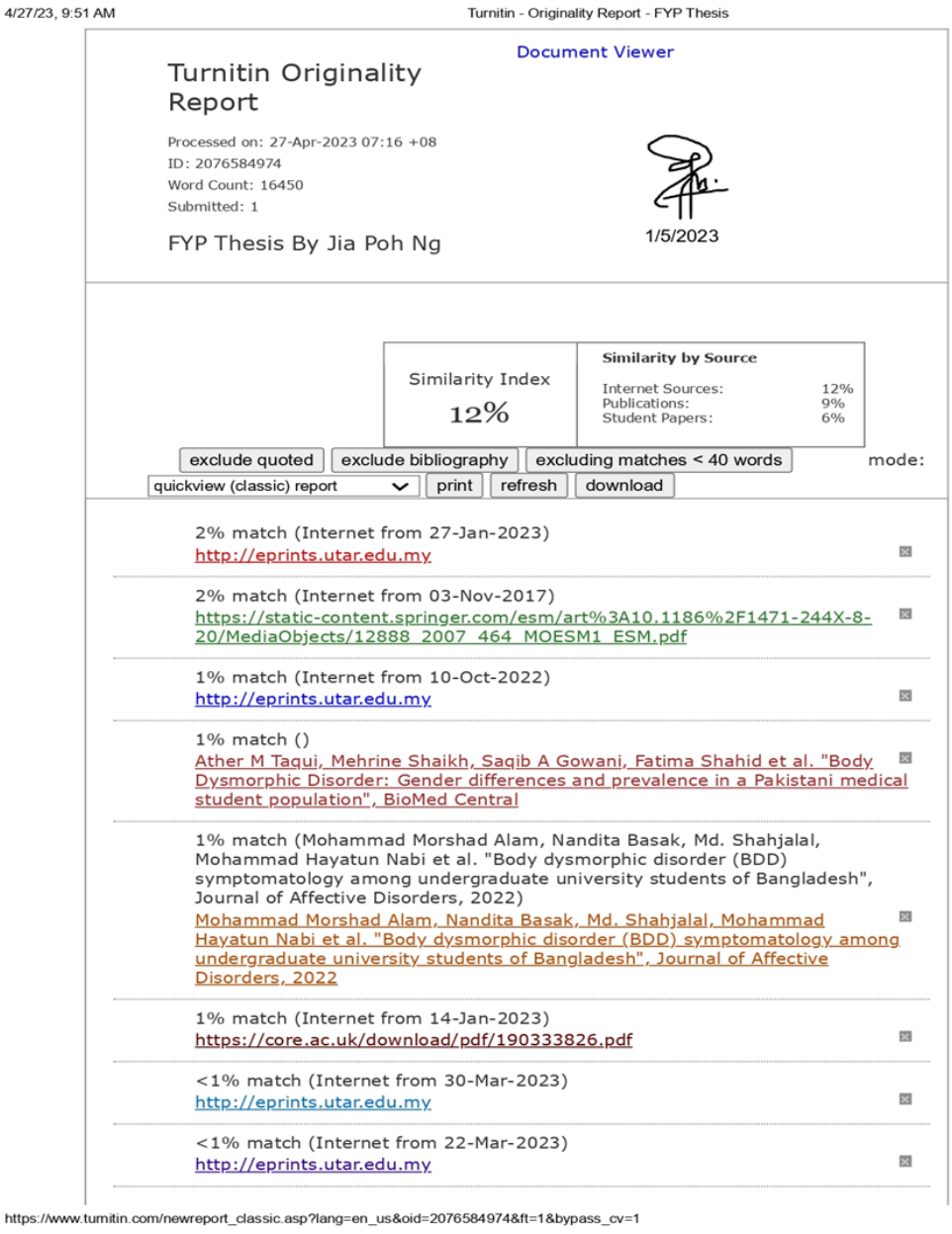
6. Has your physical "defect" significantly interfered with your social life? How much?
□ Never
□ Occasionally
□ Moderately often
□ Often
□ Very often

7. Has your physical “defect” significantly interfered with your education or your ability to function in your role? How much?
□ Never
□ Occasionally
□ Moderately often
□ Often
□ Very often

8. Do you ever avoid things because of your physical “defect”? How often?
□ Never
□ Occasionally
□ Moderately often
□ Often
□ Very often

Appendix C

Summary page of the Turnitin Originality Report



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Appendix D

FM-IAD-005 Form

Universiti Tunku Abdul Rahman			
Form Title : Supervisor's Comments on Originality Report Generated by Turnitin for Submission of Final Year Project Report (for Undergraduate Programmes)			
Form Number: FM-IAD-005	Rev No.: 1	Effective Date: 3/10/2019	Page No.: 1of 1

UTAR
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FACULTY OF SCIENCE

Full Name(s) of Candidate(s)	NG JIA POH
ID Number(s)	1903818
Programme / Course	BACHELOR OF SCIENCE (HONOURS) DIETETICS
Title of Final Year Project	ASSOCIATIONS BETWEEN SOCIO-DEMOGRAPHIC FACTORS AND BODY DYSMORPHIC DISORDER (BDD) AMONG UTAR KAMPAR UNDERGRADUATE STUDENTS

Similarity	**Supervisor's Comments (Compulsory if parameters of originality exceeds the limits approved by UTAR)**
Overall similarity index: 12 % **Similarity by source** Internet Sources: 12 % Publications: 9 % Student Papers: 6 %	
Number of individual sources listed of more than 3% similarity: None	
Parameters of originality required and limits approved by UTAR are as follows: **(i) Overall similarity index is 20% and below, and** **(ii) Matching of individual sources listed must be less than 3% each, and** **(iii) Matching texts in continuous block must not exceed 8 words** ***Note: Parameters (i) – (ii) shall exclude quotes, bibliography and text matches which are less than 8 words.***	

Note Supervisor/Candidate(s) is/are required to provide softcopy of full set of the originality report to Faculty/Institute

Based on the above results, I hereby declare that I am satisfied with the originality of the Final Year Project Report submitted by my student(s) as named above.

ChangSK

Signature of Supervisor

Name: Dr. Chang Sui Kiat

Date: 27 April 2023