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Midwifery students' spiritual and ethical values and their views and attitudes towards uterine transplantation: A qualitative study

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Abstract

This qualitative study was conducted to examine the relationship between Muslim midwives' spiritual values and ethical orientations and their attitudes towards uterine transplantation. The phenomenological study sample group consisted of students in the Midwifery undergraduate programme of a public university in Istanbul (n:26). The data were collected in semi-structured focus group interviews. It was among the student midwives, it was determined that some students rejected uterine transplantation with thoughts such as "I am a Muslim, according to my religious belief, I should go to the grave without damaging my organs" or "This transplantation is not a vital necessity", as well as students who considered uterine transplantation as religious and ethically appropriate. It was determined that midwife candidates who will provide reproductive health services have different ethical and moral views regarding uterus transplantation, and there are some who see this method as religiously acceptable, and there are also students who emphasize that it is not suitable for Islam. In addition, training programs are planned to increase students' awareness and knowledge on this subject, aiming to be beneficial to the women they will care for in the future. *(Afr J Reprod Health 2024; 28 [4]: 41-49).*

Keywords: Midwifery students, spiritual values, ethical values, uterus transplantation, Muslim

Résumé

Cette étude qualitative a été menée pour examiner la relation entre les valeurs spirituelles et les orientations éthiques des sages-femmes musulmanes et leurs attitudes à l'égard de la transplantation utérine. Le groupe échantillon de l'étude phénoménologique était composé d'étudiants du programme de premier cycle de sages-femmes d'une université publique d'Istanbul (n : 26). Les données ont été recueillies lors d'entretiens de groupe semi-structurés. Parmi les étudiantes sages-femmes, il a été déterminé que certaines étudiantes rejetaient la transplantation utérine avec des pensées telles que "Je suis musulmane, selon ma croyance religieuse, je devrais aller dans la tombe sans endommager mes organes" ou "Cette transplantation n'est pas une nécessité vitale", ainsi que des étudiants qui considéraient la transplantation utérine comme religieusement et éthiquement appropriée. Il a été déterminé que les candidates sages-femmes qui fourniront des services de santé reproductive ont des opinions éthiques et morales différentes concernant la transplantation d'utérus. Certaines personnes considèrent cette méthode comme religieusement acceptable, et d'autres étudiants soulignent qu'elle n'est pas adaptée à l'Islam. De plus, des programmes de formation sont prévus pour accroître la sensibilisation et les connaissances des étudiants sur ce sujet, dans le but d'être bénéfiques aux femmes dont elles s'occuperont à l'avenir. *(Afr J Reprod Health 2024; 28 [4]: 41-49).*

Mots-clés: Étudiants sages-femmes, valeurs spirituelles, valeurs éthiques, transplantation utérine, musulman

Introduction

Infertility is an important health problem affecting 10-15% of couples of reproductive age[1]. Approximately one in 500 women in the United States has uterine infertility due to congenital or acquired causes[2]. Despite the progress in assisted reproductive technologies, current treatment approaches have not provided a solution for hysterectomy-induced uterine factor infertility[3,4,5]. As a result of successful pregnancies, uterine transplantation remains a promising treatment modality for infertile couples who do not want to have children with alternative methods such as adoption and surrogacy. However, in many countries there is increasing speculation about this method for cultural and ethical reasons. In Muslim-majority countries such as Turkey, questions and sensitivities about the religious appropriateness of uterine transplantation persist. Similarly, religious, medical, ethical, legal and legal perspectives and prejudices of the society towards organ donation cause individuals to abstain from organ donation[6].

In a study conducted by Bektaş and Yıldırım[7] with 200 nurses, it was determined that 42% of nurses wanted to donate organs because they

considered it as a professional responsibility. In the study conducted by Özer *et al*.[8], it was determined that religious factors (doing good, compassion, helping someone to survive, wanting to be useful to someone) and socio-economic factors (family expectation, reward, money expectation) had an effect on nurses' organ donation. In the study conducted by Balcı and Şahingöz, it was determined that religious approval affected organ donation. As a result of the study, it was found that the organ donation rates of nurses who thought that organ donation was religiously appropriate were higher[9]. When the studies on uterus transplantation were examined, it was found in a study conducted by Jones et al. that 54% of women preferred uterus transplantation instead of surrogacy because they wanted to experience pregnancy, but 8% thought that this method was not suitable for them due to religious sensitivities[10]. In a study conducted by Dewani *et al*., it was determined that it was seen as a ray of hope for women whose fertility was threatened due to cancer treatment[11]. In a study conducted by Graca *et al*., it was determined that although it may cause ethical or spiritual debates across cultures, geographies and religions, it is considered one of the important medical developments of the last century because it gives women with uterine problems a chance in terms of fertility[12].

In order to ensure community-based development and change, it is necessary to determine the knowledge and attitudes of health professionals, who are in one-to-one interaction with the society, towards organ donation and uterine transplantation and to determine the factorsaffecting these attitudes in order to plan the necessary service strategies and to develop solutions. Therefore, this study was planned to examine the relationship between the spiritual values of midwifery candidates who will carry out fertility regulation and reproductive health services and their attitudes towards uterine transplantation.

Methods

Population and sample of the study

The design of the research is phenomenological analysis, which is one of the qualitative research designs. The population of the study consisted of students studying in the Midwifery Department of a public university in Istanbul. Criterion sampling method was used to determinethe study group of the research. While forming the sample of the study, students were continued to be interviewed until the saturation point of the answers given to the questions in the sample volume in qualitative research was reached and 26 students who volunteered to participate in the study constituted the sample of the study.

Data collection tools

The data of the study were collected using the "Introductory Information Form" and "Interview Form" created by the researchers.

***Introductory information form*:** This form, which was created by the researchers based on the literature, includes questions such as age, graduated high school, status of being an organ donor, etc. of the participants.

Interview form: The semi-structured interview form, which was prepared by the researchersbased on the literature review and expert opinion, includes questions about the students' spiritual tendencies, level of knowledge about uterine transplantation, ethical orientations and cultural perceptions about uterine transplantation.

Data collection process

After the student midwives were informed about the study and voluntary consent was obtained,the data were collected by face-to-face interview method. Focus group interview method was used for data collection.

Interviews were conducted in groups of six to seven people. At least two researchers took partin the interviews, one of them conducted the interview while the other one observed the process, asked additional questions and asked for opinions when necessary. Thus, it was aimed to prevent possible data loss and to make the data suitable for the research questions. Each interview lasted an average of 90 minutes and the participants (each participant was given at least 10-15 interviews) were told that a recording device would be used in the interviews, but itwas stated that the recordings were kept in the meeting room. The participants could listen to the end of the interviews, and it was conveyed that the opinions in the recordings could be removed

partially or completely if necessary. Thus, it was aimed to prevent the negative effect of the recording device on the participants.

Data evaluation

Content analysis method was used to analyse the data. MAXQDA 2022 qualitative data analysis programme was used in the content analysis of the interview data. The audio recordings of 23 participants obtained from the interviews were transferred to the computer. The audio recordings were listened to several times and saved in Word documents. The documents were read carefully again and again and punctuation and spelling mistakes were corrected. Invalid and meaningless data that were not relevant to the subject were eliminated. Coding was made under the research questions. In the last stage of content analysis, the themes and categories were interpreted. While writing the data, the names of the individuals will not be used and each interviewee was numbered and coded for ease of analysis and confidentiality (e.g. P1 for participant 1, P2 for participant 2). All interviews were recorded with a voice recorder and the researcher kept observation notes. In the preparation of the open-ended questions, the opinions of 9 experts who have research and experience on the subject were taken, and the analyses were evaluated with the opinions of 3 experts. The raw data of this research, the coding made during the analysis phase and all other materials are kept confidential for verifiability.

Ethical approval

Ethics committee approval was obtained from the University of Health Sciences Hamidiye Scientific Research Ethics Committee (Number: 19450, Date: 12.07.2023). In all stages of theresearch, the rules in the Declaration of Helsinki were followed. After the participants were informed about the research, their online and wet signed informed consent was obtained.

Results

The mean age of the student midwives who participated in the study was 22.03 ± 2.79 years. It was determined that 38.5% of the students had information about organ transplantation, while the majority (34.6%) received information through the university where they were currently studying. It was determined that 3.8% of the students who contributed to the study donated theirorgans, while 57.7% of them did not think of organ donation.

It was determined that 34.6% of the participants had information about uterine transplantation and 57.7% of them thought that this type of transplantation was different from other organ transplants. In addition, 76.9% of the participants found it appropriate to have a child with uterine transplantation.

As a result of the findings, 4 themes and 12 sub-themes were determined:

Theme 1: Knowledge status and opinions

As a result of the analysis of the data, 3 sub-themes (codes) were determined as knowledge level, negative views and positive views. It was determined that the students did not find this method necessary and that those who wanted to have a child could have a child.

Subtheme 1: Knowledge level

P3: I read in the news that 2 women underwent uterus transplantation, one of them gave birthto a baby boy by caesarean section and the other one died. I read in the news that it was also done in Turkey.

P8: I have read about it in articles. If I do not remember wrongly, Turkey's Akdeniz Universityis good in organ transplants, and the first face transplant was performed there. I also saw it onthe news. Then the lecturer mentioned in the course that uterus transplantation was from cadaver, but I do not know the details. I don't have a wide knowledge, I would like to learn. Maybe we may need it in the future. I do not think that my close environment has enough information about this issue and I do not think that this issue will be looked upon favourably. Although it is a remedy for desperation for those who have been waiting for children for manyyears, people may not be willing to do this because of their beliefs.

P12: I am a graduate of health vocational high school, I heard about it in high school, but I amnot familiar with the details. Apart from that, we talked about uterus transplantation in the elective course at the university.

Table 1: Participants' views on organ transplantation

	n	%
***Reasons for not wanting to donate organs**		
Not having enough information/ Not knowing where to apply	10	18,1
Not deeming it appropriate due to his/her beliefs (Notwanting the body integrity to be damaged)	10	18,1
Not feeling ready	9	16,3
Indecision	7	12,7
Opposition to organ donation	7	12,7
Distrust of physicians	5	9,5
Fear	4	7,2
Lack of favourable health conditions	2	3,6

*More than one answer was given.

Table 2: Themes and sub-themes

Theme	Sub-themes
State of Knowledge and Opinions	Knowledge level
	Negative opinions
	Positive feedback
Risk Assessment	Risks for the donor
	Risks for the recipient
	Risks for the baby
Required Criteria	Donor-specific criteria
	Recipient -specific criteria
Value judgements	Religious behaviour
	Ethical dilemmas
	Legal issues
	Social judgements

P16: In the lecture we talked about the uterus from an old woman was transplanted into a young woman and when the uterus from the old woman was transplanted into the young woman, hormones made the uterus ready for pregnancy.

Subtheme 2: Negative views

P12: I wouldn't want to be a donor or a recipient. According to my belief, if it doesn't work, I would say that God knows something. But whether I am a donor or a recipient, I would want itto be a Muslim. At least I would feel psychologically comfortable. I would also want it to be someone from my own race.
P23: It is a very big problem for a person not to have a child, but it is fate, life should be left togo with the flow, it is not a type of transplantation that I support very much. Because this transplant is not a vital necessity.
P15: I am not very supportive of uterus transplantation. I see people around me who have hada child by undergoing treatment, but there are people I know who say that they would have hada child if God had willed and never tried. According to my belief, I think it should not be intervened and if God does not give a child, one should not intervene and have a child.
P13: There are other methods other than uterus transplantation to have a child, you can adopta child from a child protection institution.
P3: It is debatable to what extent it is considered religiously and culturally appropriate in Turkey.
P25: I do not want to be a uterus recipient after the age of 35. I would adopt it from a child welfare institution. If I am younger than 35 years old, I would probably be a recipient to have a child. I do not want to buy from a live donor, I may have questions about the other party, I may prefer cadavers.

Subtheme 3: Positive views

P21: Uterus transplantation is a very important infertility treatment for women, so I am very interested in it. I don't think my close circle of relatives have information about this subject
P9: It can be an advantageous practice in our country because surrogate motherhood is prohibited in Turkey. I think it is also ethically and religiously appropriate.
P16: It is not a method that I consider appropriate for trans individuals. However, although itseems a distant idea to me, it is a preferable alternative for women who do not have children.
P19: If I do not have a congenital uterus and I really want to have a child, I can be a recipient.I can also adopt children from child welfare institutions instead of transferring them.

Theme 2: Risk assessment

As a result of the analysis of the data, 3 sub-themes (codes) were identified as risks for the donor, risks for the recipient and risks for the baby. While the students stated that there were psychological and physical risks for the donor and recipient, it was determined that they thoughtthat the baby could be

exposed to anomalies that may occur due to organ incompatibility.

Subtheme 1: Risks for the donor

P1: If it is a living donor, after the baby is born, the donor may regret it and ask for the baby.
P5: The donor's life will change completely. Especially if she became a donor when she was 25-30 years old, she will go into early menopause, and she will suffer from its problems for therest of her life.

Subtheme 2: Risks for the recipient

P5: Because the uterus is transplanted, the recipient hormones may not be secreted sufficiently.
P3: Complications such as placental abnormalities, implantation disorders, placental invasionanomaly or abortion may occur in pregnancy with transplanted uterus. Perfusion problems mayoccur.
P1: The structure of the transplanted uterus may not be suitable for the recipient mother, the uterus may reject, rupture may occur during pregnancy or labor.
P21: The risk I see is that since the uterus is transplanted, it is not an organ belonging to the recipient's body, the pregnancy may end in failure.
P8: This transplantation will be a new hope for the recipient. The donor should have a good obstetric history and I think the age of both parties should be young for the body to adapt to the body. For pregnancy, it should be waited for a while whether it is compatible or not. And I thinkif the transplant is successful, it will not affect the development of the child.

Subtheme 3: Risks for the baby

P9: Babies born with uterus transplants may have anomalies.
P22: If the body does not see the uterus as foreign, it does not perceive it as a danger and the baby is born healthy.

Theme 3: Criteria for transfer

As a result of the analysis of the data, 2 sub-themes (codes) were identified as donor-specific criteria and recipient-specific criteria. Participants stated that the donor should be in a certain age range and should not have had uterine operations before, while the recipient should not have had a baby before and should have tried all infertility treatments.

Subtheme 1: Donor-specific criteria

P1: In order to be a donor, I think she should be over 23-24 years old and should not have gonethrough menopause. Legal rules can be set such as the recipient should also be married and should not be able to have children by any means. She should not have too many pregnancies.The uterus should not have been intervened too much.
P3: The donor's uterus should not have any scar tissue due to any intervention, and she shouldnot have had a caesarean section.

Subtheme 2: Recipient -specific criteria

P16: I think both the donor and the recipient should be psychologically healthy and undergo an assessment. The recipient should have lost her uterus at a young age or should not have a congenital uterus.
P23: If the uterus is to be removed from a live donor, the donor should not be young. The recipient should also be psychologically ready for this long and tiring process.
P14: If I were the recipient, I would not want to know who the donor is in order to be conscientiously comfortable.

Theme 4: Value judgements

As a result of the analysis of the data, 4 sub-themes (codes) were identified as religious attitude,ethical dilemmas, legal problems and evaluation of social judgements.

Subtheme 1: Religious behaviour

P3: I am a Muslim, according to my religious belief, I should go to the grave without damaging my organs. I should hand my body over to God in that way.
P1: Religiously, I find it appropriate to be a donor, but only if I am a cadaver. There may be people who think that if God does not give them children, why do you intervene? Then in vitrofertilisations and treatments have the same logic. When I get the flu, I should not usemedication, then I will get better on my own. I shouldn't go to the doctor, I shouldn't use medication, I should just sit and wait to get better. It is the same situation.

P21: I have no religious hesitation. After all, normal organ transplantation is very positive andnecessary in terms of health.
P7: When the first organ transplantation was performed, there were dilemmas, it was not yet clear, but after a while it became religiously permissible. At the moment, uterus transplantationis not very common, so it is not known whether it is permissible or not, but in the future it mayalso be called permissible.

Subtheme 2: Ethical dilemmas

P11: I think this is a very big ethical problem because we suddenly take away the donor's rightto be a mother. It is necessary to get a report from the donor for an adequate psychological evaluation, then she can say that she regrets it.
P15: I think the donor has already sacrificed her uterus, I do not think there will be an ethical problem.
P21: If a woman is going to have a uterus transplant, there is no ethical dilemma, it can be done to a woman who wants to be a mother and I do not see any obstacle. It is like a normal organ transplant. However, if the uterus is given to a transgender individual, it may create ethical dilemmas.

Subtheme 3: Legal issues

P12: It is a situation that needs to be supervised a lot and frequently, people may turn uterus transplantation into a commercial element because they need money. Like surrogate mothers.
P14: Legally, there is no problem, but if the donor is alive and knows the recipient, it may causeproblems.
P1: I think uterus transplantation is like kidney transplantation. If I were the recipient, I wouldnot prefer the donor to be alive. I would be very uncomfortable with the possibility that I mightface tomorrow. The donor has no legal rights, but I still do not want the donor to be alive.
P16: What if the donor is alive and then the woman wants her uterus back or if she says that the child born as a result of the transplantation has my genealogy, this may create legal problems.

Subtheme 4: Social judgements

P7: I know I will be judged by the society, but I don't care
P14: While even infertility causes stigmatisation among relatives, I do not think that they wouldbe positive towards uterus transplantation.
P26: I would also be a recipient, but I would not tell anyone. I would keep it secret. I would not want people to know because they would judge. Religion, language, race do not matter to me. As a Muslim, I would also buy the uterus of a Christian, this is not important to me.
P8: I do not pay attention to what the society says, but the society speaks and judges.

Discussion

In this study, the views of 26 Muslim student midwives on moral and ethical values regarding uterine transplantation were evaluated. It was found that 34.6% of the students knew this type of transplantation and 76.9% of them found it appropriate to have a child with this method. While some of the participants stated that they had not heard of uterine transplantation before,some of them stated that they had heard about it in the news, in the courses they took in high school or university and in the articles they read. However, they stated that they did not know the success rate, pregnancy results and details of this method sufficiently. Since uterine transplantation is a relatively new method, the inability of midwifery candidates to master the details can be considered as an expected result[13]. While some of the students evaluated uterine transplantation positively as a treatment for infertility and as an alternative to surrogate motherhood, some of them stated that they did not see it as a vital transplant and that those who want a child can adopt from child welfare institutions. In a study conducted with 506 women on uterine transplantation, it was reported that 52% of women considered uterine transplantation as a practice that improves the quality of life[14]. In addition, in a study conducted by Karataş on adoptive individuals, it was determined that the adoption process has psychological, bureaucratic and social difficulties[15]. Therefore, in Turkish society, not being able to have a child or adopting a child may cause social stigmatisation, and this method may be a preferable alternative as it allows women to have a child biologically. In addition, surrogacy is not legal in Turkey. In countries where surrogacy is not legal, although uterine transplantation is not yet applied as

a routine procedurein the treatment of infertility, it may become a routine method in the coming years because it helps women to give birth to their own child carrying their own genetic material and has a legalbasis compared to surrogacy[4].

When the participants were asked to make a risk assessment about uterine transplantation, they stated that hormonal problems may occur because the donor does not have a uterus, and uterinerupture, abortion and placental problems may occur due to transplantation. In terms of the baby,they stated that pregnancy losses may occur due to the risk of anomaly in the fetus or the risk of the mother's immune system identifying the fetus as a foreigner. In a review of 31 articles byRichards et al., it was found that preeclampsia, thrombosis, infection, vaginal stenosis, graft failure, placental anomalies, preterm premature rupture of membranes (PPROM), preterm contractions were observed in mother and fetus in pregnancies with uterus transplantation[16]. In an article by Jones et al. examining 45 cases, it was reported that although this method can be used as infertility treatment due to successful live births performed consecutively, there are risks of emergency hysterectomy, pelvic inflammatory disease and Herpes simplex[17]. In addition, when evaluated in terms of living donor, the risks of complications that may occur due to surgery and hysterectomy, ovarian dysfunction, decreased quality of life and mental disorders have been reported[18]. Therefore,midwifery students were able to evaluate the risk situations of uterine transplantation by makinga strong synthesis with the risky pregnancy and risky birth courses they had taken.

Religious, social value judgements and ethical dilemmas are the most discussed issues in uterine transplantation for infertile women. When Muslim students were asked to evaluate uterine transplantation in terms of their own beliefs, there were participants who considered uterine transplantation religiously appropriate, but there were also participants who were undecided ordid not consider organ transplantation appropriate because it violated the integrity of the body.The Supreme Council of Religious Affairs of Turkey approves organ transplantation only if "there is a state of necessity, i.e. there is no other way to save the patient's life or a vital limb" and "the organ to be transplanted does not disable an essential vital function in the recipient (donor)", therefore it does not approve uterine transplantation. The most important feature that distinguishes uterine transplantation from other transplantation surgeries is that it is notperformed to save people's lives, but to improve the quality of life. This situation explains the lack of consensus among religious institutions, authorities and scholars. However, the positive attitude towards organ transplantation according to Islamic belief was declared in a fatwa issued in 1980[19]. In addition, the transplantation of reproductiveorgans other than sexual organs, which do not carry genetic characteristics, is permissible within the framework of legitimate necessities, provided that the criteria determined in the decision number one taken at the fourth term meeting of the Islamic Fiqh Academy[20,21]. According to the widespread Islamic view, the ruling on the transplantation of reproductive organs depends on whether they have genetic characteristics or not. Accordingly, transplantation of fallopian tubes is not permissible. It is permissible to transplant the frozen ovary/ovarian tissue taken from the woman herself (autotransplantation). However, transplantation of someone else's ovarian/ovarian tissue is not permissible because ittransplants the genetic characteristics of the woman from whom the tissue was taken. Uterus transplantation is permissible for women who cannot have children due to uterine factor infertility, although their ovarian function is sufficient. It is certain that uterus transplantation will lead to significant changes in the lives of couples who have been waiting for a child for a long time and cannot have a child despite treatment.

When uterus transplantation is evaluated ethically by midwife candidates, it is thought that if both parties consent, there will be no ethical problem, but if the donor is alive and adequate psychological evaluation has not been made, it may cause problems in the future. In addition, legally, it is thought that there will be no problem since both parties will sign informed consent, but it is also stated that there is a risk of commercialisation such as surrogacy or paid oocyte transfer. When analysed from the perspective of the living donor, although living without a uterus does not pose a life-threatening danger, it may pose ethical problems due to the loss of sexual identity, gender roles or the thought that it may have effects on gender. For this reason,donation should be obtained from the donor after a comprehensive psychiatric evaluation[22,23]. In

addition, when evaluated in terms of society, the majority of the students suggest that uterus transplantation may be a cause of stigmatisation. Therefore, information and continuous emotional support should be provided to women, families and society.

Strengths and Limitations

The results of this study will be an important data source in analysing the ideas and attitudes of midwives about moral and ethical values related to uterine transplantation. In addition, it will serve as a source for curriculum arrangements for midwife candidates or in-service training of midwives on uterine transplantation, which is the current approach.

Since uterine transplantation is a medical issue that maintains its current status and develops with new cases, there are difficulties in accessing specific legal, ethical and religious resources.There is little content on uterine transplantation, especially in the religious dimension. In addition, the results of this study are limited to midwifery students studying at a state university. As another limitation of the study, since the data were collected through focus group meetings,the views of the participants may have affected each other. To prevent this, attention was paid to the group dynamics.

Conclusion

They argued that uterine transplantation may pose ethical dilemmas and legal problems for midwives who will provide reproductive health services, but if it is protected by appropriate laws, it will not pose any problems. Among the student midwives, some considered uterine transplantation to be religiously appropriate, and some who were undecided or thought that organ transplantation was not religiously permissible because it violated the integrity of the body. In conclusion, trainings and programmes should be organised by taking into consideration cultural values, beliefs and traditions in order to create social awareness about uterine transplantation, which is a new practice. In addition, comprehensive psychological evaluation should be performed for the selection of patients before transplantation and continuous emotional support should be provided after transplantation. Although there is a law on organ transplantation in our country, there are no specific regulations on uterine transplantation. It is important to regulate the ethical and legal regulations on this subject by paying attention to the risks and psychosocial effects especially for living or deceaseddonors, recipients and children born after transplantation. In line with these results; It is important to include ethical and legal regulations, taking into account the culture, values, beliefs and traditions of the society, and the risks and psychosocial effects, especially for living or deceased donors, recipients and children born after transplantation. In addition, for groups with religious sensitivities, opinions from religious authorities should be sought, fatwa lines should be created if necessary, and community-based trainings should be organized to answer individuals' questions.

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Conflict of interests

The authors declare that there is no conflict of interests.

Ethical approval

In order to conduct the research, ethics committee approval was received from the Scientific Research Ethics Committee of a public university (Number: 2023/13, Date: 07.07.2023). The rules in the Declaration of Helsinki were followed at all stages of the research. People who volunteered to participate in the study were informed about the study and their informed consent was obtained.

Data availability

The data that support the findings of this study are available from the corresponding author upon reason able request.

Authors contributions

YAK, AB and SA participated in the design of the study. YAK created the material and method, supervised and critically reviewed the article. SA

and AB collected data and performed data analysis. All three authors were involved in writing the manuscript and approving the final draft.

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