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KNOWLEDGE REGARDING OOCYTE CRYOPRESERVATION AMONG NURSING STUDENTS OF SELECTED COLLEGE OF KATHMANDU, NEPAL

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ABSTRACT

Background: "Egg freezing" or "Oocyte cryopreservation" which has grown in popularity in recent years around the world including Nepal. It is a procedure used to postpone pregnancy for social reasons. Nursing students are future healthcare professionals, plays a pivotal role in patient education, advocacy and support. Knowledge with Oocyte Cryopreservation is crucial for them to empower and support patients' reproductive rights and choices while they work as front-line caregivers. So, this study is **aimed** to find out the Knowledge regarding Oocyte Cryopreservation among Nursing Students of Selected College of Kathmandu, Nepal. **Methodology:** A Descriptive cross-sectional study design was used to conducted study among 58 nursing students of Norvic College of Health Sciences and Technologies, Kathmandu, Nepal by using non-probability total enumeration technique. Data were collected using Self developed self - administered semi-structured questionnaire. The Collected data were entered in SPSS software version 20 and analyzed by using descriptive statistics such as frequency, percentage and inferential statistics such as chi square and fisher exact tests were used for measuring association between selected independent variables with level of knowledge then it is presented in tables. **Findings:** The study findings reveals that approximately nine percentage of the respondents had adequate knowledge, majority of the respondents (74.1%) had moderate level of knowledge and less than one fourth of the respondents (17.2%) had inadequate level of knowledge regarding Oocyte Cryopreservation. There is no significant association between the level of knowledge regarding Oocyte Cryopreservation selected socio-demographic variables at 0.05 (Chi Square p- value). **Conclusion:** This study concludes that majority of the respondents had moderate level of knowledge and only few percentages had adequate level of the knowledge, which can be increased to 100% by conducting training programs and adding contents of Oocyte Cryopreservation in the course curriculum.

KEYWORDS: Knowledge, Oocyte Cryopreservation, Nursing Students.

INTRODUCTION

Oocyte cryopreservation is a favor for women undergoing assisted reproductive technology (ART). Along the innovation in the technique of cryopreservation over the last three decades, there has been mounting rise in the number of oocyte cryopreservation cycles for various indications such as medical, social, ethical and legal. Besides these, Oocyte banking has been an important discovery for preserving fertility in women of reproductive age group suffering from cancer because the incidence of cancer in female with this age group is about 10%.[1,2] So, it has also been encouraged as a mode of fertility insurance to solve the age-related reduction in fertility as well as post-surgical reduction following endometriosis surgery. Oocyte cryopreservation is a key milestone in assisted reproduction.[1]

"Egg freezing" or "Oocyte cryopreservation" the process of freezing one or more unfertilized eggs (eggs that have not been combined with sperm) to save them for future use. The eggs are thawed and fertilized in the laboratory to make embryos that can be placed in a woman's uterus.[3] Oocyte freezing can be performed for both

medical and non-medical purposes. Medical egg freezing is the freezing of eggs in women who are undergoing medical treatment that may affect their future fertility, such as chemotherapy or gender reassignment surgery. Oocyte freezing for non-medical reasons (OFNMR) refers to egg freezing in women who want to preserve their fertility in order to produce genetically related children later in life but do not have a medical cause to do so at the time as by Platts S et.al.[4] The first known birth after oocyte cryopreservation occurred in South Korea in 1986. Following this, the first live birth was reported in 1999 utilizing a new cryopreservation technology dubbed 'verification' based on frozen oocytes. Since 2000, it is approximated that roughly 20 births have occurred in England using cryopreserved oocytes. Oocyte cryopreservation, which has grown in popularity in recent years around the world, is a procedure used to postpone pregnancy for social reasons that involves freezing the oocytes with cryo protectant and storing them in liquid nitrogen at -196 degrees Celsius for future use, as cited by different authors.[2]

In this modern era, remarkable development has been experienced in the field of assisted reproductive technology since the birth of Luise Brown, the first IVF baby. These progresses in reproductive technologies, especially, oocyte cryopreservation, have resulted in a variety of complications. Today, the delay start of family life in many developed societies, as well as the significant increase in the number of women delaying fertility, have boosted the appeal of oocyte cryopreservation among women who want to retain their reproductive potential as by Satilmis et al. which is discussed in Hodes-Wertz research work. Many women postpone having children until later in life for a variety of reasons, such as rigorous work schedules, lofty career objectives, or a lack of a suitable partner with whom to start a While studies reveal that the average age at which women become pregnant in Denmark is forty, the age range in Turkey where the highest fertility rate occurs has climbed from twenty to twenty-four to twenty-five to twenty-nine as per Satilmis et. al disscussed as stated in paper of Wennberg et al.[5]

Similarly**,** Oocyte freezing is a revolutionary procedure that has gained significant popularity in Nepal, offering women the opportunity to preserve their fertility for future use.[6] This is evident by retrospective study of Pradhan SMS, Karki A et.al, which was conducted at Creator's IVF Nepal Pvt. Ltd. (CIVF) from November 2015 till April 2020. The success rates of ART treatment were preclinical pregnancy rate, clinical pregnancy rate, and live birth rate were 48.4 %, 43.3%, and 33.3% respectively.[7]

When it comes to planned fertility preservation, medical students represent a unique subgroup of the population because they are both patient advocates and young professionals who may put off starting a family in order to advance in their careers and could benefit from this service. The relationship between their professional opinion of elective fertility preservation for patients and their prospective personal use of this technology is a fascinating concern, aside from their medical understanding.[8]

Similarly, nursing students are essential to the education and assistance of patients since they will eventually work in the healthcare industry. Nursing students frequently work directly with people who are making decisions regarding their reproductive health, placing them at the center of patient care. Examining their point of view can assist develop treatments to enhance support and communication while also highlighting potential problems that patients may encounter.

Many studies show the inadequate knowledge in nurses about Oocyte Preservation but adequate level of knowledge is essential for positive outcome among this group. Thus, There is no evidence of study conducted in this tile in this setting. So it is needed to conduct study to assess the knowledge of nurses about Oocyte Cryopreservation.

Statement of the Problem

Nursing students are future healthcare professionals, plays a pivotal role in patient education, advocacy and support. Being knowledgeable with Oocyte Cryopreservation is crucial for them to empower and support patients' reproductive rights and choices while they work as front-line caregivers. Numerous studies revealed that there is presence of knowledge gap even among nursing students/ medical students about Oocyte Cryopreservation.

Need/Rational of the Study

We all know that nurses are essential part of health care industries. They can play a significant role in preventive, promotive, curative and rehabilitative aspects of any health related issues. A Study conducted in USA in 2022 showed that the average knowledge was found among medical students. Not adequate knowledge ratings suggest that more needs to be learned about Oocyte Cryopreservation and the fall in fertility.[9]

Likewise, another study conducted among nursing and midwifery students in Turkey in 2022, demonstrated that 59% of the participants had knowledge of Oocyte Cryopreservation. The knowledgeable students stated that the sources of their information were the media, social media, friends, and their social environment. Because the study's groups included of nursing and midwifery students, they may be more familiar with the subject than the other groups.[5]

Furthermore, other study conducted in Egypt in 2023 revealed that of the total, 50.3% of the students knew something about oocyte cryopreservation; 36.4% didn't think about it; 53.2% thought about it for medical reasons (such as while receiving chemotherapy or

radiation therapy); 69.4% didn't think it would affect their future fertility; 72.8% thought oocyte freezing should be paid for by the patient; and 66.5% would be more amenable to freezing their eggs. Similarly, a study conducted at Faculty of Medicine, Suez University in Egypt regarding elective oocytes cryopreservation among female medical students in 2023 revealed that of the total, 50.3% of the students knew something about oocyte cryopreservation; 36.4% didn't think about it; 53.2% thought about it for medical reasons (such as while receiving chemotherapy or radiation therapy); 69.4% didn't think it would affect their future fertility; 72.8% thought oocyte freezing should be paid for by the patient; and 66.5% would be more amenable to freezing their eggs.[8]

Research involving nursing students can assist to develop training programs targeting specific knowledge gaps and improve their understanding of fertility preservation technologies, one of which is Oocyte Cryopreservation. Furthermore, most of nursing students are females. Thus, their expertise in this field is also beneficial to themselves.

There is very limited research have been carried out and published in this area in context of Nepal as per idea of the researcher. Therefore, the researcher is keenly interested to conduct research on existing Knowledge regarding Oocyte Cryopreservation among Nursing Students.

Methodology

A Descriptive cross-sectional study design was used to conducted study among 58 Post Basic- Bachelor Nursing Students (PBNS) of Norvic College of Health Science and Technologies, Kathmandu, Nepal by using non-probability total enumeration technique. Self-administered semi-structured questionnaire was developed by researcher herself based on extensive review of various related literatures. It had flowing **two parts; Part I** related to Socio-demographic and other Variables. **Part II:** Questionnaire related to Knowledge regarding Oocyte Cryopreservation. This Part contained 18 questionnaires. Among them, 6 questions were multiple responses questions and 12 questions were single response questions related to reproductive and Oocyte Cryopreservation. Each question carried 1 mark but in case of multiple responses each correct response consisted of 1 mark. The total score of knowledge was 100% and mid value (50%) was calculated then the score was categorized as **Adequate Knowledge:** Score 75% - 100%, **Moderate Knowledge:** Score 50% - 74.99%, **Inadequate Knowledge:** Score < 50%). Validity of the tool was established through extensive review of literatures, consulting with subject expert and linguistic expert for English language. The tool was prepared in simple understandable English language. Then, pretesting was done among 10% of total sample size with similar characteristics and similar but in different setting. Internal Consistency of instrument was measured by assessing Chron bach alpha test (α = 0.72). No modification was required, thus it was used in study population. Then, data were collected between 30th January to 2nd February 2024 after obtaining formal approval from concerned authority and research committee of Norvic College of Health Sciences and Technologies and after taking informed written consent from each respondent.

Findings

Demographic and Other related Information

The demographic patterns of 58 respondents showed that half of the respondents (50%) were of age group 25 years old and younger, whereas about five percentages of the respondents were age group of 31 years old and older with mean age of 25.78± 2.962. Likewise, more than half of the respondents (55.2%) belonged to Brahmin/Chhetri ethnic group, whereas nearly two percentages of the respondents were belonged to Dalit ethnic group. Similarly, most of them (86.2%) were Hindus whereas about three percentages of the respondents were Christian. Similarly, majority of the respondents (75.9%) were unmarried while less than one fourth of the respondents (24.1%) were married. Likewise, almost half of the respondents (48.3%) were currently studying in PBNS 3rd year whereas less than one fourth of the respondents (17.2%) were from PBNS 1st year. Almost all of the respondents (96.6%) were working and had worked in hospital or clinic while about three percentage of the respondents were never been involved in job related to nursing in hospital or clinic, almost all of respondents (94.65%) were not from the ward related to fertility services while about five percentages of the respondents were from the ward related to fertility services. Similarly, more than half of the respondents (64.29%) had worked for 5 years or less while about three percentages of the respondents had worked for 10 years or more. Neither of respondents was participated in training/workshop regarding Oocyte Cryopreservation nor worked or has been working in a field related to Oocyte cryopreservation. Almost all of the respondents (94.8%) claimed that they were not familiar with any woman who has been preserving her Oocyte Cryopreservation whereas about five percentages of the respondents said that they were familiar with the woman who has been preserving her Oocyte for future use.

Sources of Information about Oocyte Cryopreservation

Almost half of the respondents (44.8%) claimed that they got information regarding Oocyte Cryopreservation through Health care Personnel while about five percentage of the respondents stated that they received information via work experience in hospital/clinic though they are not directly involved or exposed to field or working area related to Oocyte Cryopreservation.

Knowledge regarding Oocyte Cryopreservation

Table 1: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency(f)	Percentage (%)
Meaning of Fertility		
The ability to conceive and carry a pregnancy to term	52	89.7
The duration of woman's reproductive years	6	10.3
Age group of higher fertility rate		
20-29 Years 30-39 Years	57 1	98.3 1.7
Chance of delivering a child with Down Syndrome in woman at age of 40 years		
0.01%	1	1.7
0.1%	10	17.2
1-2%	19	32.8
5%	13	22.4
>10%	15	25.9
The risk of miscarriage in a woman at the age of 40 years		
1-10%	26	44.8
1-10%	6	10.3
1-10%	15	25.9
>30%	11	19

Table 1 illustrates that most of the respondents (89.7%) stated that Fertility means the ability to conceive and carry a pregnancy to term whereas few of the respondents (10.3%) answered that fertility means the duration of a woman's reproductive years. Likewise, almost all of the respondents (98.3%) believed that 20-29 years age group have higher fertility rate while nearly two percentages of the respondents believed that 30-39 years age group have higher fertility rate. Similarly, one third of the respondents (32.8%) answered that at the age of 40 years there is chance of delivering a Down Syndrome child is 1-2%, whereas nearly two percentage of the respondents responded that there is only 0.01% chance or risk. Similarly, almost half of the respondents (44.8%) believed that at the age of 40 years, there is 1-10% risk of miscarriage whereas few of the respondents (10.3%) believes that there is 11-20% chance of miscarriage.

Table 1.2: Students' Knowledge regarding Oocyte Cryopreservation.

Variables	Frequency (f)	Percentage (%)
Meaning of Oocyte Cryopreservation		
It is a process in which a woman's eggs (Oocytes) are extracted, fertilized and frozen for the future.	20	34.5
It is a method of preserving or storing of embryo in an artificial storage.	3	5.2
It is a process in which a woman's eggs are extracted, frozen and stored as a method to preserve reproductive potential in a woman of reproductive age.	35	60.3
Appropriate age group for Oocyte Cryopreservation		
20-30 Years	39	67.2
31-40 Years	5	8.6
>40 years	9	15.6
Woman of any age	5	8.6

Table 1.2 reveals that more than half of the respondents (60.3%) answered that Oocyte Cryopreservation is a process in which woman's eggs are extracted, frozen and stored as a method to preserve reproductive potential woman of reproductive age, while about five percentages of the respondents answered with Method of preserving or storing of embryo in an artificial storage. Likewise, more than half of the respondents (67.2%) thought that 20-30 years of age group are appropriate for Oocyte Cryopreservation, while about eight percentages of the respondents answered with the option of age group of 31-40 years and woman of any age group.

Table1.3: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Motivational/ Influencing Factors for Oocyte Cryopreservation*		
Medical reasons (undergoing for radiation therapy/chemotherapy)	36	62.1
Social reason (Unmarried, No current Partner)	28	48.3
Career reason (education, career prior to children)	51	87.9
Due to trend/craze	6	10.3
Elements used for Oocyte Cryopreservation		
Liquid Hydrogen	17	29.3
Liquid Nitrogen	21	36.2
Liquid Oxygen	16	27.6
Liquid Helium	4	6.9

Multiple response answers*

Table 1.3 shows that most of the respondents (87.9%) believed that motivational/ influencing factors for Oocyte Cryopreservation is Career reason whereas few of the respondents (10.3%) answered with due to trend and craze. Similarly, above one third of the respondents (36.2%) answered that Liquid Nitrogen is used for Oocyte Cryopreservation while nearly seven percentage of the respondents answered Liquid Helium.

Table 1.4: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Important hormones for Oocyte Cryopreservation		
Follicle Stimulating Hormone	11	19.0
Human Chorionic Gonadotropin	2	3.4
Testosterone Hormone	1	1.7
Both a and b	44	75.9
Temperature required for Oocyte Cryopreservation		
-180°C	30	51.7
-188°C	12	20.8
-190°C	14	24.1
-196°C	2	3.4

Table 1.4 depicts that majority of the respondents (75.9%) believed that both Follicle stimulating hormone and Testosterone hormone are important for Oocyte Cryopreservation, whereas nearly two percentage of the respondents answered testosterone hormone. Likewise, above half of the respondents (51.7%) believed that -180°C temperature is required to preserve Oocyte, whereas about three percentage of the responded answered -196°C temperature.

Table 1.5: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Side effects of oocyte Cryopreservation Process/Procedure*		
Weight gain	29	50
Ovarian hyper-stimulation Syndrome	32	55.2
Ovarian hypo-stimulation Syndrome	22	37.9
Mood Swings	26	44.8
The extracted egg (Oocyte) can be freeze for		
Up to 10 Years	21	36.2
Up to 15 Years	26	44.8
Up to 35 Years	8	13.8
Up to 55 Years	3	5.2

Table 1.5 illustrates that more than half of the respondents (55.2%) believed that side effect of Oocyte Cryopreservation Process/Procedure is Ovarian hyper-stimulation Syndrome while above one third of the respondents (37.9%) answered with Ovarian hypo-stimulation syndrome. Likewise, almost half of the respondents (44.8%) answered that the extracted egg can be freeze for up to 15 years while about five percentages of the respondents answered for up to 55 years.

Table 1.6: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Following factors would influence woman's decision regarding Oocyte Cryopreservation*		
Decreased infertility with age	22	37.9
Decreased fertility with age	35	60.3
Increase in miscarriage with age	30	51.7
Increased chance of having with Down Syndrome with increased maternal age	36	62.1
The minimum number of eggs required for freeze below age 30 years		
5-10 Oocytes	18	31.0
11-20 Oocytes	18	31.0
21-30 Oocytes	6	10.4
31-40 Oocytes	10	17.2
More than 40 Oocytes	6	10.4
Following factors would influence woman's decision regarding Oocyte Cryopreservation*		

Multiple response answers*

Table 1.6 shows that more than half of the respondents (62.1%) considered increased risk of down syndrome with increased maternal age as an influencing factor for oocyte Cryopreservation whereas above one third of the respondents (37.9%) responded with decreased infertility with age. Similarly, more than one third of the respondents (31%) thought that minimum 5-20 oocytes are required to freeze below age of 30 years whereas few of the respondents (10.4%) believed that more than forty oocytes are required to freeze for future use.

Table 1.7: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Potential impact of Oocyte Cryopreservation on career and educational pursuits can be		
Positive impact	42	72.4
Neutral impact	6	10.4
Negative impact	1	1.7
Not Sure	9	15.5
The roles of Nurse to clients undergoing Oocyte Cryopreservation are*		
Provide education and information	54	93.1
Provide emotional support and guidance	44	75.9
Helping clients make informed decision	45	77.6
Giving assurance that it has guarantee of future fertility	10	17.2

Multiple response answers*

Table 1.7 reveals that above half of the respondents (72.4%) believed that Oocyte Cryopreservation has Positive impact on career and education while nearly two percentages of the respondents believed that it has negative impact on career and education. Likewise, almost all of the respondents (93.1%) considered that nurse's role is to provide education and information to the clients while below one third of the respondents (17.2%) thought giving assurance that it has guarantee of future fertility as a nurse's role to clients undergoing Oocyte Cryopreservation.

Table 1.8: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Followings are the true statements about Oocyte Cryopreservation*		
One cycle of the treatment usually sufficient to extract enough Oocyte for Cryopreservation	13	22.4
A woman successfully and safely can use frozen eggs to try to become pregnant in her 40s and 50s	45	77.6
Oocyte Cryopreservation before age of 35 significantly prolongs a woman's fertility	21	36.2
Oocyte Cryopreservation require the injection of hormones, similar to IVF, to stimulate egg production	31	53.4
Followings are the true statements about Oocyte Cryopreservation*		
One cycle of the treatment usually sufficient to extract enough Oocyte for Cryopreservation	13	22.4
A woman successfully and safely can use frozen eggs to try to become pregnant in her 40s and 50s	45	77.6
Oocyte Cryopreservation before age of 35 significantly prolongs a woman's fertility	21	36.2
Oocyte Cryopreservation require the injection of hormones, similar to IVF, to stimulate egg production	31	53.4

Multiple response answers*

Table 1.8 demonstrates that more than half of the respondents (77.6%) agreed that a woman can use frozen eggs in her future to become pregnant in her 40s and 50s' whereas less than one third of the respondents (22.4%) thought one cycle of treatment is sufficient to extract enough Oocytes for Cryopreservation as a true statement.

Table 1.9: Students' Knowledge regarding Oocyte Cryopreservation.

n=58

Variables	Frequency (f)	Percentage (%)
Followings are the false statements about Oocyte Cryopreservation*		
Oocyte Cryopreservation has a negative effect on future fertility	47	81.0
Oocyte Cryopreservation can empower women in family planning	7	12.1
The egg freezing process causes early menopause	33	56.9
The egg freezing is mainly for single people	31	53.4

Multiple response answers*

Table 1.9 depicts that majority of the respondents (81.0%) disagreed that Oocyte Cryopreservation has a negative effect on women's future fertility while few of the respondents (12.1%) thought that Oocyte Cryopreservation can empower women in family planning as a false statement.

Table 1.10 depicts that about eight percentage of the respondents had adequate knowledge, more than two third of the respondents (74.1%) had moderate knowledge and less than one fourth of the respondents (17.2%) had inadequate knowledge regarding Oocyte Cryopreservation.

Table 1.10: Students' Level of Knowledge regarding Oocyte Cryopreservation.

n=58

Level of Knowledge	Frequency (f)	Percentage (%)
Inadequate	10	17.2
Moderate	43	74.1
Adequate	5	8.6

Table 1.12: Association between Selected Socio-demographic Variables and Level of Knowledge.

n=58

Variables	Knowledge Level			
	Inadequate	Moderate to Adequate	Values	P-Value
Age (Years)				
≤ 25	4	25	0.483#	0.487
≥ 26	6	23		
Ethnicity				
Brahmin/Chhetri	5	27	0.000@	0.990
Others	5	21		
Religion				
Hindu	8	42	0.015#	0.903
Others	2	6		
Marital Status				
Married	3	11	0.005#	0.944
Unmarried	7	37		

P value significant at >0.05 Chi-Square @, Continuity Correction#, Fischer's Exact Test$

Table 1.12 reveals that there is no significant association between the level of knowledge regarding Oocyte Cryopreservation among nursing students with age and ethnicity (p-Value >0.05)

Table 1.13: Association between Selected Socio-demographic Variables and Level of Knowledge.

n=58

Variables	Knowledge Level			
	Inadequate	Moderate to Adequate	Values	P-Value
Academic Level				
PBNS 1st and 2nd Year	6	24	0.052#	0.820
PBNS 3rd Year	4	24		
Working Experience				
Yes	10	46	0.682$	1.000
No	0	2		
If Yes, Ward/Department (n=56)				
Related to Fertility Services	1	2	0.000#	1.000
Unrelated to fertility Services	9	44		
Duration of Working Experience in Years (n=56)				
≤ 5.0	6	30	0.000#	1.000
≥5.1	4	16		

P value significant at >0.05 Chi-Square, Continuity Correction#, Fischer's Exact Test$

Table 1.13 demonstrates that there is no significant association between the level of Knowledge regarding Oocyte Cryopreservation among Nursing Students with working experience, those who work in a reproductive ward/department and the respondents' duration of working experience (p>0.05)

DISCUSSION

The finding of the study has been discussed below:

Discussion Regarding Socio-demographic Variables of Respondents

The findings of this study showed that half of the respondents (50%) were of age group 25 years old and younger, whereas about five percentage of the respondents were age group of 31 years old and older with mean age of 25.78± 2.962 which is nearly consistent with the similar study from Turkey done in 2022 which reveals average age of the participants was 20.96±1.8.In this study, majority of the respondents (75.9%) were unmarried and less than one fourth (24.1%) were married similarly this result corresponds in some extent with similar study findings of Turkey done in 2022 which shows that almost all respondents (98.2%) were unmarried while nearly two percentage of the respondents were married. The findings of this study revealed that almost half of the respondents (48.3%) were currently studying in PBNS 3rd whereas less than one fourth of the respondents (17.2%) were from PBNS 1st year. Almost all of the respondents (96.6%) were working and had worked in hospital or clinic while about three percentage of the respondents were never been involved in job related to nursing in hospital or clinic. Among working/worked respondents, almost all of respondents (94.65%) were from the ward not related to fertility services while about five percentages of the

respondents were from the ward related to fertility services. However, this study contrast with the study conducted in Turkey in 2022, which shows that above majority of the respondents (83.9%) were Non-working whereas few of the respondents (16.1%) were working.[5]

Discussion Related to Knowledge regarding Oocyte Cryopreservation

The findings of this study show that almost all of the respondents (98.3%) believed that 20-29 years age group have higher fertility rate while nearly two percentage of the respondents believed that 30-39 years age group have higher fertility rate which is almost consistent with the similar study conducted in Turkey, 2022 illustrates that almost all of the respondents (95.7%) believed that 20-29 years age group have higher fertility rate which is correct answer.[8] The findings of this study show that above one third of the respondents (32.8%) correctly answered that at the age of 40 years there is chance of delivering a down syndrome child is 1-2% whereas nearly two percentage of the respondents responded that there is only 0.001% chance or risk which is nearly consistent with the similar study conducted in South Korea in 2019 reveals that almost one third of the respondents (23.9%) Correctly answered that there is 1-2% chance of having Down Syndrome whereas only seven percentage of the respondents responded 0.01% chance of delivering a down syndrome child at the age of 40 years.[10] The findings of this study show that almost half of the respondents (44.8%) believed that at the age of 40 years, there is 1-10% risk of miscarriage whereas few of the respondents (10.3%) believes that there is 11-20% chance of miscarriage (both answers were incorrect) while one fourth of the respondents (25.9%) correctly answered there is 21-30% chance of miscarriage. This finding corresponds with the study from South Korea done in 2019 shows that more than one third of the respondents (33.8%) correctly answered that there is 21-30% chance of miscarriage in a woman at the age of 40 years whereas few of the respondents (11.3%) answered 1-10% chance which is incorrect answer.[10] The findings of this study revealed that more than half of the respondents (67.2%) correctly thought that 20-30 years of age group are appropriate for Oocyte Cryopreservation, while nearly nine percentage of the respondents (8.7%) responded with the age group of 31-40 years and woman of any age group, whereas about eight percentage of the respondents said 31-40 years age group are appropriate for Oocyte Cryopreservation. However, this study contrast with the study conducted in Egypt in 2023 among medical students revealed that below one fourth of the respondents (16.8%) answered 20-30 years of age while almost half of the respondents (40%) answered 31-40 years of age group whereas below one fourth of the respondents (13.9%) responded above 40 years age group are appropriate for the Oocyte Cryopreservation.[8] This may be due to variation in respondents' Socio-demographic background, work experience regarding respected field, study sample size, data collection techniques. The findings of this study reveal that most of the respondents (87.9%) believed that motivational/ influencing factors for Oocyte Cryopreservation is Career reason, above half of the respondents (62.1%) agreed with Medical reasons, below half of the respondents (48.3%) agreed with social reasons, whereas few of the respondents (10.3%) answered with due to trend and craze. These findings correspond with similar research conducted in Egypt in 2023 among medical students shows that above half of the respondents (53.2%) considered medical reason, one fourth of the respondents (25.4%) considered Social reasons, while below one fourth of the respondents (17.3%) believed Career reason as motivational or influencing factors for Oocyte Cryopreservation among women. However, there is contrast result found with option of career reason in this study compared to study conducted in Egypt in 2023 these variations could be due to differences in respondents Socio-demographic background, their attitude, values and perception regarding the Oocyte Cryopreservation.[8] The findings of this study show more than half of the respondents (62.1%) considered increased risk of down syndrome with increased maternal age as an influencing factor for Oocyte Cryopreservation whereas above half of the respondents (60.3%) responded with decreased fertility with age and Increase in miscarriages with age was responded by above half of the respondents (51.7%). This finding corresponds with similar research conducted in Egypt in 2023 shows that almost half of the respondents (41.0%) considered decreased fertility with age, Increased risk of down syndrome with increased maternal age (21.4%), Increase in miscarriages with increased maternal age (15.6%) considered as an influencing factor for Oocyte Cryopreservation.[8] The findings of this study show that more than one third of the respondents (31%) correctly thought that minimum 11-20 Oocytes are required to freeze below age of 30 years whereas few of the respondents (10.4%) believed that more than 40 Oocytes are required to freeze for future use (which is incorrect) which is closely consistent with the similar study conducted in Virginia, 2019 among undergraduate and medical students reveals that more than one third of the respondent (38%) correctly answered that minimum 11-20 Oocytes are required to freeze below age of 30 years whereas only six percentage of the respondents responded above 40 numbers of Oocytes are required to freeze which is not correct.[11]

Discussion Related to Level of Knowledge regarding Oocyte Cryopreservation

This study revealed that about eight percentage of the respondents had adequate knowledge, more than two third of the respondents (74.1%) had moderate knowledge and less than one fourth of the respondents (17.2%) had inadequate knowledge regarding Oocyte Cryopreservation which finding corresponds in some extent with similar study conducted in Turkey in 2022 shows that above half of the respondents (59%) found to have moderate to adequate knowledge. The students having knowledge stated that they gained this knowledge

from healthcare professionals, media/social media, and friends/social environment.[5] Similar study result found in the research study conducted among female medical students in Egypt 2023 revealed that half of the respondents (50.3%) found to had some knowledge about the Oocyte Cryopreservation which is nearly consistent with this study.[8] This comparison shows that Nepal has comparatively more percentage of moderate to adequate level of knowledge regarding Oocyte Cryopreservation as compared to other countries like Turkey and Egypt despite being developing country this may be due to year gap of research study, socio-demographic variable differences.

Discussion regarding Association between Socio-demographic Variables and Level of Knowledge regarding Oocyte Cryopreservation

The findings of this study show that there is no significant association between the level of knowledge regarding Oocyte Cryopreservation among nursing students with age, ethnicity, religion, marital status, education and working experience, working are or ward and the respondents' duration of working experience which finding corresponds with similar study conducted in Turkey in 2022 shows that there is no significant relationship was found between level of knowledge with marital status, working status, working department, income status and family type.[5] However, this study contrast with the study conducted in Iran in 2022 reveals thatthere is significant association between level of knowledge with Marital status (p-value:0.028) and Working status (p-value: 0.048). This variation could be due to cultural norms and values, access to resources and employment opportunities. However, there is no association between level of knowledge with Age and Income.[12]

CONCLUSION

Based on the finding of the study, it concludes that majority of the respondents had moderate level of knowledge and there is no significant association between level of knowledge and selected socio-demographic variables.

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