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Awareness of male infertility among the medical students in Udayana University of batch 2015

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ABSTRACT

Background: Infertility is defined as the inability to conceive after one year of unprotected sex which was affected eighty million people all over the world. Male infertility is involved in approximately 40% of the more than 2 million infertile married couples in the United States. Health promotion strategies are therefore recommended to begin with educational interventions to increased knowledge of infertility awareness. University years are a time for self-maturation which includes sexual exploration and pregnancy avoidance during this life-course transition to adulthood. There's still no data about the awareness and knowledge about male infertility among university student especially medical student in Indonesia.

Aim: The study aims to know the level awareness on male infertility among the medical students in Udayana University of batch 2015.

Methods: This study was a descriptive cross-sectional design conducted on June 2018. The subjects were 102 medical students from regular and international class of Faculty of Medicine, Udayana University. The data derived with questionnaires and a preceding informed consent already had been gained from all the participants.

Results: Most of the subjects were belong to the somewhat knowledgeable group (41.2%). English class and female students had the better awareness regarding the male infertility issue (36.8% and 46.7%). The highest percentages of correct answered subtheme questions were diagnosis (55%) subtheme.

Conclusion: Infertility awareness, including knowledge of male risk factors, is a critical first step towards fertility preservation through lifestyle modification.

Keywords: male infertility, awareness, medical student Batch 2015

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INTRODUCTION

Infertility is defined as the inability to conceive after one year of unprotected sex, affects one in every six couples of childbearing age in the U.S. There are two types of infertility. One, permanent infertility where by, the male is unable to reproduce and never be able to bear children. The second is, couples with one child and are unable to bear the following one due to infertility.[1] In 40% of the cases, the problems are related to the men and in 20 based on a book, "A Baby At Last". Birth of an infant can strengthen the family basis, meet the emotional need of the people and finally lead to renewal and continuity of the generation. Some studies have proven that the diagnosis of infertility is the male infertility, it would have more negative response in men and would cause exacerbation in depression, social aversion and failure. They would rather suffer anxiety, isolation, self-blame, and inadequate sexual power and feeling that their identity and manhood are not perfect.[2]

Eighty million people all over the world are suffering from infertility. Based on a survey conducted using the Coliazzi Method, the results were expressed in four main concepts, individual stress, challenge in communication, problems associated with treatment process and the effects of beliefs and religious attitude.[1] Factors that may be a contribution due to male infertility is the loneliness feeling, disbelief, denial, feeling of inner and external challenge. Many are unaware of the treatments available and presume it costs is high and poor performance of the medical team that fail to deliver important messages to their patients.[3]

Incidence and prevalence of male infertility according to the National Institutes of Health, male infertility is involved in approximately 40% of the more than 2 million infertile married couples in the United States. One half of these men experience irreversible infertility and cannot father children, and a small number of these cases are caused by a treatable medical conditions.[4] Infertility awareness, including knowledge of male risk factors, is a critical first step towards fertility preservation through lifestyle modification. Rather than personal fertility or parenting experience, fertility knowledge is instead associated with education. Health

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promotion strategies are therefore recommended to begin with educational interventions. A study from Sabarre found out that there's still a low percentage about male infertility awareness among undergraduate student in Ottawa University.[5]

There's still no data about the awareness and knowledge about male infertility among university student especially medical student in Indonesia. University years are a time for self-maturation which includes sexual exploration and pregnancy avoidance during this life-course transition to adulthood. Several studies have reported that university students place a significant emphasis on financial or career stability and degree completion as prerequisites to parenthood. Based on the issue that have been explained above, author interested to designed a study to examine male medical student's awareness, perceptions and knowledge of male infertility risk factors, infertility diagnosis, treatments and options in the event of personal infertility.[5,6]

METHODS

This study was a descriptive cross-sectional design concerning to the level of awareness among the undergraduate medical students in Udayana University of Batch 2015 as many as 102 samples. The study used a simple random sampling. Awareness on male infertility accessed through the knowledge of the students. Level of awareness is obtained by analyzing the questionnaire answers from respondents. A score 0 given for a wrong answer and 1 for a right answer. Total score are sum up and divided with a perfect score and times by 100%. The level of awareness is classified as very knowledgeable (>75%), somewhat knowledgeable (50-75%), and slightly knowledgeable (<50%). In preparation stage, research was committed together with recommendation letter from Ethical Committee of Faculty of Medicine Universitas Udayana as ethical clearance. Implementation stage was carried out upon approval from Udayana University. Analysis stage was conducted due to post- questionnaire session. The data were analyzed descriptively such as tables and graphics.

Table 1. Characteristics of the subjects

Characteristics	Frequency (n=102)	Percent (%)
Class		
Regular	45	44.1
English	57	55.9
Sex		
Male	42	41.2
Female	60	58.8

Table 2. The male infertility awareness score of the respondents

Awareness Group	Frequency (n=102)	%
Very knowledgeable	34	33.3
Somewhat knowledgeable	42	41.2
Slightly knowledgeable	26	25.5

RESULT

This study was conducted to know the level of awareness on male infertility among the medical students in Udayana University of batch 2015. The data for this research was taken from the Medical Faculty undergraduated students of Udayana University, year of educational batch 2015, both from regular (Indonesian language only) and English classes. This study was carried on in June 2018. Subjects were taken with simple random sampling, meanwhile the data derived with questionnaires and a preceeding informed consent already had been gained from all the participants.

Total respondents of this research were 102 students, consisted of 45 (44.1%) regular class students, and 57 (55.9%) English class students. Female students (60; 58.8%) were more frequent compare to the male students (42; 41.2%). The characteristics were consisted of the sex (male or female) and the class (regular or English) for each of the participants of this study.

After the analysis was conducted (Table 2), then it was founded that most of the respondents were belong to the somewhat knowledgeable group (42; 41.2%), and was followed by very knowledgeable group (34; 33.3%), then slightly knowledgeable group (26; 25.5%). Therefore, it could be seen as most of the students still didn't have a complete and comprehensive awareness regarding male infertility.

From the analysis, it was also known that the lowest score for the awareness gained was 13.33% (2; 2.0%), which it means that 2 students just had 2 correct answers for the overall 15 questions asked (data was not shown on the text). Meanwhile, the total students whose the correct answers bellow 50% were 26 people (25.5%). In the other side, the highest score was 100% (3; 2.9%), and interestingly all of them were derived by female students.

According to Table 3, it was known that the percentages of very knowledgeable group and the slightly knowledgeable group in the regular class students were so close, compared with the percentages of both groups in the English class, in which there was a clearer difference, the very knowledgeable group had higher percentage than the slightly knowledgeable group. According to the sex, male students tend to had equal percentages for

Table 3. The distribution of male infertility awareness group according to the characteristics of the respondents

	Awareness Group						Total (n=102)	
	Very Knowledgeable		Somewhat Knowledgeable		Slightly Knowledgeable			
	n	%	n	%	n	%	n	%
Class								
Regular	13	28.9	20	44.4	12	26.7	45	100
English	21	36.8	22	38.6	14	24.6	57	100
Sex								
Male	14	33.3	14	33.3	14	33.3	42	100
Female	20	33.3	28	46.7	12	20	60	100

each of the groups, meanwhile the female students had lower percentage of slightly knowledgeable group. From these findings, it could be seen that in English and female students had the better awareness regarding the male infertility issue.

According to Table 4, majority of the questions answered correctly by the respondents is more than 50%. The students who answered the definition question correctly is 56.9 %. For the next question which is relating to primary infertility 51.0% of the respondents answered correctly. The following question relating to secondary infertility, the students who answered it correctly is 64.7 %. On the other hand, for the question relating to not a contribution to male infertility 53.9% of the respondent answered it correctly. Furthermore, question for cause of pre-testicular male infertility the students who answered it correctly is 81.4%. Besides that, for the question of cause of testicular male infertility the respondents that answered correctly is 67.6%. Following that, question regarding cause of post testicular male infertility the respondent that answered it correctly is 70.6%. For risk factors 75.5% of the students answered it correctly. On the other hand, for the question that is not a risk factor 52.0% answered it correctly.

As for sperm microscopic examination, 74.5% answered it correctly. For pharmacology treatment 63.7% answered it correctly. Meanwhile, technology treatment question had the highest percentage of respondent who answered correctly, 82.4%. Regarding herbal treatment question 52.9% of the students answered it correctly. Meanwhile, the percentage of students that answered the cause of male infertility question had the lowest percentage which is 31.4%.

DISCUSSION

From a cross-sectional study was conducted using a questionnaire-based survey among both males and females aged 18–45 years living in the Bangkok metropolitan area in 2018, it was then revealed that only one-fifth of the participants correctly identified the age when fecundity declines in male and female, and the definition of infertility. Approximately three-fourths of the participants correctly identified that cigarette smoking, alcohol consumption, and sexually transmitted infections affect fertility. On the other study conducted by Remes *et al.*[7] in Canadian University students (young adults), it was founded that students demonstrated a superficial understanding of environmental risks, at times relying on media reports and anecdotal information to support their beliefs. Young adults are overly optimistic that healthy lifestyle behaviors will safeguard future fertility. STIs represent the most significant modifiable risk factors for this age group; a message that can be supported by sexual and reproductive health education and promotion with greater emphasis on the long-term outcomes of STIs, including infertility. Therefore, it had been shown that considerable knowledge gap about the factors that influence fertility was identified in reproductive-age individuals. This issue should be urgently addressed by promoting fertility awareness through education, discussions about social perceptions regarding fertility, and reliable sources of knowledge.[8]

A population based survey that was examining the awareness of men itself toward the factors that are associated with male infertility in Canadian men by Daumler *et al.*[9] in 2016 revealed that although about 9 of 10 men believed they had a handle on risk factors that would affect their fertility, they generally scored only about 50% in actual knowledge. It was then be told that males of the species generally believe they know more than they actually do is fairly unsurprising. It was also had been proposed that gender is a factor that affects the individuals reaction to and compatibility

against infertility. Infertility is typically regarded as a feminine problem, despite the fact that male infertility is responsible for at least fifty percent of couples' infertility. Some studies have shown that even in the cases of male infertility, women are more distressed and show more emotional responses to infertility. Indeed, women suffer from the same distress, whether they are the cause of infertility or not. Nevertheless, most women seek treatment for infertility when it occurs, because, although they may not be the cause of infertility, they are held responsible by relatives and society, and they would rather avoid upheaval in their personal or social life.[10-12] Therefore, for some reason (mainly social beliefs) women are highly more concern toward infertility term compared with men.

Table 4. Data distribution of questionnaire

Characteristics	Frequency	Percentage (%)
Definition :		
Correct	58	56.9
Incorrect	44	43.1
Primary Infertility :		
Correct	52	51.0
Incorrect	50	49.0
Secondary Infertility :		
Correct	66	64.7
Incorrect	36	35.3
Not Contribute to Male Infertility :		
Correct	55	53.9
Incorrect	47	46.1
Cause of male infertility:		
Correct	32	31.4
Incorrect	70	68.6
Cause of pre-testicular male infertility :		
Correct	83	81.4
Incorrect	19	18.6
Cause of testicular male infertility :		
Correct	69	67.6
Incorrect	33	32.4
Cause of post testicular male infertility :		
Correct	72	70.6
Incorrect	30	29.4
Risk Factor :		
Correct	77	75.5
Incorrect	25	24.5
Not a risk factor :		
Correct	53	52.0
Incorrect	49	48
Sperm macroscopic examination		
Correct	67	65.7
Incorrect	35	34.3
Sperm microscopic examination		
Correct	76	74.5
Incorrect	26	25.5
Pharmacology treatment		
Correct	65	63.7
Incorrect	37	36.3
Technological Treatment		
Correct	84	82.4
Incorrect	18	17.6
Herbal treatment		
Correct	54	52.9
Incorrect	48	47.1

Further, from the survey conducted by Daumler *et al.*[9] it was also known that men were only able to identify 51% of the risk factors and 45% of the health issues associated with male infertility. Men were most aware of the modifiable risk factors for infertility (e.g. sexually transmitted infections, smoking cigarettes), relative to their knowledge of fixed risk factors (e.g. delayed puberty, size of testicles) and the attendant health issues (e.g. cardiovascular disease, diabetes). The overall level of fertility knowledge did not vary by most demographic characteristics (e.g. age, education, employment, income), though men from ethnic minority groups displayed moderately greater awareness. Additionally, younger men, those with lower incomes and those who had no desire to have future biological children were more likely to identify themselves as unaware of associations with infertility in the open-ended questions.[13-15] Self-reported knowledge was significantly associated with higher overall knowledge scores. More than half of the sample expressed an interest in obtaining information about male fertility and reproductive health, with the majority of these men indicating that medical professionals and online sources were their preferred methods for receiving information.

Further, a cross-sectional survey of men's attitudes toward men's health issues in 210 men from two primary care clinic waiting rooms in Atlanta, Georgia by Gerhard *et al.*[16] in 2014 founded that 52% of men said they were "very" or "somewhat" familiar with infertility and 25% were familiar with treatments for infertility. Some men had heard of surgery (21%) and medication (35%) as treatments for male infertility. Awareness and familiarity with the condition was greater in high socioeconomic status men (i.e. college graduates or those with income more than $100 thousand per year) but did not differ by race on multivariate analysis. Attitudes toward infertility varied by race with non-Caucasian men being more likely to indicate that infertility is a serious condition, to be concerned

about infertility, and to believe it decreases a man's quality-of- life. Therefore, a lack of awareness, but not negative attitudes, may contribute to previously-described disparities in the treatment of infertility.[17]

It was also known that in developing countries, there are severe social, psychological and economic consequences for infertile men and identify infertility as an under-observed, but significant public health issue. It is proposed that education programs tailored to each society's specific religious beliefs and grounded traditions must be implemented in order to reverse the social stigma, detrimental psychological effects, and loss of economic security that results from infertility women.[18]

The interventions to increase fertility awareness is highly needed. Beside the conventional method on it, such as additional education toward this issue which is still in lack for the student's understandings, then some approaches also has been offered, i.e educational video. As been reflected in a two-arm, parallel-group, randomized controlled trial with a pre-test/post-test design study in 173 undergraduates university students in Portugal about the effectiveness of a video intervention on fertility knowledge, it was found that interaction effects between group and time were found for all variables targeted in the video. Participants in the intervention group significantly increased their knowledge of fertility issues, infertility risk factors and the definition of infertility. It then concluded that a short video intervention is effective in increasing short-term knowledge about reproductive health and infertility video intervention could be an useful tool in public health prevention campaigns.[17]

LIMITATION

Current study had the limitation regarding the limited data gained, and consequently affecting the analysis and result obtained. The characteristics for each of the respondents in this study were limited to be the class and sex. But, in the previous study it had been postulated and studied that there are a lot of the variables which could have a significant influences and essential for the awareness level for this theme, which is the male infertility. This study was a descriptive study, therefore it could not defined the influence of certain characteristics in term of being an independent variables toward the awareness of male infertility. But as the author knowledge that there is limited study that has been conducted regarding this issue, therefore this study could be a pilot study to construct and give the beneficial basic information regarding the awareness.

The sample of this study also had been derived in the Medical Faculty Batch 2015 classes, in which the reproductive block for the formal educational program had been received. Therefore, there would be a wide gap if this result is planned to be viewed for the general reproductive population outside the study population.

CONCLUSION

Most of the respondents were belong to the somewhat knowledgeable group, and was followed by very knowledgeable group, then slightly knowledgeable group. English class and female students had the better awareness regarding the male infertility issue. There was a contradictive results for risk factor and diagnosis subthemes, most of the students were quite or somewhat understand the definition, etiology, and treatment subtheme of male infertility. But, most of them understand it in incomplete manner.

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