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A Cross-Sectional Study on the Awareness of Miscarriage among Students of the University of Cyberjaya

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ABSTRACT

Miscarriage is generally defined as the loss of an intrauterine pregnancy before 24 completed weeks of gestation. The World Health Organization (WHO) defines miscarriage as 'the expulsion from its mother of an embryo or fetus weighing 500 g or less, corresponding to a gestational age of up to 20 completed weeks of gestation with no signs of life'. This study serves as an initial investigation on the level of awareness of miscarriage among students of the University of Cyberjaya. It is a cross-sectional study which involves the students of University Of Cyberjaya, a set of questionnaires were distributed among themselves to determine the prevalence of the condition or knowledge in question. Overall, out of 449 respondents 73,7%; n:331 of the respondents are within the age of 20- 29 years old. The results of this study shows that four of five categories, which are the gender (female, 71%, p=0.004), age group (20-29 years old, 94.9%, p=0.002), ethnicity (Indian, 40.2% ,p=0.013) and courses (MBBS, 52.1% , p=0.701) show remarkable associations with students' knowledge levels regarding miscarriage. It was also found that the respondents agreed on idea of substance abuse (57.0%, mean = 4.314) is the most common risk factor for miscarriage and the best preventative measure to overcome this problem is by controlling sugar levels, blood pressure, cholesterol, tobacco, and alcohol consumption (56.1%, p<0.001). Our research also proves that there is a significant relationship among knowledge levels, awareness of risk factors, and the adoption of preventive measures related to miscarriage among students at the University of Cyberjaya. Higher knowledge levels are associated with increased awareness of risk factors (p<0.001), and both knowledge and awareness are positively correlated with the adoption of preventive measures (p<0.001 respectively).

Keywords: Miscarriage, medical students, risk factors, substance abuse, awareness, knowledge, folic acid, prenatal care.

CHAPTER 1 INTRODUCTION

1.1 Background

Miscarriage is generally defined as the loss of an intrauterine pregnancy before 24 completed weeks of gestation. The World Health Organization (WHO) defines miscarriage as "the expulsion from its mother

of an embryo or fetus weighing 500 g or less, corresponding to a gestational age of up to 20 completed weeks of gestation with no signs of life". According to Campillo et al., miscarriage is one of the most common complications in pregnancy, with an estimated one out of four clinically recognized pregnancies ending in miscarriage during the first trimester. Approximately 1% of pregnant women will experience a second-trimester miscarriage. Fifty percent of miscarriages are attributed to chromosomal abnormalities, while a considerable percentage remain unexplained. Despite its high prevalence, a significant portion of the population remains unaware of this condition (Campillo et al., 2018). Well-known risk factors include advanced maternal and paternal age, heavy smoking, alcohol consumption, infertility, and previous miscarriage. Long working hours and stress are also reported to be associated factors (Campillo et al., 2018). Preconception health care aims to identify and raise awareness of risk factors before pregnancy that could affect future maternal, child, and family health. Efforts have been made to develop effective intervention plans and to include preconception risk factors in prenatal prevention programs internationally. One key recommendation is to promote effective preconception health care interventions and develop curricula addressing preconception risk factors at undergraduate and postgraduate levels. Insight into students' awareness of miscarriage might help assess the effectiveness of preconception care education at the university level and highlight knowledge gaps among this targeted population (Campillo et al., 2018). Therefore, this study aims to assess the level of awareness of miscarriage among students at the University of Cyberjaya, investigate the association between sociodemographic factors and knowledge about miscarriage, identify the risk factor most strongly associated with miscarriage according to respondents, determine the preventive measure perceived to most effectively reduce the risk of miscarriage, and explore the interrelationship between knowledge levels, awareness of risk factors, and the adoption of preventive measures related to miscarriage among students. Our study revealed a significant correlation between sociodemographic factors, including age, gender, and socioeconomic status, and students' knowledge about miscarriage. Furthermore, we identified a significant interrelationship between knowledge levels, awareness of risk factors, and the adoption of preventive measures. These findings underscore the importance educational interventions aimed at addressing knowledge gaps and promoting informed decision-making among young adults regarding preconception health care. By comprehensively assessing students' awareness of miscarriage and exploring sociodemographic influences on knowledge, our research provides valuable insights for the development of targeted intervention strategies aimed at enhancing reproductive health education within university settings.

1.2 Objectives

1.2.1 General objectives

To assess the level of awareness of miscarriage among students of the University ofCyberjaya.

1.2.2 Specific objectives

1. To investigate the association between sociodemographic factors and the knowledge level of awareness regarding miscarriage among students of Universityof Cyberjaya.
2. To determine the risk factor perceived with the highest level of agreement among respondents concerning its association with miscarriage.
3. To determine the preventive measure that respondents most strongly agree contributes to the reduction of the risk of miscarriage.
4. To investigate the interrelationship between knowledge levels, awareness of risk factors, and

adoption of preventive measures related to miscarriage among studentsof university of Cyberjaya

1.3 Justification of this study

Miscarriage, a common yet misunderstood pregnancy complication, significantly impacts women emotionally and physically. Despite its prevalence, university students' awareness and understanding of miscarriage are limited, hindering effective preconception care. The diverse student population at the University of Cyberjaya provides a unique opportunity to explore awareness and perceptions of miscarriage. By assessing knowledge levels and the influence of sociodemographic factors, this study aims to evaluate educational programs and identify improvement areas. Identifying recognized risk factors and preventive measures can inform tailored health education strategies. Ultimately, enhancing awareness and addressing knowledge gaps among students will foster a more informed and health-conscious generation, reducing miscarriage incidence and improving maternal and child health outcomes.

CHAPTER 2 LITERATURE REVIEW

Campillo et al. (2018) conducted a cross-sectional study at University College Cork (UCC), Ireland in 2016, aiming to explore university students' understanding of miscarriage rates, causes, and risk factors. Their findings revealed that only 20% of students correctly identified miscarriage prevalence, with nearly 30% mistakenly believing it to occur in fewer than 10% of pregnancies. Interestingly, women were more likely than men to estimate the miscarriage rate accurately, while males tended to overestimate it and females tended to underestimate it (Campillo et al., 2018). Students without personal experience of miscarriage tended to overestimate the rate, while those aware of celebrity experiences tended to underestimate it (Campillo et al., 2018). Additionally, students recognizing fetal chromosomal abnormalities as the primary cause of miscarriage were mostly female, older, majoring in medicine or health, and familiar with famous miscarriage cases (Campillo et al., 2018). Despite nearly half of the participants citing chromosomal abnormalities as the primary cause, there remained a lack of knowledge regarding prevalence and key risk factors among university students. The study suggests universities as ideal platforms for promoting awareness and understanding of potentially harmful pregnancy outcomes (Campillo et al., 2018).

Strumpf et al. (2021) conducted a population-based cohort study in Manitoba from 2003 to 2014 to estimate the prevalence and predictors of miscarriage. Their research revealed an average annual miscarriage rate of 11.3%, with infertility medication usage linked to a 4- percentage point higher risk of miscarriage. Additionally, women with high morbidity were twice as likely to miscarry compared to those with low morbidity, while recipients of income support had a 3-percentage point lower risk. Notably, the study emphasized that 1 in 9 pregnant women in Manitoba experience miscarriage and seek medical attention for it. Furthermore, after adjusting for clinical and social factors, past healthcare utilization, morbidity, and social support may offer valuable insights into the risk of miscarriage (Strumpf et al., 2021).

Alshora and Kalo (2018) conducted a cross-sectional study among 92 female physicians at King Abdul-Aziz University Hospital in Jeddah, Saudi Arabia, aiming to estimate the prevalence and factors associated with pregnancy loss. Their findings revealed that out of the 92 respondents, the majority were Saudi nationals (93.5%) and married (89.1%). Among the participants, 17 female physicians experienced pregnancy loss, with the majority occurring in the first trimester, particularly during their

residency period when they were working long hours. The typical monthly working hours during the first pregnancy loss were reported as median 160 hours with an interquartile range (IQR) of 110 to 198 hours. The study did not find statistically significant differences in pregnancy losses based on nationality or marital status. However, the findings emphasized the prevalence of miscarriages among physicians during their residency, suggesting a need for further research with larger sample sizes to better understand the independent association between pregnancy loss and the medical profession (Alshora & Kalo, 2018).

Bardos et al. (2013) conducted a cross-sectional study involving 1084 participants aged 18–69 years from 49 states in the United States in January 2013 to evaluate public perceptions of miscarriage. Their study aimed to assess attitudes and perceptions regarding the prevalence, causes, and emotional effects of miscarriage among respondents. The findings revealed that 15% of respondents reported personal experience or that of their spouse with at least one miscarriage, while 55% believed that miscarriages occurred in 5% or fewer of all pregnancies. Misconceptions regarding the causes of miscarriage were widespread, with stressful events, lifting heavy objects, and previous use of intrauterine devices and oral contraceptives frequently cited. Emotional responses to miscarriage were significant, with feelings of loss, guilt, loneliness, and shame reported by a considerable portion of respondents. Additionally, the study highlighted the importance of education and gender in shaping perceptions and understanding of miscarriage. Overall, the findings underscored the need for greater awareness and support for individuals affected by miscarriage (Bardos et al., 2013).

Mekonnen and Wubneh (2020) conducted an institution-based cross-sectional study among 633 female students from private colleges in Gondar City, Northwest Ethiopia, from April 30, 2020, to May 30, 2020, aiming to assess knowledge, attitude, and associated factors towards safe abortion. The study revealed that the majority of students (68.4%) had good knowledge about safe abortion, with factors such as older age, urban residence, higher family education, and previous exposure to information about safe abortion being significantly associated with better knowledge. Additionally, 57% of students exhibited a favorable attitude towards safe abortion, with age and urban residence identified as significant factors influencing attitude. The findings underscored the importance of age, urban residence, and educational background in shaping knowledge and attitudes towards safe abortion among female college students in Ethiopia (Mekonnen & Wubneh, 2020).

CHAPTER 3 MATERIALS AND METHODS

3.1 Study design

This research was carried out as a cross sectional study.

3.2 Reference population

Malaysian university students act as the reference population for this study.

3.3. Source population/sample population

Every student registered at the University of Cyberjaya as of now.

They were recruited through distribution of Google Forms through email and Whatsapp.

3.4. Study site

This study was conducted at the University of Cyberjaya.

3.5. Study participants (inclusion and exclusion criteria)

A. The following are the inclusion requirements for study participants:

- Students that are enrolled at the University of Cyberjaya right now.

- Ready to give informed consent and take part in the research.
- Capable of reading and comprehending English, because the survey will be writtenin that language.

B. The following are the exclusion requirements for study participants:

- Students who are unable of reading and understanding English;
- Students who refuse to participate in the study.
- Students whose impairment or medical condition might make it difficult for themto finish the questionnaire.
- Students who do not yet turn 18

3.6. Sample size

The sample size was determined by using single proportion formula:

$$n = \frac{Z^2 P(1-P)}{d^2}$$

n= sample size

Z= 95% confidence interval = 1.96

p=prevalence=0.20 d=margin or error 5% = 0.05

Number of sample sizes is calculated based on a study by San Lazaro Campillo (2016) with a prevalence of 20%. Estimated sample size is 448 and with addition of 10% non- respondents, 498.

3.7 Sampling method

Convenience sampling method

3.8 Data collection, research tool, parameters of interest

Data Collection; An online questionnaire via Google Forms will be circulated to all University of Cyberjaya students and staff regardless of having medical background using their university email accounts.

Research Tools; Distribution of Google Forms which would contain a questionnaire. Prior to entering the questionnaire, respondents would need to go through a consent form to agree the information collected is confidential and the respondents are free to withdraw from the questionnaire at any time or to ask further inquiries to the researchers conducting this study.

- Parameters of interest;

1. Part 1: Consent form:
2. Part 2:Sociodemographic information: to investigate the gender, age groups,ethnicity, marital status and courses currently enrolled by respondents.
3. Part 3: Knowledge on Miscarriage: Questioning simple knowledge onmiscarriage whether they have any prior to answering this questionnaire.
   Frequency will be taken and categorized to “High”, “Moderate”, “Low” Knowledge on miscarriage score.
4. Part 4: Risk Factors of Miscarriage: A Likert scale is used from very common to very rare as options to 8 different risk factors which are known and identified as rare, moderate and common causes of miscarriage. Meaning the awareness of risk factors will be taken and then each risk factor categorizes between “Common”, “Moderate”, “Low” awareness level within respondents.
5. Part 5: Prevention of Miscarriage: 5-scale Likert scale is also used and options are given between strongly agree to strongly disagree to 7 prevention of miscarriage items.
6. Part 6: Supports and Resources: to investigate what are supportive measures that are largely agreed upon amongst the University of Cyberjaya students to prevent miscarriage.

3.9 Data analysis

Statistical Method: All analyses will be performed using JASP 14.1.0 software. Frequency and percentage will be calculated to obtain the descriptive statistics for categorical variables while mean and standard deviation for continuous variables.

Chi Square Test will be applied in order to determine the association between the sociodemographic factors and the knowledge level of awareness regarding miscarriage.

A statistical test with a p-value less 0.05 will be considered significant. Information regarding respondents' knowledge on risk factors of miscarriage is assessed through a 5 point Likert scale ranging from strongly agree to strongly disagree.

CHAPTER 4
RESULTS

This study has accumulated a total of 449 respondents from all currently enrolled students of University of Cyberjaya regardless of course with a response rate of 98.44% due to exclusion of 7 non-respondents. Table 1 shows the sociodemographic characteristics among UoC students. The largest age group of respondents are within the 20-29 years old range (n: 331; 73.7%) followed by 18- 19 years old (n: 95; 21.2%). More than half of respondents are female (n: 314; 70%) and majority of respondents are single (n: 426; 94.9%). In terms of ethnicity, 2 of the largest groups are Indians (n:175; 38.9%) and Malays (n: 158; 38.9), followed by the Chinese (n: 65; 14.4%) and others (n:50; 11.1%). All respondents are currently enrolled in UoC; under our findings, students from Bachelor of Medicine and Bachelor of Surgery (MBBS) havethe largest response rate (n: 206; 45.2%).

Table 4.1: Socio-demographic characteristics among students of University ofCyberjaya

No.	Respondents' characteristics	No. of participants (n)	Percentage (%)	Mean	Standard deviation (SD)
1	Gender			1.699	0.459
	Male	135	30		
	Female	314	70		
2	Age group (years)			1.840	0.487
	18-19 Years	95	21.2		
	20 - 29 years	331	73.7		
	30 -39 years	23	5.1		
3	Ethnicity			2.278	1.120
	Malay	158	38.9		
	Chinese	65	14.4		
	Indian	175	38.9		
	Others	50	11.1		
5	Marital Status			1.056	0.248
	Single	426	94.9		

	Married	21	4.6		
	Divorced	2	0.5		
	Widowed	0	0		
6	Courses			3.294	2.830
	Bachelor of Medicine and Bachelor of Surgery	206	45.2		
	Bachelor of Psychology	50	11.1		
	Bachelor of Biomedical Engineering Technology	22	4.9		
	Bachelor in Business Administration	33	7.4		
	Bachelor in Occupational Safety and Health	29	6.5		
	Bachelor in Pharmacy	37	8.2		
	Bachelor of Physiotherapy	30	6.7		
	Nursing	9	2.0		
	Diploma in Medical Assistant	4	0.9		
	Others	29	6.5		

Table 4.2: Level of Awareness

No.	Question	Answer	Frequency	Percentage (%)
1	Have you heard of the term "miscarriage" before?	Yes	432	92.8
		No	21	4.6
		Don't know	5	1.1
2	Do you think miscarriageis a common occurrence?	Yes	358	78.1
		No	60	13.2
		Don't know	31	6.8
3	Do you know that a miscarriage involves the spontaneous loss of pregnancy before the 20thweek?	Yes	323	70.8
		No	70	15.4
		Don't know	56	12.3
4	Have you encountered anyone within your personal network who has undergone a miscarriage?	Yes	271	59.4
		No	151	33.1
		Don't know	27	5.9

Table 4.3: Score for level of Awareness

Total Score	Frequency	Percentage (%)
Low knowledge level (0-2 points)	8	1.8
Moderate knowledge level (3-5 points)	65	14.5
High knowledge level (6-8 points)	376	83.7

In our study, as many as 376 respondents scored high level of awareness (83.7%) , 65 scored moderate level of awarness (14.5%) and only 8 scored low level of awareness ofmiscarriage (1.8%).

Table 4.4: Association between sociodemographic factors and the knowledge onmiscarriage

No.	Respondents' characteristics	No. of participants withhigh knowledge level (n)	Percentage (%)	Chi-Squaredtest value, x-square	Degree of freedom (df)	P-value
1	Gendeí					
	Male	106	28.1	22.525	8	0.004
	Female	270	71.8			
2	Age group (years)					
	18-19 Years	69	18.4	37.039	16	0.002
	20 - 29 years	289	76.9			
	30 -39 years	18	4.8			
3	Ethnicity					
	Malay	134	35.6	52.359	32	0.013
	Chinese	51	13.6			
	Indian	151	40.2			
	Others	40	10.6			

5	Marital Status					
	Single	356	97.0	12.614	16	0.701
	Married	18	2.9			
	Divorced	0	0.0			
	Widowed	0	0.0			
6	Courses					
	Bachelor of Medicine and Bachelor of Surgery	196	52.1	209.286	76	0.001
	Bachelor of Psychology	40	10.6			
	Bachelor of Biomedical Engineering Technology	17	4.5			
	Bachelor in Business Administration	22	5.9			
	Bachelor in Occupational Safety and Health	13	3.4			
	Bachelor in Pharmacy	26	6.9			
	Bachelor of physiotherapy	28	7.4			
	Nursing	6	1.6			

	Medical assistance	24	6.4			
	Others	4	1.1			

The table above illustrates the frequency of total scores on knowledge of miscarriage between male and female respondents. Overall, 71% of female respondents scored high on their knowledge level. Age Group 2 (20-29 years old) demonstrated high knowledge regarding miscarriage. In terms of ethnicity, Indian respondents scored the highest, with 40.2% showing high knowledge. Among different marital statuses, single individuals had the highest knowledge, with 97.0% scoring high. Regarding different courses, MBBS students had the highest number of respondents scoring high, with 52.1%.

Table 4.5: Knowledge on Risk Factors of Miscarriage

Questions	Responses %				
	Veryrare	Somewhat rare	Neither rare nor common	Somewhat common	Very common
1. How common is age as a risk factor for miscarriage?	1.8	5.1	25.2	38.8	29.2
2. Is a history ofprevious miscarriages considering a significant risk factor?	2.5	6.9	20.0	35.2	35.4
3. Eating spicy foods or pineapplecauses miscarriage	24.0	20.3	25.4	19.6	10.7
4. How often do chromosomal abnormalities contribute to miscarriages?	3.1	4.7	24.9	37.6	29.6
5. How commonlyis substance abuse,such as smoking orexcessive alcohol consumption, associated with an increased risk of miscarriage?	2.0	3.3	12.9	24.7	57.0

6. Lifting heavyobjects causes miscarriage	3.8	12.0	29.2	33.0	22
7. To what extent does maternal health, such as diabetes or hypertension, contribute to the risk of miscarriage?	2.0	4.5	22.7	32.5	38.3
8. Stress causes miscarriage	3.3	8.5	26.9	31.0	30.3

Table 4.6: Mean, Median and Mode of Knowledge on Risk Factors of Miscarriage

Questions	Mean	Median	Mode	Standard deviation (SD)
1. How common is age as a riskfactor for miscarriage?	3.884	4.000	4.000	0.947
2. Is a history of previous miscarriages considered asignificant risk factor?	3.942	4.000	5.000	1.025
3. Eating spicy foods or pineapplecauses miscarriage	2.726	3.000	3.000	1.310
4. How often do chromosomal abnormalities contribute to miscarriages?	3.860	4.000	4.000	0.998
5. How commonly is substance abuse, such as smoking or excessive alcohol consumption, associated with an increased riskof miscarriage?	4.314	5.000	5.000	0.957
6. Lifting heavy objects causes miscarriage	3.575	4.000	4.000	1.075
7. To what extent does maternalhealth, such as diabetes or hypertension, contribute to the risk of miscarriage?	4.007	4.000	5.000	0.985
8. Stress causes miscarriage	3.764	4.000	4.000	1.076

From the mean and median values, it appears that the risk factor with the highest level of agreement among respondents is "Substance abuse (such as smoking or excessive alcohol consumption)" with a mean of 4.314 and a median of 5.000.

This suggests that respondents generally agree that substance abuse is a significant risk factor for miscarriage.

Table 4.7: Prevention of miscarriage

Questions	Responses %				
	Strongly disagree	Disagree	Neither agree nordisagree	Agree	Stronglyagree
1. Maintaining a healthy lifestyle contributes to reducing the risk of miscarriage	2.7	3.3	11.8	30.3	51.9
2. Early bookingfor prenatal careplays a role inpreventing miscarriage	2.7	4.0	16.9	33.4	43.0
3. Avoiding exercise prevents miscarriage	14.2	25.8	31.2	18.3	10.5
4. Good nutritionlowers the likelihood of miscarriage	2.2	3.6	18.0	35.7	40.5
5. Maintaining a healthy Body Mass Index (BMI) impacts the risk of miscarriage	4.0	5.2	23.4	35.4	31.9
6. Controlling sugar levels, blood pressure, cholesterol, tobacco, andalcohol consumption contribute to miscarriage prevention	1.7	3.1	12.2	26.7	56.1
7. Pre-pregnancyfolic acid intakeprevents miscarriage	4.7	3.3	29.2	29.4	33.4

Table 4.8: Mean, Median and Mode of Prevention of Miscarriage

Questions	Mean	Median	Mode	Standard deviation (SD)
1. Maintaining a healthy lifestyle contributes to reducing the risk of miscarriage	4.254	5.000	5.000	0.974
2. Early booking for prenatal careplays a role in preventing miscarriage	4.100	4.000	5.000	0.996
3. Avoiding exercise prevents miscarriage	2.849	3.000	3.000	1.187
4. Good nutrition lowers the likelihoodof miscarriage	4.087	4.000	5.000	0.961
5. Maintaining a healthy Body Mass Index (BMI) impacts the risk ofmiscarriage	3.857	4.000	4.000	1.053
6. Controlling sugar levels, blood pressure, cholesterol, tobacco, and alcohol consumption contribute to miscarriage prevention	4.323	5.000	5.000	0.931
7. Pre-pregnancy folic acid intakeprevents miscarriage	3.835	4.000	4.000	1.075

Considering the mean, mode, and median values, it appears that "Controlling sugar levels, blood pressure, cholesterol, tobacco, and alcohol consumption" is the preventive measure that respondents most strongly agree contributes to the reduction of the risk of miscarriage.
The mean value is 4.323, and it has a mode and median of 5.000, suggesting a high level of agreement among respondents for these preventive measures.

Table 4.9: Support and resources

Questions	Answer	Frequency	Responses %
1. Do you think miscarriage can have a psychological impact on the mother and/or partner?	Yes	418	4.0
	No	13	2.9
	I don’t know	18	93.1
2. What resources are	Counseling services	360	80.2

available to provide emotional support for couples dealing with the aftermath of a miscarriage?	Financial assistance	20	4.5
	Educational programs	51	11.3
	None of the above	18	4.0
3. What kind of societal support cancontribute to alleviating the emotional burden on couples after a miscarriage?	Public awareness campaigns	161	35.9
	Legal mandates fortime off work	113	25.2
	Mandatory counseling sessions	160	35.6
	None of above	15	3.3
4. How do you think awareness and education about miscarriage can be increased?	Through social media campaigns	192	42.8
	Through healthcare providers	148	33.0
	Through schools and universities	100	22.2
	None of above	9	2.0

Table 5.0: Association between knowledge levels, Awareness of Risk Factors andAdoption of Preventive Measures related to miscarriage.

Variables	r-Value	p-Value	Interpretation
Knowledge levels vs Awareness of risk factors	0.346	<.001	There is positive correlation (r=0.346) between knowledge levels and awareness of risk factors related to miscarriage among UoC students. The p-value less than 0.001 indicates that this correlation is statistically significant. This suggests that as students' knowledge levels increase, their awareness of risk factors tends to increase.

Knowledge levels vs preventive measures	0.271	<.001	There is positive correlation (r = 0.271) between students' knowledge about miscarriage and their reported adoption of preventive measures. The p-value of less than 0.001 indicates that this correlation is statistically significant. This implies that students with higher knowledge are more likely to adopt preventive measures related to miscarriage.
Awareness of risk factors vs Preventive measures	0.571	<.001	There is strong positive correlation (r = 0.571) between the awareness of risk factors and the adoption of preventive measures among students. The p-value being less than 0.001 indicates that this correlation is statistically significant. This suggests that as students' awareness of risk factors increases, their likelihood of adopting preventive measures also increases significantly.

CHAPTER 5 DISCUSSION

The general objective of our study is to assess the level of awareness of miscarriage among students of the University of Cyberjaya.

University of Cyberjaya offers a wide variety of courses ranging from healthcare related courses like MBBS and Nursing to other courses like Business Administration. However, healthcare related ones take up the majority of the offered courses. We aim to investigate the relationship between their awareness of miscarriage and several factors, including theircourses, ages, gender amongst others.

Based on our study, four of five socio demographic categories had a p value less than 0.05, indicating a significant association with students' knowledge levels regarding miscarriage. The related categories are gender, age group, ethnicity and courses. This indicates a complex interplay of demographic factors and academic backgrounds shaping students' awareness.

In terms of ethnicity, the higher knowledge levels were displayed by Indians, followed by other ethnicities, with a mean of 6.869 and 6.860 respectively. Females, with a mean of 6.936, showed higher knowledge levels compared to males (mean=6.474). Students in the 20 - 29 age group, with a mean of 6.976, tend to show higher knowledge levels, suggesting a potential focus for educational interventions. Notably, those in the Diploma in Medical Assistance, and Bachelor of Medicine and Bachelor of Surgery programs with a mean of 7.500 and 7.408 respectively, demonstrated particularly high awareness, highlighting the impact of specialized courses.

Our findings are similar to a previous study, Mekonnen et al. (2020) where students within the age bracket of 20-24 had the highest knowledge levels, followed by years 25 and above.

From the mean and median values, it appears that the risk factor with the highest level of agreement among respondents is "Substance abuse (such as smoking or excessive alcohol consumption)" with a mean of 4.314 and a median of 5.000.

This suggests that respondents generally agree that substance abuse is a significant risk factor for

miscarriage.

Our study has a different outcome from previous studies, Bardos et al. (2015) where a stressful life event and Campillo et al. (2018) where fetal chromosomal abnormalities werethe highest perceived risk factors. Considering the mean, mode, and median values, it appears that "Controlling sugar levels, blood pressure, cholesterol, tobacco, and alcohol consumption" is the preventive measure that respondents most strongly agree contributes to the reduction of the risk of miscarriage.

Findings of our study showed that the least agreed upon factor for prevention of miscarriage is avoiding exercise. This is in compatibility with Barakat et al (2023 Aug; 12(16): 5393.), who stated in their 'Systematic Review and Meta-Analysis on The Influence of Physical Activity during Pregnancy on Miscarriage': "The findings demonstrated no significant association between exercise practice during pregnancy and the occurrence of miscarriage".

Good nutrition was the fourth most agreed on factor for prevention of miscarriage in our study. Similarly, according to Ota et al (2020 Dec 18;12(12):CD009599) in their research on 'Antenatal interventions for preventing stillbirth, fetal loss and perinatal death: an overview of Cochrane systematic reviews', shows that there is clear evidence of benefit in nutrition intervention for prevention of miscarriage.

The results indicate that there are meaningful and statistically significant relationships among knowledge levels, awareness of risk factors, and the adoption of preventive measures related to miscarriage among students at the University of Cyberjaya.

Higher knowledge levels are associated with increased awareness of risk factors, and both knowledge and awareness are positively correlated with the adoption of preventive measures.

How would this study help to create further studies or awareness among students and the general public?

We've distributed our questionnaire using platforms such as Outlook and WhatsApp, and we intend to publish our research findings in an academic journal to expand our outreach to the general public and those interested in the topic.

Preconception healthcare aims to identify and raise awareness of risk factors before pregnancy that could affect future maternal, child and family health Insight into students' awareness of miscarriage might help assess the effectiveness of preconception care education at the university level and highlight knowledge gaps among the targeted population (Campillo et al., 2018)

We hope that our research has inspired participants to delve deeper into understanding miscarriage and conduct their own investigations. To enhance accessibility, we've incorporated easy-to-understand summaries, which will assist us in reaching a wider audience.

CHAPTER 6
LIMITATION, CONCLUSION AND RECOMMENDATION

Limitation and recommendation

The sample selected for this study was specifically for all students of UOC, who are pursuing all kinds of courses. The results obtained in this study may be more applicable to students if they are identified as health science students. We recommend that a study focusing on students enrolled in health-science related courses is carried out in order to better compare and test their awareness on miscarriage.

Being busy with postings, traveling to hospitals and assignments, we had to find ways to incorporate our general studies with REBM.

A key recommendation is to promote effective preconception health care interventions and develop curricula addressing preconception risk factors at undergraduate and postgraduatelevels.

Conclusion

In conclusion, the comprehensive investigation into miscarriage-related awareness among University of Cyberjaya students revealed significant associations and interrelationships among sociodemographic factors, knowledge levels, perceived risk factors, and preventive measures. The study emphasized the complex interplay of age and academic backgrounds, showing higher awareness levels in the 20-29 age group and notably elevated knowledge
in the Diploma in Medical Assistance and Bachelor of Medicine and Bachelor of Surgery program. Indians were the highest ethnicity with females being the highest for gender. Furthermore, respondents overwhelmingly identified "Substance abuse" as a major risk factor, while the preventive measure most strongly agreed upon was "Controlling sugar levels, blood pressure, cholesterol, tobacco, and alcohol consumption." The findings from the interrelationship investigation highlighted significant correlations between knowledge,awareness, and the adoption of preventive measures.

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