

## Views of Students of Vocational School of Health Services on Infertility and Assisted Reproductive Techniques

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### ABSTRACT

**Objective:** Infertility is a health problem affecting a significant proportion of couples in the modern world. As a result of medical developments, assisted reproductive techniques (ART) offer promising solutions for individuals who want to have children. However, knowledge, attitudes and ethical approaches towards the use of these techniques differ from society to society. This study aims to measure the knowledge level of Vocational School of Health Services (VSHS) students about “infertility” and to determine their awareness levels for ART.

**Methods:** In our study, a questionnaire was administered to 236 students studying at Mersin University VSHS and who volunteered to participate in the study. However, the questionnaires of 34 students could not be evaluated due to incomplete markings, and the evaluation was completed with the data of 202 students.

Shapiro wilk test was used to determine the conformity of the data to normal distribution, "Student t test" was used for the comparison of two normally distributed independent variable groups. As descriptive statistics, mean and standard deviation was calculated for numerical variables and count and percentage were given for categorical variables.

**Results:** When the questionnaire questions were evaluated, a weak negative correlation was found between question 1 and the answers given only to question 8 ( $r=-0.185$ ,  $P=0.008$ ). A moderate positive correlation ( $r=0.509$ ,  $P=0.001$ ) was found between questions 2 and 3, and a weak positive correlation ( $r=0.181$ ,  $P=0.010$ ) was found between questions 2 and 8. Additionally, a weak positive correlation was found between questions 3 and 8 ( $r=0.328$ ,  $P=0.001$ ) and a weak positive correlation was found between question 9 ( $r=0.139$ ,  $P=0.048$ ).

**Conclusion:** The VSHS students had a positive opinion about certain basic practices for ART that do not pose a threat to public health and moral values. However, they expressed negative opinions on critical issues such as predetermination of sex determination or oocyte donation in terms of ethics and balance of nature. As a result, it was concluded that the opinions of young people in the health field may be useful in guiding future ART practices.

**Keywords:** Assisted Reproductive Techniques, Ethics, Health Services, Infertility, Reproductive Health.

## ÖZET

**Amaç:** Kısırlık, modern dünyada çiftlerin önemli bir bölümünü etkileyen bir sağlık sorunudur. Tıbbi gelişmelerin bir sonucu olarak, yardımcı üreme teknikleri (YÜT), çocuk sahibi olmak isteyen bireyler için umut verici çözümler sunmaktadır. Ancak, bu tekniklerin kullanımına yönelik bilgi, tutum ve etik yaklaşımlar toplumdan topluma farklılık göstermektedir. Bu çalışma, Sağlık Hizmetleri Meslek Yüksekokulu (SHMYO) öğrencilerinin “kısırlık” konusundaki bilgi düzeyini ölçmeyi ve YÜT konusundaki farkındalık düzeylerini belirlemeyi amaçlamaktadır.

**Yöntemler:** Çalışmamızda, Mersin Üniversitesi MÜH'de öğrenim gören ve çalışmaya gönüllü olarak katılmayı kabul eden 236 öğrenciye anket uygulandı. Ancak, 34 öğrencinin anketleri eksik puanlama nedeniyle değerlendirilemedi ve değerlendirme 202 öğrencinin verileriyle tamamlandı. Verilerin normal dağılıma uygunluğunu belirlemek için Shaphiro Wilk testi, iki normal dağılımlı bağımsız değişken grubunun karşılaştırılması için "Student t test"i kullanıldı. Tanımlayıcı istatistik olarak, sayısal değişkenler için ortalama ve standart sapma hesaplandı ve kategorik değişkenler için sayı ve yüzde verildi.

**Bulgular:** Anket soruları değerlendirildiğinde, 1. soru ile sadece 8. soruya verilen yanıtlar arasında zayıf negatif korelasyon ( $r=-0.185$ ,  $P=0.008$ ) bulunmuştur. 2. ve 3. sorular arasında orta düzeyde pozitif korelasyon ( $r=0.509$ ,  $P=0.001$ ), 2. ve 8. sorular arasında ise zayıf pozitif korelasyon ( $r=0.181$ ,  $P=0.010$ ) bulunmuştur. Ayrıca, 3. ve 8. sorular arasında zayıf pozitif korelasyon ( $r=0.328$ ,  $P=0.001$ ), 9. soru arasında ise zayıf pozitif korelasyon ( $r=0.139$ ,  $P=0.048$ ) bulunmuştur.

**Sonuç:** SHMYO öğrencileri, toplum sağlığı ve ahlaki değerler açısından tehdit oluşturmayan YÜT'e yönelik bazı temel uygulamalar hakkında olumlu görüşe sahiptir. Ancak, cinsiyetin önceden belirlenmesi veya oosit bağıışı gibi etik ve doğa dengesi açısından kritik konularda olumsuz görüş bildirmişlerdir. Sonuç olarak sağlık alanında gençlerin görüşlerinin gelecekteki YÜT uygulamalarına yön vermede yararlı olabileceği sonucuna varılmıştır.

**Anahtar Kelimeler:** Yardımcı Üreme Teknikleri, Etik, Sağlık Hizmetleri, Kısırlık, Üreme Sağlığı.

## 1. INTRODUCTION

The global decline in fertility rates can be attributed to many social and environmental changes. However, it should be emphasised that 48 million couples and 186 million individuals of reproductive age are living with infertility (WHO, 2020; Cox et al., 2022). Infertility is a chronic and common disease affecting many women and men of reproductive age. It represents a significant life burden that can lead to depression, anxiety, social marginalisation and relationship breakdown (WHO, 2020).

Major advances in infertility treatment with specialised assisted reproductive technologies (ART) over the last three

decades have improved family-building opportunities for infertile and fertile people in developed and developing countries. Although in some developed countries up to 10 per cent of children are born as a result of ART, there are large differences in access to care (Chiwari et al., 2022; Choi et al., 2022). In addition to biological methods such as natural conception, ART can also include surrogacy, adoption and foster care (Tierney, 2022). The number of babies born using ART is expected to continue to increase (Fauser et al., 2024).

Advances in ART are leading more and more women to opt for in vitro fertilisation-embryo transfer (IVF-ET) with therapeutic interventions (Castillo et al., 2019).

Individuals undergoing IVF-ET often face significant psychological distress due to infertility, unpredictable outcomes, high costs, and demanding medical procedures (Frederiksen et al., 2015). In addition to treatment difficulties, individuals with infertility problems face familial and social pressures that increase their risk of developing psychological disorders such as low self-esteem, anxiety and depression (Ma et al., 2023). "In this respect, ART which have emerged as a result of medical developments, offer promising solutions for individuals who want to have children. The knowledge and opinions of individuals receiving education in the field of health services on infertility and ART are of great importance in their future professional roles. In this study, it was aimed to measure the knowledge of VSHS students about 'infertility and to determine their opinions about ART.

## 2. MATERIALS AND METHODS

### 2.1. Study group and research model

A questionnaire was administered to 236 students studying at Mersin University VSHS who agreed to participate in the study. However, the questionnaires of 34 students were not evaluated due to incomplete markings, and the data of 202 students were evaluated (121 female, 81 male). Our study

has been completed in accordance with the Declaration of Helsinki and institutional approval and legal permissions were obtained. The study data were obtained from the results of the student questionnaire prepared for 'Opinions of VSHS Students on Infertility and ART'. A questionnaire containing a total of 15 questions, 5 demographic questions and 10 questions about the content of the study, was administered to the students according to a 5-point Likert scale.

### 2.2. Statistical analysis

Shapiro wilk test was used to determine the conformity of the data to normal distribution and "Student t test" was used to compare the variables in normal distribution with two independent groups. Kruskal Wallis test and "all subset" multiple comparison methods were used to compare the characteristics that are not normally distributed in more than two groups.

Pearson correlation coefficient was used to determine the relationship between numerical variables. In terms of descriptive statistics, mean±standard deviation was used for numerical variables and number and % values were used to determine categorical variables. "SPSS for Windows version 24.0" package programme was used in the evaluation of statistical analyses and P<0.05 was considered statistically significant.

### Survey questions of the study

1. It is acceptable for older mothers to have children by using ART compared to younger ones.
2. In infertile couples who cannot have children, using someone else's healthy oocyte (egg) or sperm is prohibited in Turkey.
3. It is unacceptable for a woman to use someone else's healthy oocyte to have a child, as it will create a discussion about "who is the real mother of the baby" in the future.
4. It is appropriate to determine or even limit the number of embryos transferred to the prospective mother by using ART by regulations.
5. The high number of embryos transferred to the prospective mother and/or babies born by using ART should not be considered as the success of the IVF center.

6. Since it ensures the continuation of the family tree, the use of ART is acceptable even if there is a possibility that a father with a male factor and a genetic disorder will pass on his disease to his son.

7. In the application of ART, limiting the age of women and men will prevent the negative effects of having an older mother and father in babies born with this method.

8. Determining the gender of the embryo in ART is not appropriate because it disrupts the gender balance.

9. It is not appropriate for couples who try in vitro fertilization to use the in vitro fertilization option without any limits until they have a baby.

10. Facilitation of adoption through official means should be provided to couples who cannot have a child through ART.

**The survey questions of the study were evaluated according to the following 5-point Likert scale:**

[A] I completely agree [B] I agree [C] I am undecided [D] I disagree [E] I completely disagree

### 3. RESULTS

The mean age of the participant students was  $20.108 \pm 2.529$ . While female students were 59.9%, the remaining participants are male. Mostly 68.8% are students living in Mersin. Medical documentation and secretarial and Elderly Care Services students were the most included in the study from a total of 9 programs. No significant difference was observed between the answers given according to gender among demographic questions. Consecutively a significant difference was observed between the regions in terms of the answers given to the 1st and 9th questions ( $P=0.007$ ) and ( $0.050$ ). When subgroup comparisons were made, it was observed that those from the east expressed disagreement at a significantly higher level than those from the north or Mersin ( $P=0.048$ ,  $P=0.002$  respectively). Since the ranking of the answers to the questions was made according to the level of agreement, the relationships between them were determined

by correlation analysis. Correlation analysis reveals the direction and severity of the relationship between two variables and is indicated by the coefficient  $r$  ( $-$  indicates a negative relationship and  $+$  indicates a positive relationship).

The interpretations of the significant correlations in the study are as follows (Table):

There was a very weak negative correlation between question 1 and 8 ( $r=-0.185$ ,  $P=0.008$ ). A moderate positive correlation was found between questions 2 and 3 ( $r=0.509$ ,  $P=0.001$ ) and a very weak positive correlation between question 8 ( $r=0.181$ ,  $P=0.010$ ). There was a weak positive correlation between question 3 and 8 ( $r=0.328$ ,  $P=0.001$ ) and a very weak positive correlation with question 9 ( $r=0.139$ ,  $P=0.048$ ). Additionally there was a very weak positive correlation between questions 4 and 5, questions 6 and 9, and questions 8 and 9 (respectively,  $r=0.139$ ,  $P=0.049$ ;  $r=0.142$ ,  $P=0.044$ ;  $r=0.153$ ,  $P=0.030$ ).

**Table.** Positive and negative correlations between questions

		S2	S3	S4	S5	S6	S7	S8	S9	S10
S1	r	-,065	-,080	,013	,136	,137	-,113	-,185**	-,128	,045
	P	,354	,261	,859	,054	,052	,109	,008	,069	,521
	n	202	202	202	202	202	202	202	202	202
S2	r	1	,509**	-,044	-,004	,022	-,088	,181**	,046	-,034
	P		,000	,530	,954	,761	,215	,010	,512	,634
	n	202	202	202	202	202	202	202	202	202
S3	r		1	,033	-,016	,127	-,064	,328**	,139*	-,132
	P			,636	,822	,071	,368	,000	,048	,062
	n		202	202	202	202	202	202	202	202
S4	r			1	,139*	,091	,086	,103	,101	-,003
	P				,049	,196	,221	,146	,151	,964
	n			202	202	202	202	202	202	202
S5	r				1	,103	,001	,133	,033	,036
	P					,143	,989	,060	,639	,613
	n				202	202	202	202	202	202
S6	r					1	-,026	,023	,142*	,008
	P						,709	,744	,044	,907
	n					202	202	202	202	202
S7	r						1	,015	,065	,046
	P							,829	,356	,511
	n						202	202	202	202
S8	r							1	,153*	-,050
	P								,030	,477
	n							202	202	202
S9	r								1	-,134
	P									,057
	n								202	202
S10	r									1
	P									
	n									202

#### 4. DISCUSSION

Infertility is defined as a life crisis that causes medical, psychological and social problems in individuals and is affected by many cultural, religious and class factors. (Küçükdurmaz & Taşkıran, 2015). ART in the treatment of infertility provide hope for many couples who seem impossible to have a child (Arslan & Cingi, 2009). In our study, the knowledge levels of the students of Vocational School of Health Services (VSHS) on the subject of "infertility" were evaluated and their opinions on ART were determined and no significant difference was observed between the answers given according to gender among the demographic questions ( $P=0.07$ ). This situation shows that the students' evaluation of the questions and their perspectives can make general evaluations independent of the concept of gender. A significant difference was observed between the regions in terms of the answers given to questions 1 and 9 ( $P=0.007$ ) and ( $P=0.050$ ). The views on advanced age motherhood and unlimited IVF attempts for those who cannot have children were statistically significant among the students. This shows that regional cultures have different consequences in terms of infertility and treatment practices, as in many social phenomena. In almost all societies, infertile women are held responsible for their fertility problems. However, it is observed that women living in traditional cultures carry infertility as a greater burden. For example, in Cameroon, a woman's status and value is determined by her fertility. Childless Cameroonian women are often abandoned by their fertility-oriented husbands, and are therefore forced to struggle to survive alone (Weinger, 2009).

When subgroup comparisons were made, those from the eastern provinces had a significantly higher level of "disagree" than those from the north or those living in Mersin ( $P=0.048$ ,  $P=0.002$ ). As determined in our study, infertility, which affects millions of

people worldwide, is also significantly affected by environmental factors and sociocultural (Mascarenhas et al., 2012). To explain infertility and the difficulties it creates, it is necessary to go beyond understanding infertility as a disease in the body. It is clear that it is necessary to reconsider the various links between the phenomenon of inability to conceive and the social environments in which people live their lives (Diaz & Watkins, 2025). In our study, a negative correlation was found between those who disagreed with the idea of advanced age motherhood and those who agreed that sex determination of the embryo was not appropriate because it would disrupt the gender balance. At the same time, IVF gender determination is prohibited in our country. In fact, the results of both statements support protectionism in terms of the balance of nature. Alvarez and Marre defined the "concept of structural infertility" to draw attention to low fertility caused by economic, political and social reasons, excluding biological reasons (Alvarez & Marre, 2022).

There is a positive correlation between questions 2 and 3. The majority of the participants agreed that the use of someone else's healthy oocytes or sperm in infertile couples should be prohibited under Turkish conditions (52.4%) and confirmed the idea that the use of someone else's oocytes by a woman would create a debate about "who is the real mother of the baby" ( $r=0.509$ ,  $P=0.001$ ). This situation gives the idea that they defended the idea that they found ethically correct. However, men are routinely assumed to be fertile, and infertility issues can still be seen as a "women's issue" that burdens women and excludes men (Hanna & Gough, 2020). In the explanation of infertility, infertility should not be seen from a biomedical point of view as an individual disease of the body and it is necessary to consider the existence of complex links between the structural and collective

dimensions of the environments in which people live in case of inability to conceive. In our study, the discussion of "who is the real mother of the baby" in oocyte donation in questions 3 and 8 and the idea that embryo sex determination in ART is not appropriate because it would disrupt the gender balance seem to overlap ( $r=0.328$ ,  $P=0.001$ ).

When planning for their future, women need to consider their ability to have and raise children, considering professional, personal and social contexts, as well as confront the limitations of their bodies and biological fertility. When women delay childbearing, they face the challenge of managing multiple risks related to fertility, pregnancy development and outcomes, maternal and infant health, and women's ability to care for their children and be "good" mothers (Díaz, 2021). In our study, it was determined that while it was considered reasonable for advanced age mothers to try IVF methods and unlimited trial chances, the idea of oocyte donation was not adopted due to sociocultural reasons. ART in male infertility poses additional stigmatisation and cultural challenges, creating complex moral dilemmas due to Islamic restrictions on gamete donation (Inhorn, 2003; Inhorn, 2004).

There was also a positive correlation with questions 3 and 9 in terms of unlimited use of in vitro fertilisation ( $r=0.139$ ,  $P=0.048$ ). This idea is followed by the idea that infertile couples should be facilitated to adopt children through official means if the result is unfavourable after multiple ART attempts ( $r=0.153$ ,  $P=0.030$ ). Structural infertility emphasises the precarious nature of the social conditions surrounding parenthood and emphasises that fertility practices are related not only to individual preferences but also to the structural conditions that manifest reproductive possibilities and impossibilities (Douglass, 2005).

The majority of the participants in our study agreed that the number of embryos transferred to the expectant mother in ART practices should be determined or even limited by regulations and that a high number of embryos cannot be considered as a success of the IVF centre. Even though IVF practices seem to be a common and accepted choice in the Western world, other issues such as surrogacy and the physical and emotional burden of fertility treatments on couples and women are still subject to censorship and disapproval (Michelle, 2007). Due to the unmet need for children, especially in Western regions, outsourcing/offshoring is being addressed and transnational reproductive travel for IVF, other ARTs, adoption, surrogacy is current (Marre et al., 2018).

## 5. CONCLUSION

In conclusion, we can say that the awareness levels of VSHS students, whose perspectives on infertility and ART practices were evaluated in our study, will evolve towards positive results despite traditional approaches. However, it is seen that infertile couples and especially women experience stress and psychosocial problems due to inability to have children, and among these problems, inability to respond to social expectations, negative self-perception, stigmatisation, invisible multiple losses and psychological effects of assisted reproductive treatments are at the forefront. Psychiatry and reproductive health specialists should be in cooperation in educational and health institutions related to infertility. Addressing the stress levels and psychosocial problems of women, on whose body all infertility treatment stages take place, and developing appropriate interventions will enable infertile couples to overcome this process more healthily and increase their treatment success.

It is revealed that couples need a counsellor who will make them aware of the Deven health care students who are trained consciously on this subject. They can provide

counselling for infertile couples to express their emotional problems, frustrations and relationship problems. In today's world, where fertility rates are rapidly declining worldwide, there is a need to train health professionals who recognise that limitations to parenthood are not only caused by anatomical or physiological conditions in the body, but also by structural, environmental and social conditions in society.

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