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Research Article

THE CORRELATION BETWEEN PARENTS' eHEALTH LITERACY AND CHILDREN'S SLEEP HABITS

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Abstract: *This study aimed to explore the correlation between parents' eHealth literacy and sleep habits of children. This descriptive and cross-sectional study was performed in the spring semester of the 2023-2024 academic year with parents who agreed to attend the research among the students studying in two kindergartens in the center of a district in Turkey (n=138). The "Personal Information Form" "the Children's Sleep Habits Questionnaire" and "the eHealth Literacy Scale" were used as assessment instruments. The data were analyzed with the SPSS 22.0 package program. 87.7% of the parents were women, 52.2% of children are girl. 70.3% of the children had clinically significant sleep-related problems. It was identified that there was a significant difference in the mean scores of the eHealth Literacy Scale according to the education level of the parents (p<0.05). A negative, statistically significant correlation was identified between the Children's Sleep Habits Questionnaire mean score and parents's the eHealth Literacy Scale mean score (p<0.05). The study identified that 70.3% of children had sleep-related problems. It has been determined that parents' e-health literacy levels differ according to their educational status. In addition, the study concluded that as parents' eHealth literacy level increases, children's sleep-related problems decrease.*

Keywords*: eHealth Literacy, Child, Parent, Sleep*

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1. Introduction

Considering that preschool is a term of speedy cognitive and functional development, sleep is of crucial significance in preschool children [1]. Sleep problems are widespread in children and have been associated with obesity, poor school performance, and poor behavior [2]. Disrupted or insufficient sleep leads to morbidity and mortality in children and negatively influences their quality of life and their families [3].

Studies showed that parents play a significant role in preschool children's sleep [2,4]. A systematic review study found that more informed parents were more probably to state that their children demonstrated healthy sleep applications [5].

Health literacy (HL) is a significant decisive of health [6]. HL increases parents' capacity to participate in making decisions and take responsibility for their children's health [7]. Csima et al. [8] revealed that parental HL levels and parental education are associated with children's health-related habits systems. Ono et al. [1] appeared that parents' HL affects their children's sleep problems.

Parents are increasingly using digital resources when seeking knowledge regarding their children's health [9]. The aim of eHealth literacy (eHL) is to develop the health level by using electronic

knowledge resources on health matters [10]. Low eHL levels cause individuals to be unable to access correct knowledge about their health on the internet and to adopt incorrect diagnoses, treatments and health behaviors by believing in false information [11]. To make the most of the possible advantages of digital media for child health, parents' eHL is critical [9].

Parents play a critical role in ensuring healthy sleep patterns for children. In addition, children rely on their parents to recognize when they are experiencing sleep problems and to seek appropriate support and intervention from their healthcare professionals [5]. Improving parents' HL promotes improved living and sleep habits in their own lives and may help improve their children's sleep duration [4]. The behaviors of parents with low HL may play a role in their children's sleep problems [1]. Therefore, it is important to explore the correlation between sleep habits in children and parents' eHL. In one study, a positive relationship was found between the health literacy of parents in the low health literacy group and the sleep duration of their preschool children [4]. Another study found a significant negative relationship between parents' health literacy and preschool children's sleep problems [1]. However, as far as we know, no study has been found examining the correlation between sleep habits in children and parents' eHL. As a result of examining the relationship between e-health literacy and children's sleep problems in this study, it is expected that parents, nurses and educators will be made aware of this issue and as a result, this study will guide the development of various strategies related to improving parents' e-health literacy levels for children to acquire healthy sleep habits and also this study will contribute to the literature. Therefore, the objective of the present study is to explore the correlation between parents' eHealth literacy and the sleep habits of children.

2. Materials and Methods

2.1. Study Design and Participants

The research is descriptive and cross-sectional in type. The universe of the study contained parents of students studying in public kindergartens located in the center of a district in Turkey during the spring semester of the 2023-2024 academic year (N= 880). The sample of the research included 138 parents of students who agreed to attend the research and who were studying in two kindergartens selected by simple random sampling technique among the state kindergartens in the center of a district in Turkey.

The minimum sample size for the study was calculated as 52 using the G*Power (3.1.9.6) software package, based on the results reported by Ono et al. [1]. This calculation utilized the correlation between HL scores and Children's Sleep Habits Questionnaire scores, with a type I error of 0.05, a type II error of 0.20 (80% power), and an effect size of 0.332. The research was conducted with 138 parents who agreed to participate in the study. Parents were selected for the study using a convenience sampling method.

After obtaining the necessary permissions, the assessment instruments were distributed to the parents in the presence of the teacher and were filled out by the parents in about 15 minutes.

2.2. Assessment Instruments

Personal Information Form: The form comprised questions regarding demographic characteristics.

eHealth Literacy Scale (eHEALS): The eHEALS was developed by Norman and Skinner [12]. The scale included 8 items rated on a 5-point Likert-type scale. The total score ranges from 8 to 40, with higher scores stating higher levels of eHealth literacy. The Turkish validity and reliability research of the scale was performed by Tamer Gencer [13]. The Cronbach alpha coefficient was found to be 0.86 in a Turkish validity study [13]. In this study, Cronbach alpha value was found to be 0.96.

Children's sleep habits Questionnaire (CSHQ): The scale was developed by Owens et al. [14]. The CSHQ-short form included a total of 33 items and eight subscales. The subscales are bedtime resistance,

sleep onset delay, sleep duration, sleep anxiety, night wakings, parasomnias, sleep disordered breathing, and daytime somnolence. The Turkish validity and reliability research of the form was realized by Perdahlı Fiş (2010) [15]. The cut-off point of the form is accepted as 41 points, and values above this are evaluated "clinically significant" [15]. The Cronbach alpha coefficient was found to be 0.78 in a Turkish validity study [15]. In this study, Cronbach alpha value was found to be 0.74.

2.3. Ethical Consideration

Approval was obtained from the ethics committee of a university (Decision no: TBAEK-138, date: 29.02.2024) and written permission was obtained from the Provincial Directorate of National Education to which the schools where the study was conducted were affiliated. Parents' verbal and written consents were obtained.

2.4. Statistical Analysis

The data were analyzed with the SPSS 22.0 package program. Data were analyzed using Shapiro-Wilk test, Mann-Whitney U Test, Spearman's correlation analysis, Kruskal-Wallis test (if it's significant, "the Mann–Whitney U test with Bonferroni adjustment"), descriptive statistics by SPSS 22.0 package program. The significance level was assessed as $p<0.05$.

3. Results

Descriptive characteristics of the participants were examined and the results were presented in Table 1.

Table 1. Descriptive characteristics of participants (n=138)

	Mean ± SD	**Min.-Max.**
Age of child	5.16 ± 0.60	4-6
Age of parent	35.09 ± 5.53	22-50
	n	**%**
Gender of parents		
Female	121	87.7
Male	17	12.3
Gender of child		
Girl	72	52.2
Boy	66	47.8
Parental education		
Primary school	10	7.2
Secondary school	25	18.1
High school	41	29.7
University	62	44.9
Children's Sleep Habits Questionnaire		
≤ 41	41	29.7
> 41	97	70.3

SD: Standart Deviation

Most of the parents comprised in the study (87.7%) were the mothers of the child, and the mean age of the parents was 35.09 ± 5.53. 44.9% of the parents are university graduates. 52.2% of the children were girls. The mean age of the children was 5.16 ± 0.60. 70.3% of the children had clinically significant sleep-related problems (Table 1).

Data of the participants regarding eHEALS were evaluated and presented in Table 2.

Table 2. Data regarding eHEALS

	n	**%**
The useful of the Internet when coming to decisions regarding health		
Not beneficial at all	5	3.6
Not beneficial	18	13.1
No idea	21	15.2
Beneficial	81	58.7
Very beneficial	13	9.4
The significance of reaching health sources on the internet		
Not useful at all	4	2.9
Not important	23	16.7
No idea	13	9.4
Important	81	58.7
Very important	17	12.3

58.7% of parents viewed the internet as "beneficial" when making health-related decisions. 58.7% of parents viewed accessing health sources on internet as "important." (Table 2).

The eHEALS and CSHQ mean scores were compared based on some characteristics, and the results were reported in Table 3.

Table 3. Comparison of eHEALS and CSHQ mean scores based on the some characteristics of children and their parents

	eHEALS			**CSHQ**		
	Mean ± SD	**Test**	**p**	**Mean ± SD**	**Test**	**p**
Gender of parents						
Female	28.55 ± 7.43	951.00[b]	0.612	7.36 ± 2.67	892.00[b]	0.371
Male	30.47 ± 3.69			6.88 ± 2.15		
Gender of child						
Girl	29.93 ± 6.15	2081.50[b]	0.205	6.85 ± 2.05	1811.50[b]	**0.015***
Boy	27.55 ± 7.86			7.80 ± 2.37		
Parental education						
Primary school	25.30 ± 6.62			6.30 ± 2.50		
Secondary school	25.12 ± 9.30	14.331[a]	**0.002****	7.32 ± 2.30	4.899[a]	0.179
High school	28.29 ± 7.42			7.83 ± 2.32		
University	31.16 ± 4.81			7.11 ± 2.11		

SD: Standart Deviation, **CSHQ:** Children's Sleep Habits Questionnaire, **eHEALS:** eHealth Literacy Scale, [a]Kruskal-Wallis test, [b] Mann-Whitney U Test; *:p<0.05; **:p<0.01

The mean eHEALS scores did not differ significantly based on the gender of the child and the gender of the parents (p>0.05). It was identified that the mean eHEALS scores differed significantly based on the education level of the parents. Parents who are university graduates were identified to have higher eHEALS scores than parents who are primary school graduates (p<0.05).

CSHQ mean scores did not differ significantly based on parental education level and gender of parents (p>0.05). CSHQ mean scores differed significantly based on the gender of the child (p<0.05). It was identified that boys had higher CSHQ score averages than girls (Table 3).

The relationship between the total and subscale scores of CSHQ, information about the child's sleep habits, parent and children's ages, and the score of parents' eHEALS were evaluated, and the results were reported in Table 4.

Table 4. The correlation between CSHQ total scale and subscales scores, information about the child's sleep habits, child's age, parent's age, and eHEALS total score

			eHEALS	
	Mean ± SD	**Min.-Max.**	**r_s**	**p**
CSHQ's subscales				
Bedtime resistance	10.73 ± 3.03	6-17	-0.166,	0.051
Sleep onset delay	1.41 ± 0.68	1-3	0.131,	0.125
Sleep duration	3.91 ± 1.17	3-7	-0.003,	0.974
Sleep anxiety	7.30 ± 2.25	4-12	-0.018,	0.831
Night wakings	4.31 ± 1.28	3-8	-0.115,	0.178
Parasomnias	8.32 ± 1.52	7-15	-0.097,	0.259
Sleep disordered breathing	3.49 ± 1.03	3-9	-0.096,	0.260
Daytime somnolence	10.37 ± 3.12	6-22	-0.184,	**0.030***
CSHQ Total	45.66 ± 6.86	31-65	-0.221,	**0.009****
Bedtime	21.80 ± 0.70	21-24	-0.144,	0.091
Daily sleep duration (hours)	9.76 ± 1.06	7-12	0.128,	0.135
The amount of time the child stays awake when waking up at night (minutes)	6.13 ± 6.48	0-30	0.012,	0.889
The time the child wakes up in the morning	4.31 ± 1.28	3-8	0.074,	0.391
Age of child	5.16 ± 0.60	4-6	0.041,	0.634
Age of parent	35.09 ± 5.53	22-50	-0.164,	0.055
eHEALS	28.79 ± 7.10	8-40	-	

SD: Standart Deviation, r_s: Spearman Correlation Coefficient, CSHQ: Children's Sleep Habits Questionnaire, eHEALS: eHealth Literacy Scale; *:$p<0.05$; **:$p<0.01$

When Table 4 considered, a negative, significant correlation was identified between the total score of CSHQ and the score of parents' eHEALS. A negative, significant correlation was identified between the score of the Daytime somnolence subscale and the score of parents' eHEALS ($p<0.05$; Table 4).

4. Discussion

Healthy sleep in children is critical to their physical and mental health [16]. Sleep problems in preschoolers can hinder their growth and health [1]. Many families, especially parents with low health literacy, experience sleep problems in their children [2]. Parental HL is related to child health outcomes [7]. Therefore, this study investigated the correlation between parents' eHealth literacy and the sleep habits of children.

In the present study, it was discovered that 70.3% of the children had clinically significant sleep-related problems. Gültekin and Bayık-Temel [3] discovered the prevalence of sleep problems in children to be 43.4%, while Wang et al. [16] discovered it to be 89.81%. The difference in findings may be because the assessment tools used to determine sleep problems are not the same and due to regional differences in where the study was conducted. Additionally, according to these results, it can be said that sleep problems are common in preschool children.

In our study, it was explored that boys had more sleep-related problems than girls. Lewien et al. [17] discovered that sleep-related difficulties were more common in boys. Wang et al. [16] explored that the prevalence of sleep snoring, sleep teeth grinding, and inadequate sleep was higher in boys compared to girls. Chen et al. [18] discovered that the prevalence of inadequate sleep was higher in boys than in girls. The results of previous studies appear to be consistent with the results of the current study. These results show that boys have more sleep problems than girls. Increased screen time in children can cause sleep disorders [19, 20]. In this context, the reason for the results of these studies is thought to be that boys may be more exposed to factors that can cause sleep problems (such as excessive screen use) than girls.

In the current research, it was discovered that the eHealth literacy levels of university graduate parents were higher than those of primary school graduate parents. Ono et al. [1] revealed that parents with high HL had more years of education than parents with low health literacy. Aygun and Topcu (2023) identified that university graduate parents have higher and more significant levels of adequate health literacy compared to both high school and primary school graduates, and high school graduates have higher and more significant levels of adequate health literacy compared to primary school graduates [21]. Parents' level of education may have an impact on their ability to access, understand, evaluate, remember, and apply health information [22]. According to these results, it can be said that parents' education level affects their health literacy. In this context, health professionals need to take into account the health literacy skills of parents, especially those with low levels of education, so that parents can implement healthy behaviors in their children, such as maintaining healthy sleep habits.

A negative significant correlation was identified between children's sleep-related problems, daytime sleepiness, and parents' eHealth literacy, in our study. Ogi et al. [4] determined that parents's HL affects their children's sleep duration. Ono et al. [1] revealed that a negative significant relationship was explored between children's sleep problems and parents' HL. Bathory et al. [2] discovered that a low level of parental HL is related to low night sleep duration. According to these results, it can be said that improving parents' health literacy plays an important role in reducing children's sleep problems. In this context, the health literacy levels of parents should be taken into consideration in interventions to prevent sleep problems in children.

4.1. Limitations

All research data, including data on children, are based on the subjective responses of parents. This study was conducted only on parents of students studying in two kindergartens in one district in Turkey. These results cannot be generalized to all kindergarten students.

5. Conclusion

The study concluded that as parents' eHealth literacy level increases, children's sleep-related problems decrease. It was also found that boys had more sleep-related problems than girls. It is explored that parents's education level affects their eHealth literacy. It was discovered that 70.3% of the children had clinically significant sleep-related problems.

Additional interventions that will increase parents' eHL and reduce sleep-related problems in children may be recommended.

Ethical Statement:

Approval was obtained from the Akdeniz University Medical Scientific Research Ethics Committee (Decision no: TBAEK-138, date: 29.02.2024) and written permission was obtained from the Provincial Directorate of National Education to which the schools where the study was conducted were affiliated. Parents' verbal and written consents were obtained.

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Conflict of Interest:

The authors report no actual or potential conflicts of interest.

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Authors' Contributions:

P. B: Conceptualization, Methodology, Data Collection, Formal analysis, Writing - Original draft preparation, Investigation (%60)

E. E: Conceptualization, Methodology, Writing - Original draft preparation, Investigation (%40). All authors read and approved the final manuscript.

Note:

This study was presented as an oral presentation at the 4th International Congress of Healthy Growing Children and the 2nd PUADER Pediatrics Summit held in Isparta between 12-15 September 2024, and received the "Second Prize for Oral Presentation" in the Field of Nursing.

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Research Article

COMPARATIVE ASSESSMENT OF PREVALENCE, PERCEPTION, AND FACTORS ASSOCIATED WITH SELF-MEDICATION AMONG THE ADULT POPULATION

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Abstract: *The primary objective of this study was to estimate the prevalence and factors associated with self-medication in rural and urban populations. A cross-sectional study was carried out in the urban and rural field practice areas of ACS Medical College, located at (Nerkundrum and Nayapakkam respectively) A pre-tested questionnaire was utilized to obtain data on socio-demographic characteristics and self-medication practices within the past three months. Among 270 respondents, 75.6% (102/135) of the rural population and 52.6% (71/135) of the urban population were reported for self-medication practice within the past three months. In the rural population, 43.2% of participants' reason for self-medication was cost saving & convenience, while in the rural population, 45.1% of participants chose convenience and cost saving and convenience. Community pharmacies were the commonplace of procurement of Antipyretic, Analgesic & NSAID drugs for Aches & Pain (Pain) in both populations. Knowledge about dosage, side effects, and safety instructions of the drugs taken for self-medication was poor in both populations. The prevalence of self-medication was found 23% greater in the rural population than in the urban population. Self-medication was strongly associated with factors like the age and income of the participants. Population education on the risks associated with self-medication and stringent regulations should be implemented to restrict the distribution of medications without a legitimate prescription.*

Keywords*: Factors, Prevalence, Self-Medication, Rural Population, Urban Population*

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1. Introduction

Self-medication is defined as using any drug for a self-diagnosed disease without first consulting a doctor [1]. Appropriate self-medication not only allows people to heal minor illnesses on their own but it also saves time and money [2]. However, a large majority of individuals lack a thorough awareness of their personalities and participate in ineffective self-medication [3]. Despite being a subject of controversy, self-medication remains a global practice, with varying incidence rates across different countries [4]. According to some reports, the incidence of self-medication in Western countries is as low as three percent; however, in poor countries, the frequency ranges from twelve percent to ninety-five percent [5,6].

One of the most common age groups that engage in self-medication is the adult population around the world [7]. One contributing factor to the high rates of drug use and self-medication among the elderly is their increased susceptibility to various illnesses [8]. A significant portion of the population is afflicted with ailments such as cardiovascular disease, diabetes, and cancer. Furthermore, individuals in this age

range frequently face the likelihood of developing several chronic diseases, which can result in a higher reliance on pharmaceuticals [9,10]. Conversely, the way the human body responds to pharmaceuticals and how drugs affect the body might become more complex in older individuals due to age-related changes [10]. This issue requires significant attention and should be addressed accordingly [10-12].

The ease of access, limited information on potential adverse effects, inadequate regulation, and lack of guidelines regarding the usage of both prescription and non-prescription medications contribute to the practice of self-medication [13]. Unreasonably using drugs is a direct result of inappropriate self-medication. Nearly all medications have the potential to induce side effects, which can be attributed to both undisclosed active ingredients and drug interactions. This practice, especially with antimicrobials, has resulted in the emergence of drug resistance, which is a significant global concern [14].

There is a significant lack of information regarding the frequency and factors influencing self-medication among individuals living in both rural and urban areas. Therefore, the present study was undertaken to ascertain the prevalence, perception, and factors linked to self-medication throughout the community. The data collected from this study has the potential to inform programs and policies aimed at addressing the complex problem of self-medication in the region, as well as increasing community awareness.

2. Material and Methods

2.1. Study design and sampling

A cross-sectional study was conducted between June - August 2022 around the urban and rural field practice areas of ACS Medical College, *(Nerkundrum and Nayapakkam respectively*). The inclusion criteria were adults aged 18 years or above including pregnant and lactating women. The study was conducted on adults residing in the study area. Participants were selected by random sampling. Registered medical practitioners and the seriously ill were excluded. Participants provided their written informed permission, which was collected.

Ethical statement

The institutional ethical committee approved the study (A.C.S. Medical State Hospital, No.544/2022/IEC/ACSMCH).

2.2. Data collection

A pre-tested structured Questionnaire was used for the study. The questionnaire had separate sections to collect information on socio-demographic characteristics, Self-medication practice among the rural and urban populations, Complaints and medical interventions taken for self-medication, Sources of information regarding self-medication, and knowledge about the dosage of self-medication.

2.3. Sample size

The Sample size was calculated based on the prevalence of 78.6% with a 5% margin of error and 95% confidence level. Considering a non-response rate of 5%, i.e., 13, the total sample size was calculated to be 270, which in turn was divided into 135 each for urban and rural areas.

2.4. Data Analysis

The acquired data were encoded and inputted directly into the SPSS 25 data entry software after undergoing consistency checks and addressing missing values. The demographic features and other critical factors were analyzed using descriptive techniques, specifically frequencies, and percentages. A chi-squared test was conducted on the important categorical variables to ascertain any correlation with

self-medication. The statistical significance of the association was assessed using a 95% confidence interval and a $p < 0.05$.

3. Results

3.1. Socio-demographic characteristics of the participants

In total, 135 participants were recruited in each rural population, of them 42.2% male and 57.8% female, and 135 participants were recruited in the urban population, of them, 37.8% male and 62.2% female. The Mean age of the participants in the urban population was (46.23±13.62) higher than the rural population (42.43±14.78). The mean number of family members in the urban population (3.90±0.79) was higher than the rural population (3.82±0.78). The maximum respondents among the rural population were in the income range of 20.7% [100000-149999], 13.3% [150000-199999], and 11.9% [200000-249999] whereas a higher income status was observed in urban population with each of 14.1% respondents lying in the income category [100000-149999], [200000-249999] and [300000-349999]. In both the rural (40%) and urban (29.6%) group, a significant percentage of respondents did not disclose their income category.

The group differences through the educational status of the participants were evaluated and the results were presented in Table 1.

Table 1. Educational Factors of The Participants

Variables	**Yes**	**No**	**p**	**Statistics (χ^2)**
Education: Rural				
Illiterate	5	7	**0.000*** **	24.73
Primary school	5	8		
Middle school	28	5		
Higher secondary school	25	9		
Diploma	30	2		
Graduate	9	2		
Education: Urban				
Illiterate	4	5	0.990	0.725
Primary school	4	4		
Middle school	16	12		
Higher secondary school	14	15		
Diploma	17	15		
Graduate	14	12		

χ^2 : Fischer exact test; ***p<0.001

In the rural population, the maximum number of respondents were educated till middle school (24.4%) followed by 23.7% diploma holders and 17.8% higher secondary school. In comparison, 23.7% of urban respondents were diploma holders, followed by 20.7% of respondents with middle school education and 19.3% were graduates (Table 1).

The group differences through occupational factors of the participants were evaluated and the results were presented in Table 2.

Table 2. Occupational Factors of the Participants

Variables (Occupation)	Rural		Urban	
	Yes	**No**	**Yes**	**No**
Unemployed	3	6	0	0
Homemaker	19	7	24	17
Unskilled worker	9	3	3	5
Semiskilled worker	21	0	12	6
Skilled worker	19	0	7	7
Business	8	3	12	9
Clerk	17	0	10	12
Professional	0	1	2	0
Retired	1	4	1	3
Student	5	9	0	5
p	**0.000*** **		0.157	
Statistics (χ^2)	39.549		5.252	

χ^2 :Fischer exact test ; ***p<0.001

Amongst the rural population, 15.6% of respondents were semi-skilled, followed by 12.6% clerk and 9.6% skilled occupants, whereas in the urban population, the employed sections were 16.3% clerk, 15.6% professional, 13.3% semi-skilled. The unemployed group comprised 6.7% and 5.9% of the rural and urban study population, respectively (Table 2)**.**

3.2. Prevalence of self-medication

The prevalence of self-medication was around 23% higher in the rural population (75.6%) than in the urban population (52.6%) (Figure 1a). In the rural population, 57.8% of the females and 42.2% of males used self-medication, while in the rural population, it was 62.2% and 37.8%, respectively (Figure 1b). In both populations, self-medication was more common among people less than 60 years of age (Figure 1c).

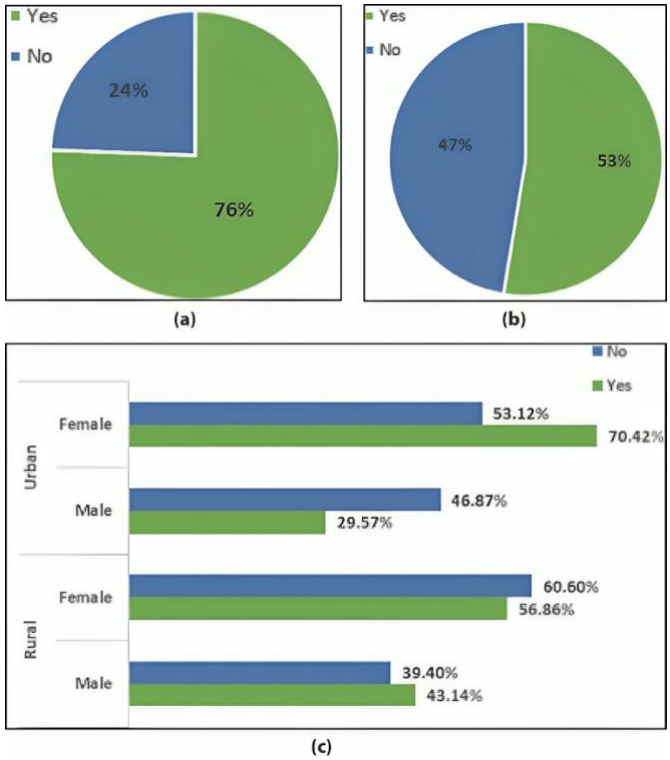

Figure 1. Prevalence of Self-Medication in Rural and Urban Population (a) Self-Medication in Rural Population (b) Self-Medication in Urban Population (c) Self-Medication by Gender

The practice of treating anyone else with self-medication was greater (33.8%) in the urban population than rural population. Among the reported answers for self-medication in last 3 months, there is a greater number (43.7%) of respondents treated once themselves in the rural population.

Group differences between rural and urban populations through self-medication practice were evaluated and the findings were presented in Table 3.

Table 3. Self-medication practice among the rural and urban population

Variables	**Rural**	**Urban**	**p**	**Statistics**
	N= 102(%)	**N=71(%)**		**(χ^2)**
Have you ever treated anyone else with self-medication?				
Yes	8 (7.8)	24 (33.8)	**0.000*** **	14.64
No	94 (92.2)	47 (66.2)	0.06	20.16
How many times did you treat yourself with self-medication in the past 3 months?				
Nil	38 (37.3)	8 (11.3)	**0.000*** **	6.655
Once	52 (50.9)	31 (43.7)	0.494	1.236
Twice	9 (8.9)	19 (26.7)	**0.003** **	8.369
Thrice	3 (2.9)	10 (14.1)	**0.008** **	7.369
Four times	0	2 (2.8)	0.09	0.361
Five times	0	1 (1.4)	0.231	0.123
What was (were) your reasons for self-medications				
Convenience	41 (40.3)	32 (45.1)	0.627	1.236
Convenience & Lack of trust in doctor	1 (0.9)	0	0.404	
Convenience & Others (specify)	1 (0.9)	0	0.404	
Cost saving	15 (14.7)	5 (7)	0.144	
Cost saving & Convenience	44 (43.2)	32 (45.1)	0.85	1.36
All Reasons	0	2 (2.8)	0.09	

χ^2 :Fischer exact test;**p<0.01; ***p<0.001

The most common reasons for self-medication among the rural population were cost-saving and convenience (43.2%), followed by convenience (40.3%), while convenience and cost-saving and convenience (45.1%) were both the common reason in the urban population (Table 3).

3.3. Complaints and medical interventions taken for self-medication

Among the reported complaints, Aches and Pain (Pain) were the most common in the rural population than the urban population. Both populations mostly used self-medication for Aches & Pain (Pain), with 87.5% participants in the rural and 64.7% participants in the urban sector. Aches, pain, and Fever (pain and fever) were the second cause for self-medication, with 7.9% respondents in rural and 14.1% respondents in the urban population with no significant difference (p>0.05). The tendency to self-medicate was significantly higher for Aches, pain, Fever, Gastric related and Flu-like illnesses in the urban population (Figure 2a).

Antipyretic, Analgesic, and NSAIDs were the most widely used drugs among participants in both populations with no significant difference (p>0.05). Nearly 46.5% of participants in rural areas and 45% of people in urban areas take Antipyretic, Analgesic, and NSAIDs on their own. On the other hand, the rate of Antipyretic, Analgesic & NSAID, and Antibiotic drugs usage was nearly triple in the urban areas (5.9%) compared to the rural areas (2.8%). Significantly different percentages of Antipyretic, Analgesic and NSAIDs, and Anti-Reflux drugs were consumed in the urban population (15.6%) than in the rural population (4.9%) (Figure 2b). Antipyretic, Analgesic and NSAIDs, and Antibiotic, Anti-Reflux drugs were five times higher in urban areas in comparison to rural areas. Self-medication of Antipyretic,

Analgesic and NSAIDs, Anti-Diarrheal, Anti-histamine, Anti-reflux, expectorant was only seen in the urban population (Figure 3 and 4).

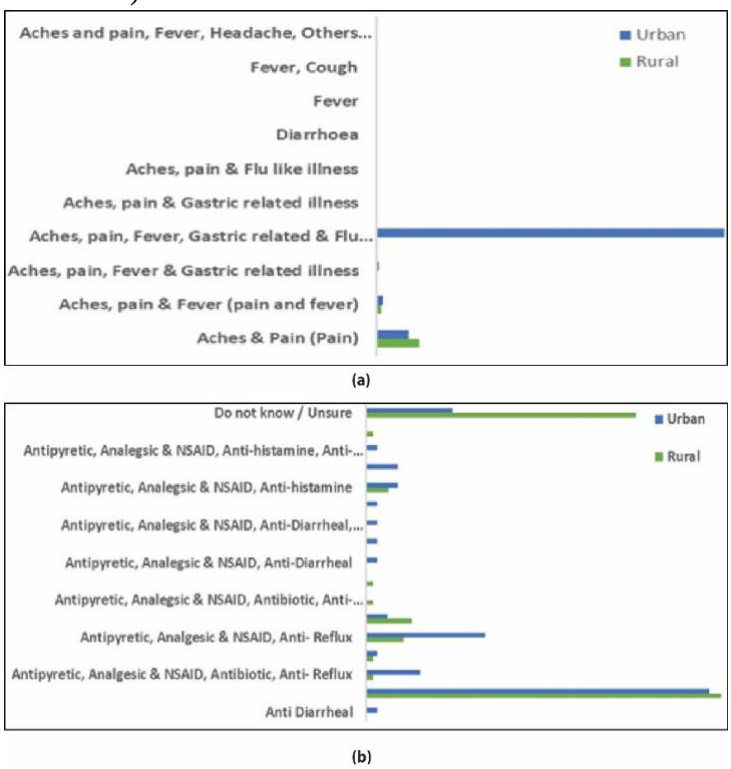

Figure 2. Complaints and medical intervention of self-medication practices (a) Complaints for self-medication (b) Drugs used for self-medication.

Allopathy was the most common branch of medicine considered by the population for self-medication. There was no significant difference ($p>0.05$) for allopathy in the rural population (63.8%) and urban population (74.6%). A greater level of consideration for the combination of other branches of medicine was seen with Allopathy with Homeopathy (9.8% & 9.9%), Allopathy with Siddha/ayurveda (15.7% & 5.6%) and Allopathy, Homeopathy and Siddha/ayurveda, all three together (9.8% & 9.9%) in rural and urban participants respectively with no significant difference (Figure 3 and 4).

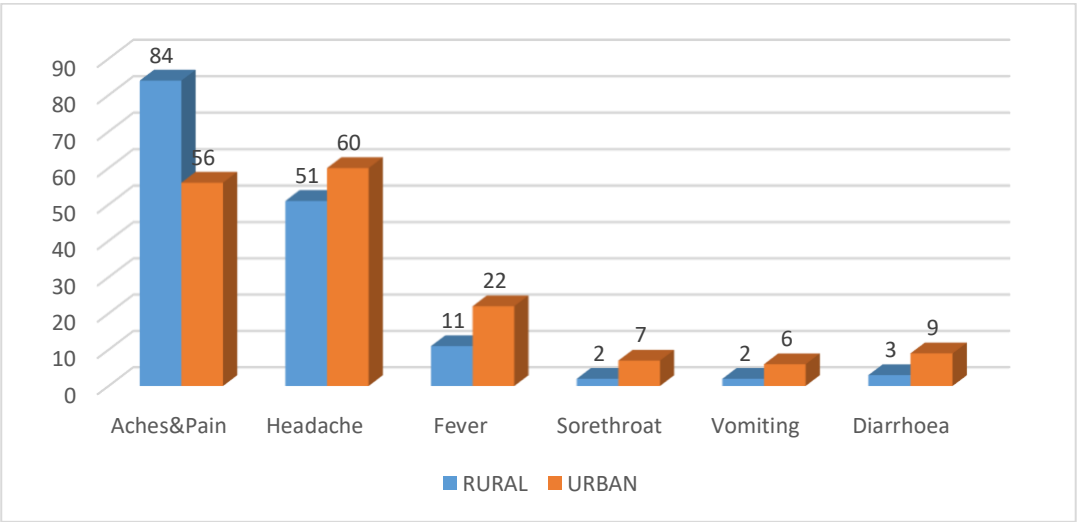

Figure 3. Complaints for using self-medication

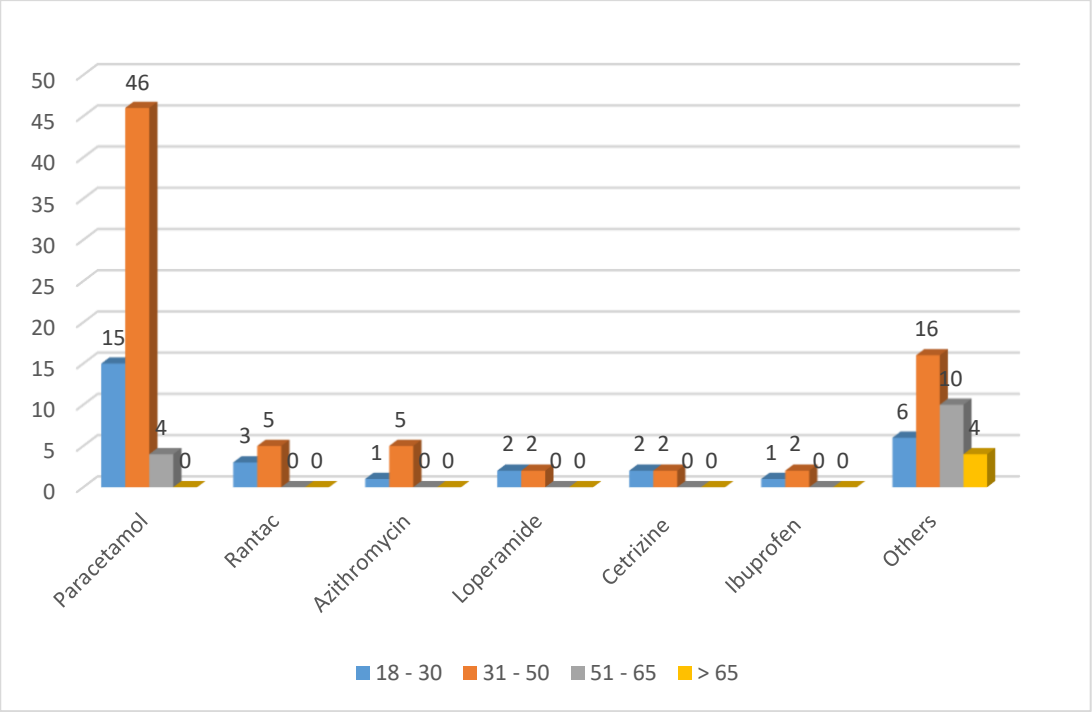

Figure 4. Rural – Medication

3.4. Source of information regarding self-medication

The common reason behind the selection of self-medications was the recommendation by community pharmacists among both populations, with a significantly greater percentage in the rural areas (52%) than in the urban areas (22.5%). Most participants in the rural areas considered their own experience (31%), followed by recommendations by community pharmacists (22.5%) than any other reason provided in the questionnaire. The opinion of family members was six times more considered behind the selection in the urban areas 8.5% than in rural areas 0.9%. Recommendations by community pharmacists and the opinion of family members were the second considered option in the rural population (15.8%), followed by my own experience and recommendation by community pharmacists (11.9%). Among the rural areas, a previous doctor's prescription was not an option in consideration for self-medication. Community pharmacies were commonplace to obtain medicines in both areas with no significant difference. Procurement of self-medication was least dependent on leftovers from the previous prescription among both populations (Table 3).

Table 3. Source of information regarding self-medication

Variables	Rural	Urban	P value	Statistics
	N= 102(%)	N=71(%)		(χ^2)
My own experience	6 (6)	22 (31)	**0.000*** **	16.29
Opinion of family members	1 (0.9)	6 (8.5)	**0.016***	5.77
Previous doctors' prescription	0	2 (2.9)	0.09	2.87
Recommendations by community pharmacists	53 (52)	16 (22.5)	**0.002****	9.08
My own experience, and opinion of family members	1 (0.9)	4 (5.6)	0.07	3.136
My own experience, previous doctors' prescription	1 (0.9)	1 (1.4)	0.796	0.066
My own experience, recommendations by community pharmacists	12 (11.9)	7 (9.8)	0.709	0.318
Recommendation by community pharmacists, previous doctors' prescription	1 (0.9)	1 (1.4)	0.796	0.666

Table 3. Continued.

Variables	Rural N= 102(%)	Urban N=71(%)	P value	Statistics (χ^2)
Recommendations by community pharmacists, opinions of family members	16 (15.8)	10 (14.1)	0.789	0.071
My own experience, the opinion of family members, previous doctors' prescription		2 (2.8)	0.193	
My own experience, recommendations by community pharmacists, previous doctors' prescription	2 (1.9)		0.449	
My own experience, recommendations by community pharmacists, opinions of family members,	6 (6)		0.19	
My own experience, recommendations by community pharmacists, opinion of family members, Previous doctors' prescription	1 (0.9)		0.593	
My own experience, recommendations by community pharmacists, opinions of family members, recommendations of citizens	2 (1.9)		0.449	
Where do you usually obtain self-medication?				
Community pharmacies	100 (98.2)	70 (98.6)	0.971	0.369
Left over from the previous prescription	1 (.9)	1 (1.4)	0.796	0.698
Other	1 (.9)	0	0.404	0.358
Did you ever check the instructions that comes with the package of medications?				
Never	99 (97.1)	62 (87.3)	0.60	0.368
Yes, sometimes	3 (2.9)	9 (12.7)	**0.016***	1.399
How much did you understand the instructions?				
Partly understood	3 (2.9)	6 (8.4)	0.12	0.688
Did not understand at all	1 (0.9)	46 (64.8)	**0.000*****	12.369
Fully understood	0	1 (1.5)	0.231	0.367
Response not given	98 (96.2)	18 (25.3)	**0.000*****	13.645

χ^2 :Fischer exact test;*p<0.05; **p<0.01; ***p<0.001

3.5. Knowledge about the dosage of self-medication

Among the reported participants, a higher tendency was observed in both populations to check the instructions that come with the package of medications. A major chunk of the urban population, 64.8% did not understand at all the instructions for medicines, while 96.2% of the rural population had not responded to this question. The knowledge about the dosage of medicines was obtained in the rural population by consulting pharmacists (75.5%), while in the urban population, it was gathered from their own previous experience (39.4%). The dosage of self-medications during treatment did not change for both populations. A small urban population of 11.3% only changed the dosage of self-medication for worsening conditions. The maximum number of drugs taken during a single illness was once, with 79.4% and 57.8% in the rural and the urban population respectively. In the urban areas, 35.2% of the population were taking twice drugs for a single illness. A 6 % higher number of participants in urban areas were taking thrice drugs for a single illness. No knowledge of counterfeit self-medication was observed in both populations. In the rural population, a greater number of participants (58.8%) had taken the same drug with different names, while even greater, 81.7% urban population had never taken such drugs. Both populations normally stop taking those drugs when the symptoms disappear. No adverse reactions were reported by the populations during self-medication. Self-medication for self-care was not considered an acceptable practice by the rural population while the urban population considered it as an

acceptable practice. The rural population of 58.8% thought common disease could not be successfully treated by self-medication while the urban population was not sure about it (Table 4).

Table 4. Knowledge of the participants about the dosage of self-medication

Variables	Rural	Urban	p	Statistics
	N= 102(%)	N=71(%)		(χ^2)
How did you know the dosage of self-medication?				
By consulting doctor	0	1 (1.4)	0.231	0.869
By consulting a pharmacist	77 (75.5)	20 (28.2)	**0.000*** **	2.399
By consulting family members/friends	3 (2.9)	7 (9.8)	0.061	1.698
From my previous experience	13 (12.8)	28 (39.4)	**0.034***	3.698
Response not given	9 (8.8)	15 (21.2)	**0.032***	
Did you ever change the dosage of self-medications during treatment?				
Yes, sometimes	1 (0.9)	8 (11.3)	**0.003****	5.365
Never	100 (98.2)	61 (85.9)	0.416	0.369
Response not given	1 (0.9)	2 (2.8)	0.367	0.968
Why did you change the dosage of self-medications during self-treatment (more than one applicable)				
Worsening condition	1 (0.9)	8 (11.3)	**0.003****	3.698
Response not given	101 (99.1)	62 (87.3)	0.435	0.869
Other	0	1 (1.4)	0.231	0.369
How many different drugs did you take maximum during a single illness?				
Single	81 (79.4)	41 (57.8)	0.095	1.369
Twice	20 (19.7)	25 (35.2)	**0.047***	1.969
Thrice	1 (0.9)	5 (7)	0.035*	1.969
Are you concerned that you might have taken counterfeit self-medication?				
Yes Somewhat	3 (2.9)	6 (8.5)	0.118	0.369
No	99 (97.1)	65 (91.5)	0.714	0.389
Have you ever found out that you had taken the same drugs with different names at the same tim				
Yes	60 (58.8)	13 (18.3)	**0.000*** **	6.369
No	42 (41.2)	58 (81.7)	**0.003****	5.369
When did you normally stop taking those drugs?				
After symptoms disappear	99 (97.1)	64 (90.1)	0.645	0.726
After drugs ran out	3 (2.9)	1 (1.4)	0.514	0.369
Response not given	0	6 (8.5)	**0.003****	2.369
Have you ever had any adverse reactions during self-medication?				
Yes	7 (6.9)	5 (7.1)	0.965	0.987
No	95 (93.1)	63 (88.7)	0.765	1.369
Response not given	3 (2.9)	3 (4.2)	**0.037***	2.369
What do you think about self-medication for self-care?				
Good Practice	0	6 (8.5)	**0.003****	3.698
Acceptable practice	29 (28.4)	46 (64.8)	**0.023***	3.345
Not acceptable practice	73 (71.6)	19 (26.7)	**0.000*** **	2.963
Do you think common diseases are successfully treated by yourself?				
Yes, I do	4 (3.9)	8 (11.3)	0.071	1.369
Not sure	38 (37.3)	56 (78.9)	**0.015***	2.345
No, I can not	60 (58.8)	7 (9.8)	**0.000*** **	3.658

χ^2 :Fischer exact test;*p<0.05; **p<0.01; ***p<0.001

3.6. Factors affecting self-medication in rural and urban population

Age and income were found to be a significant factor affecting self-medication among the rural and the urban populations ($p<0.05$). Among different age groups, participants aged less than 45 and less than 75 groups were more likely to self-medicate in both populations, while only in urban population participants less than 60 were involved in self-medication. The gender of the participants was not a determinant of self-medication in both populations. In comparing both populations, the education profile did not affect the decision to self-medicate. However, in rural populations, participants having graduation, diploma, and primary education, as well as illiterate, were more likely to self-medicate. In the urban population, only students were involved in self-medication, but in the rural population, participants who were retired, semiskilled, skilled workers, and unemployed were involved. A number of family members had no significant effect on the practice of self-medication in both populations. The comparative effect of income of the participants was affecting self-medication in both populations. However, only participants from rural areas having income of 1 lakh to 2 lakh were likely to self-medicate.

4. Discussion

The prevalence of self-medication in the present study was higher in the rural population than in the urban population. A similar observation of high prevalence among the rural population was reported in previous studies [15,16]. The difference in prevalence between the two populations could be due to different socio-characteristics, variation of illnesses, health-seeking behaviour of the people, and considered recall period [17-22]. Among the reported reasons for self-medication, convenience, and cost-saving were the most common reasons in both populations for self-medication. In a country like India, self-medication is considered a low-cost treatment for those who cannot afford the cost of clinical services [23].

Aches and Pain (Pain) were the most reported causes, and diarrhoea, fever, and cough were the least reported causes for taking self-medication in both populations. A greater number of cases for Aches and Pain (Pain) (87.5%) was observed in the rural population. The reason might be the involvement of participants in strenuous and high energy-consuming work. These results are in accordance with the previously reported studies carried out in different areas affirming the cause of self-medication [24-29]. Antipyretic, Analgesic and NSAID were the common drugs (46.5%) used for self-medication in this study among both populations with no significant difference. Similar high use of these drugs for self-medication was reported in other studies [16,30]. Allopathic medicines were preferred for self-medication in rural as well as urban populations. These findings are similar to the results reported in several studies [31,32]. The combination of allopathic and ayurvedic medicines was more likely to be taken in rural populations while in rural populations, allopathic with homeopathic medicines were consumed under self-medication.

The most important source of information in our study was the recommendation by community pharmacists about 52% in rural areas. and around 31% of participants considered their own experience in the urban population. Community pharmacist was the second preferred choice among the urban population. Similarly, a higher prevalence of community pharmacists as a source of information was observed in previous studies [31-34]. The easy availability of drugs at Community pharmacies is another major reason for self-medication in rural and urban populations [31, 32]. Jawarkar et al. (2017) also documented easy access to drugs from community pharmacies also a major reason to self-medicate [32]. Consulting a pharmacist was majorly a major reason for dosage understanding of self-medication in rural populations more than in urban populations. The probability of taking the same drugs with different names was significantly higher in the rural population than in the urban population.

The knowledge of self-medication was better among rural people, which means that respondents thought it was not a good practice, while participants from urban areas thought it was an acceptable practice. However, both populations agreed that common diseases cannot be successfully treated by self-medication.

5. Conclusion

The prevalence of self-medication was found to be 23% greater in the rural population than in the urban population. Self-medication was strongly associated with factors like the age and income of the participants. Convenience and cost-saving were the major reasons for self-medication in both populations. In both populations, Antipyretic, Analgesic, and NSAID drugs were taken for the most common complaint of aches and pain to self-medicate. Allopathic drugs were consumed in both populations. However, allopathic with ayurvedic was preferred among the rural population, and allopathic with homeopathic was chosen by the urban population. The selection of self-medication was based on the recommendation of community pharmacists, and the easy availability of drugs across local pharmacies was the main reason behind the practice of self-medication. The majority of the participants did not have knowledge about the drugs consumed, dosage of drugs, and self-medication which should be a serious concern.

5.1. Limitation

Due to the cross-sectional survey design of the study, the reported information may be subject to a three-month recall bias. The participant's self-medication was based on their own understandings and assumptions. Using random sampling to select study subjects from the population may restrict the generalizability of the study findings beyond the study population. Two populations had different sample sizes because they were determined separately using local estimates.

Ethical statement:

The institutional ethical committee approved the study (A.C.S. Medical State Hospital, No.544/2022/IEC/ACSMCH).

Conflict of interest:

The author(s) confirmed that they have no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

Authors' Contribution:

Study conception and design were carried out by A. A. and S. A. Data collection was conducted by A. A. The analysis and interpretation of results were performed by A. A., S.A., and V. B. The draft manuscript was prepared by A. A. All authors reviewed the results and approved the final version of the manuscript. The authors confirm sole responsibility for study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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Research Article

ETHICAL DILEMMA IN HEALTH CARE SERVICES: "DOING THE JOB RIGHT/WELL" OR "DOING THE RIGHT/GOOD JOB"?

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Abstract: *This study, prepared with the compilation method, aims to examine whether "dilemmas" are experienced regarding the phenomenon of "ethics". The scope of this study is limited to reviewing the opinions in the literature on whether "dilemmas" are experienced regarding the phenomenon of ethics in health services. The research problem is presented as "Are ethical dilemmas experienced in health services?". While the research hypothesis is structured as "ethical dilemmas are experienced in health services". The findings obtained with the 'compilation' method used in the study show that "ethical dilemmas are experienced in health services". In the study, instead of a limited number of data sources, the views obtained from very different, and many data sources were brought together to make our research original. Thus, protection was provided against the excessive influence of the findings obtained from a limited number of studies on the reader, or even the overlooking of important perspectives. It is thought that the original dimension of this study that can contribute to the literature may be at the point of "the necessity of a transformational attitude in coping with ethical dilemmas".*

Keywords: *Ethics, Ethical Dilemma, Ethics in Healthcare, Ethical Dilemma in Healthcare*

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1. Introduction

Used to define the philosophy of human behavior [1-2], ethics can be defined in its shortest form as "a set of values that suggest what people should or should not do" [2-36]. The concept of "ethics", which is a phenomenon, has become more complex, especially in the 21st century [3]. Today, in addition to legal regulations, professional ethical principles have been developed to not harm third parties and to protect the profession's reputation during the execution of professional activities [4]. Professional ethics, which is seen as "a set of principles and rules that ensure that people who practice a profession do their jobs correctly, honestly, fairly and responsibly" [5-7], can be evaluated as a synthesis of moral philosophy and general morality on a limited scale [6]. Although professional ethics has great importance in the whole of life, it has a different meaning in the health sector. Because patient care in health organizations can only be provided with high ethical standards [7-1]. In this sense, a study conducted by Vanaki and Memarian in university hospitals in Tehran revealed that the concept of medical ethics is the basic variable in guaranteeing clinical competence. [8]. The "ethics-medicine" relationship, which dates to Imhotep and Hippocrates, has become more evident today with new discussions that did not exist in previous periods [9]. One of the discussion topics that has become evident in the ethics-medicine relationship is the "ethical dilemma". Health professionals are sometimes faced with the situation of simultaneously adopting "contradictory" factors while practicing their professions. "Contradictory elements can sometimes produce and support each other, and sometimes

they can destroy and restrict each other". These dilemmas can arise from conflicts between different ethical principles or ethical and practical issues [10]. In the Anatolian Sufi tradition, this relationship is expressed with the "concise motto" that "everything exists with its opposite". In this sense, while the health professional is expected to protect his/her privacy, society expects the facts to be explained impartially and transparently [11]. Again, the use of coercion in mental health services raises questions about the balance between patient autonomy and the need to provide safety and effective treatment [12]. Studies on the subject have shown that there are problems such as lack of accountability, problems in resource allocation, and loss of trust in the provision of health services, especially during the pandemic [13]. In this sense, according to the findings of a study examining the experiences of emergency room doctors and nurses while providing end-of-life care, one of the problems encountered in the provision of death, dying, and end-of-life care was ethical dilemmas [14].

With the developing technology and cultural values, deaths in our country have largely started to occur in hospitals rather than at home. This brings healthcare professionals, primarily physicians, and boards, who are held responsible for the quality-of-life face to face with ethical decisions made at the end of life. While initially, the demands of people who did not physically have the opportunity to end their own lives were in question, with the spread of the concept of quality death, there has been a tendency to seek professional assistance for death. In this sense, two views prevail in the discussion of "decisions made at the end of life such as withholding treatment, termination of treatment, do not resuscitate orders, futile treatment". While one view argues that these decisions are "medical decisions", there is another view that states that decisions made at the end of life are "reasonings based on the values of human life" and "the ethical aspect of which is largely decisive". End-of-life supportive treatments can increase the expected quality of life of the patient as well as extend the patient's lifespan and thus postpone death. The acceleration of the death process when these treatments are not used, the fact that they do not provide a significant benefit to the patient when used, and the physician's responsibility to use medical resources effectively cause serious "ethical dilemmas" [15,16].

2. Conceptual Framework

2.1. Ethics in Healthcare

The concept of ethics as a phenomenon is one of the terms that is difficult to define due to its complex structure [17]. Ethics is generally; "a philosophical field that investigates concepts such as duty, obligation, responsibility, necessity, and virtue; examines moral judgments about truth, wrong, good and evil and discusses how an ideal life should be" [18]. According to some thinkers, "good" is defined as "pleasure, happiness, fulfilling one's duty, righteousness and love". According to some, "what is detested is bad, what is desired is good" [19-21]. According to a different definition, ethics is "the art of taking responsibility for others, humanity, and the earth and questioning oneself" [22]. The inclusion of the concept of "morality" in the definitions of the concept of ethics sometimes causes these two concepts to be used synonymously instead of each other. [23]. Whereas morality is defined as "the informal system of commonly known ideals and virtues that apply to all rational people and aim to reduce evil or harm" [24], ethics is considered "as a philosophical science" [25].

Health, which is a fundamental right [26], is not a necessary or effective concept for happiness, but it is a "sociopsychological" phenomenon [27], the ability to minimize illness and realize happiness [28]. In health services, which are directly related to many industries such as pharmaceutical companies and insurance companies and play an important role in the regulation of health [29]; generally classified as preventive, curative activities, and rehabilitation services [30], the application of ethical principles has a special importance for the following reasons [31-33]:

- ✓ It helps build trust between healthcare recipients and providers.

- ✓ Ethical practices ensure that healthcare delivery is fair and equitable, eliminate inequities, and promote equity in access to care.
- ✓ Adhering to ethical standards protects healthcare providers from legal and professional repercussions.
- ✓ Ethical codes provide a clear framework for acceptable behavior, reducing the risk of malpractice and improving the overall quality of care.

When medical history is examined, it is seen that the concept of ethics has existed since the beginning of medicine [34,35]. In this sense, the "Hippocratic Oath", which has the quality of a document, has addressed the rules that doctors should follow while practicing their profession in eight articles. In the historical adventure of health services, the Code of Hammurabi, the practices in Ancient India, and Ibn-i Sina constitute important cornerstones [36-38]. In the following process, at the beginning of the 1970s, medical ethics entered a new phase. In this new period, which was shaped within the framework of the concept of bioethics, the understanding based on the grace and professional practice of doctors gave way to the autonomy of the patient and justice in the provision of health services and the use of resources [38].

2.2. Basic Ethical Principles in Health Service Provision

The principles of health ethics were updated by the American Dental Association in 1866 and listed as “Principle of Informed Consent, Principle of Respect for Privacy, Principle of Justice (Equity), Principle of Respect for Autonomy, Principle of Beneficence-Non-Maleficence” [39, 40]. It is possible to summarize these principles as follows:

Beneficence-Non-maleficence Principle: The principle of non-maleficence should not be limited to the avoidance of harm to the patient. Both health professionals, third parties, and society should be evaluated within the scope of the principle of non-maleficence [41]. Beneficence also includes adapting treatments to individual patient needs, ensuring that interventions are effective and beneficial [33].

Principle of Informed Consent: This principle includes a clearer explanation of when and under what conditions consent will be given to different types of interventions and how the legality of the interventions will be assessed [42].

Principle of Respect for Privacy: Respect for the privacy of the individual includes, in health services, not allowing access to information about the process of benefiting from health services against the will of the individual and respecting the individual's physical privacy during the process of benefiting from health services [43].

Justice Principle: It is a principle needed to overcome dilemmas that arise in which situations and which people should receive health care first [44]. For example, by adopting triage systems in emergency services, patients are treated according to the severity of their condition rather than their ability to pay [45].

Principle of Respect for Autonomy: A practical example of respect of autonomy is the use of advance directives, which ensure that patients can express their wishes regarding end-of-life care and that their autonomy is respected even in situations where they can no longer communicate their preferences [46,47].

2.3. Ethical Theories and Models in Health Services

The main ethical theories and models used in healthcare can be briefly summarized as follows:

Utilitarian Ethics: This theory generally guides public health policies and resource allocation, where the goal is to achieve the best outcomes for the majority. For example, utilitarian principles may underlie vaccination programs where the benefits to the larger population outweigh the risks to individual

participants. However, this approach can sometimes lead to ethical dilemmas, especially when the interests of the minority are sacrificed for the benefit of the majority [31].

Deontological Ethics: Deontological ethics in healthcare emphasizes the duty of healthcare providers to adhere to ethical rules and protocols, respect patient autonomy, and fulfill their professional responsibilities. Deontological ethics provides a clear framework for decision-making but can be rigid and sometimes fail to explain complex, context-specific ethical dilemmas [10].

Virtue Ethics: Virtue ethics in healthcare emphasizes the importance of the character and integrity of healthcare professionals [48].

Principlism Ethics: This approach provides a practical framework for addressing ethical issues in healthcare by balancing ethical principles with each other [31]. Widely used in healthcare practice, principallism encourages healthcare professionals to consider all relevant principles and find a balanced solution that respects patient rights and promotes the general welfare [10].

Ethics of Care: In healthcare, ethics of care emphasize the importance of empathy, compassion, and the therapeutic relationship between healthcare providers and patients [49]. Ethics of care is particularly necessary in nursing and palliative care, where building trust and understanding the patient's context are crucial to providing effective and compassionate care [50].

2.4. Ethical Dilemma in Healthcare

The title of Ethical Dilemma in Healthcare is examined under three subheadings: “Definition and Formation of Ethical Dilemma in Healthcare, Sources of Ethical Dilemma in Healthcare, and Process and Dimensions of Ethical Dilemma in Healthcare”.

2.4.1 Definition of Ethical Dilemma in Healthcare

The ethical dilemma has a different meaning than the concept of “dilemma”. Because dilemma; “involves a choice between equally unsatisfactory alternatives or a difficult problem for which no satisfactory solution seems to exist”. In other words, in the concept of “dilemma”, there is no question of the options being right or good or containing a value. On the other hand, an ethical dilemma is distinguished from “right versus wrong” situations. Therefore, an ethical dilemma is related to “value-involving conflicts”. In other words, ethical dilemmas are value conflicts that occur at a trans-rational level where right and wrong principles can simultaneously conflict with each other [10].

Ethical dilemmas are problems related to ethics, or rather, the question of “what is right and wrong in a particular situation?” From this perspective, an ethical dilemma includes the possibility of unethical behavior that can harm the objects of the action and harm the integrity and professionalism of the actors. However, in the work of a professional who is faced with complex situations, it is not always clear “what is ethically right or wrong”. In other words, the issue of who or what “right or good” means is unclear [52]. Because each profession has various principles, in professions that directly serve people, situations that strain and stretch these principles may occur due to human nature. The fact that people have different individual characteristics makes it difficult for the principles mentioned to be generalizable in every situation and valid for everyone. In this context, the principles of professions and the laws related to these professions, or the personal decisions of employees may conflict in some situations. At this point, employees experience ethical dilemmas as a problem situation [53].

According to the empirical observations of the researchers, these ethical dilemmas include “the possibility of unethical behavior that could harm the objects of the action and also the integrity and professionalism of the actors” [52]. Ethical dilemmas can be experienced between taking a certain action and refraining from that action or between two different actions. In the first type of dilemma, some evidence and arguments argue that a certain action is ethically feasible, while other evidence and arguments argue that the same action is ethically wrong. In the other type of dilemma, the agent believes that he/she must perform one of two or more actions that are mutually exclusive on ethical grounds [54].

According to another criterion, ethical dilemmas consist of two general types, acute and rationalization dilemmas. Acute dilemmas are situations in which a professional does not know which action is right or wrong. Therefore, in an acute dilemma, professional professionals perceive that there is no obvious solution to the challenging dilemma. Therefore, acute dilemmas refer to moral uncertainty and are consistent with individuals' ethical question of 'what should I do or not do?'. Thus, acute dilemmas involve the possibility that an individual will fail to act with integrity and professionalism.

Rationalization dilemmas are situations where a professional knows the right thing to do but fails to act or does not act accordingly. Rationalization dilemmas are dilemmas in which people must acknowledge that fundamental values have been violated to make the dilemma apparent to them. Therefore, a rationalization dilemma requires an individual to acknowledge it as such when it arises. A rationalization dilemma, on the other hand, requires time for reflection and a clear mindset about the boundaries of right and wrong, and a sense of moral capacity to implement ethically correct action must be developed. On the other hand, there may be such constraints on doing the right action that the person may refuse to accept the right action without further consideration. Therefore, rationalization dilemmas are defined as "the rationalization of moral errors" [52]. At the same time, the content and contexts of ethical dilemmas can be multifaceted.

On the other hand, there are interpersonal dilemmas, for example, justice dilemmas, and protection from harm versus loyalty to a colleague. Another aspect of the dilemma concerns the limits of personal privacy, such as whether a professional should disclose a disability to those receiving their services. External moral and legal rules and institutional constraints produce contextual dilemmas. In addition, dilemmas may involve both intrapersonal and external constraints when dealing with behavioral difficulties and multicultural issues [52].

An example of the dilemmas experienced in the face of the question of 'what should I do or should I not do?' regarding ethics is the dilemma between the obligation of healthcare personnel in our country to "report a crime" in the Turkish Penal Code and the obligation to "keep patient secrets", which is one of the professional ethical principles. The "obligation to report a crime" introduced by the Turkish Penal Code has been put ahead of professional ethical principles such as "keeping secrets and taking care of the privacy of the individual" of healthcare personnel, and in this way, ethical problems have been brought to the legal platform. In this context, healthcare professionals are in a dilemma between their ethical responsibility and their legal responsibility towards their profession [55]. The dilemma of healthcare professionals between ethical responsibility and legal responsibility is considered a "problematic situation regarding ethics" and it is possible to say that in such cases, it is mostly the rules that are violated [56-7]. The preference options of professionals who are in a dilemma between legislation and ethics are schematized as in Table 1 by Elçigil et al. [57]:

Table 1. Consequences of Choices Between Legislation and Ethics Dilemma

	Legally Correct	**Legally Wrong**
Ethically Correct	Do It	Ethical Problem
Ethically Wrong	Ethical Problem	Don't Do It

2.4.2 Sources and Types of Ethical Dilemmas in Healthcare

It is seen that various studies have been conducted on healthcare professionals regarding ethical dilemma situations. In one of these studies, it was concluded that nurses working in intensive care units exhibited attitudes in line with the principles of beneficence, non-maleficence, and justice in matters that caused ethical dilemmas. In studies conducted by psychiatrists and psychologists, it was found that ethical violations and dilemmas were experienced in the areas of involuntary/forced treatment,

emotional and sexual intercourse, confidentiality, multiple relationships, relationships with colleagues, excessive hope, excessive goodwill, acceptance of gifts and professional competence [53]. In this sense, a study conducted on 390 nurses from Bahrain, determined that the participants experienced more dilemmas when they worked with "doctors with whom communication could not be established" and when they had to "perform non-nursing duties". In this case, the problems encountered may remain unresolved and may cause emotional pressure on nurses [58]. The most common sources of these and similar ethical dilemmas are as follows [45,47, 59-67]:

Conflicts Between Different Ethical Principles: In this sense, the principle of autonomy often conflicts with the principles of beneficence and non-maleficence. Healthcare providers may encounter situations where a patient's autonomous decision may conflict with what the provider believes is in the patient's best interest or may even cause harm. In this sense, Jehovah's Witness healthcare professionals who refuse blood transfusions due to their religious beliefs have faced the dilemma of "respecting the patient's autonomy and religious beliefs or administering the transfusion to save his/her life [45].

Conflicts Between Resource Allocation and Justice: Healthcare providers also arise in resource allocation issues, where healthcare providers must balance the needs of individual patients with the needs of the larger population. These dilemmas require careful consideration and difficult decisions weighing the benefits and harms of different courses of action. Therefore, ensuring justice in the distribution of healthcare resources is an important ethical issue. Limited resources require difficult decisions about who should and should not receive certain treatments. This is particularly evident during public health emergencies, such as pandemics, when demand for medical resources exceeds supply. Decisions about which patients receive critical care must be made based on factors such as the patient's likelihood of survival, their overall health, and sometimes even their social value, creating an ethical dilemma [47].

Conflict of Cultural and Societal Differences: Healthcare providers must navigate cultural and societal differences that affect patients' values, beliefs, and expectations regarding medical care. Ethical dilemmas can arise when healthcare practices conflict with cultural beliefs or when there is a lack of understanding between healthcare providers and patients. For example, cultural beliefs about end-of-life care can vary significantly. Some cultures prioritize aggressive treatment until the end, while others focus on palliative care and quality of life. Healthcare providers must balance the need to provide medically appropriate and ethically sound care with respect for cultural practices [59].

Conflict of Informed Consent and Patient Capacity: Obtaining informed consent is a fundamental ethical requirement, but it can be difficult when patients cannot make informed decisions. Determining a patient's capacity involves assessing their ability to understand relevant information, evaluate the consequences of their decisions, and communicate their choices. Ethical dilemmas arise when patients with impaired decision-making capacity, such as those with dementia or severe mental illness, refuse treatment that could benefit them. In such cases, healthcare providers must balance respect for the patient's autonomy with the need to act in the patient's best interests, often involving family members and legal representatives in the decision-making process [60].

Wagon Dilemma- Overpass Dilemma: In the wagon dilemma, which is the source of inspiration for ethical dilemmas used predominantly in normative ethics research, there is a decision of "whether to pull the lever that changes the direction of the rails to kill one person to save five people". In the overpass dilemma, there is a "modified version of the scenario in the wagon dilemma as whether to push a fat man down the overpass onto the rails instead of pulling the lever". The scenarios created by taking inspiration from the wagon and overpass ethical dilemmas were considered in two categories "personal" and "impersonal". In the dilemmas in question, choosing to save five people at the expense of killing one person was accepted as an indicator of "utilitarian decision making", while rejecting the relevant preference was accepted as an indicator of "deontological decision making" [61].

Defensive Medicine Attitude: The individual-focused approach adopted in our country against service-related damages, in other words, the "insurance-compensation" approach that directly points to healthcare professionals as responsible for the damage, directs physicians to attitudes called "defensive medicine". Due to the effects of the factors mentioned, physicians worry about being sued and paying compensation, and for this reason, they may avoid providing services to patients they consider risky "negative defensive medicine" or, with the same concern, they may try to protect themselves by applying many unnecessary diagnostic and treatment methods ("positive defensive medicine"). In this context, the ethical dilemmas that professionals often encounter or may encounter in their daily lives can be examined in four groups [68]:

- ✓ It is a situation where none of the options offered satisfy the person, but the slightly better one among them must be preferred.
- ✓ It is a situation where more than one or all of the options are good and when one is decided upon, the other must be abandoned. Here, the person has to choose among the best ones.
- ✓ It is a situation where a decision must be made that has the potential to create different effects and results on different people and groups.
- ✓ It is a situation where the result that may arise from the decision affects them or their relatives positively or negatively and/or indirectly or directly. Such a situation causes a conflict of interest. The individual interests of the decision-maker conflict with the public interest. In such cases, as a rule, public officials who may be affected by the decision positively or negatively and indirectly or directly should not be involved in the decision-making process.

2.4.3 Strategies to Prevent Ethical Dilemmas in Healthcare

Finding Solutions with Non-Standard Principles: Finding solutions to ethical problems with "non-standard principles" According to Marx, concrete, singular, or individual problems arise from the problems created by the social system in which people live. For this reason, Marx argues that ethical problems can be solved not with "standard principles" but when a "clear understanding of the nature and quality of social systems" is reached [69]. Indeed, in a study conducted by Henzel with the aim of "comparatively examining and evaluating Turkish and French physicians in terms of their ways of perceiving the patient and creating the concept of the patient in their minds", he concluded that physicians with different cultural structures "tend to find solutions to ethical problems with non-standard principles" [70].

Developing Effective Communication Skills of Professionals: As in every field, the success of team members in the health field depends on their communication skills. To increase the quality of patient care, improve patient satisfaction, and resolve disagreements with patients, it is very important to develop communication skills among team members [71]. The role that communication plays, especially in the decision-making process, is important for professionals to be able to escape ethical dilemmas.

Application of the Structured Principlism Approach: Combining multiple ethical principles, "principlism" provides a structured approach to resolving complex healthcare dilemmas. Principlism is "one that takes elements from different and opposing ethical approaches and that none of these principles is superior to the other." In a study conducted in intensive care units by Truog and colleagues, such approaches were found to resolve and improve problems during critical healthcare crises [72, 73].

Correct Definition of the Problem: To resolve the ethical dilemma situation, the current dilemma must be defined correctly.

Developing Decision-Making Ability: Resolving ethical dilemmas is not only complex but also requires understanding ethical principles in the decision-making process [74]. The correct direction of the decision-making and choice-making abilities of professionals plays a role in solving the decisive problem. At this stage, the answers to questions such as "Who will benefit and what will happen to

whom?" or "Who will be harmed?" or "What are the long-term consequences of this situation?" ensure that the problem is analyzed correctly [75]. For example, the life-extending power of medicine provided by developing "life-supporting treatment" technologies can cause lives of questionable quality and sometimes even the extension of the death process. In this case, sometimes the patient himself, the patient's family or healthcare professionals may need to question this power of medicine. Making decisions about withdrawing or not starting life-supporting treatment is a painful process for the healthcare professional, the patient, and their family. The fact that the patient will reach an inevitable end if the treatment is not started or is withdrawn can cause the parties to behave emotionally. This makes the decision-making process even more difficult [76].

Legal and Ethical Consultation: In case of an ethical dilemma, it is recommended to receive legal and ethical consultancy to balance the conflicting principles, values , and decisions [33]. Ethics boards, which help to provide solutions to overcome ethical problems in general and ethical dilemmas in particular, evaluate the issue in which the dilemmas occur, show the ways of action to the clinicians, and leave the final decision to them [75].

Continuous Ethics Education: However, this training should not be limited to accessing reference texts such as books, articles, and ethical codes created by national-international, official-unofficial institutions on the subject. Because accessing such documents indirectly contributes to the solution process and cannot provide concrete assistance [75].

Evidence-Based Practice: It is recommended to change the familiar paradigms and develop a new way of thinking. Evidence-based practice is defined as not only an intervention method but also a lifelong process. However, the adoption of evidence-based practice has some difficulties and limitations. However, this method is remarkable for the solutions it offers. The adoption of evidence-based practice by a professional will provide guidelines and principles that will help him fulfill his ethical obligations, as well as increase his knowledge and develop effective practices in ways that are sensitive to the individual characteristics, values , and conditions of patients [77].

2.4.4 Ethical Dilemma Process and Dimensions in Health Services

The ethical dilemma process consists of five basic parts [78]:

- ✓ The critical incident or problem that causes the ethical dilemma, in other words, the situation that "initiates" the dilemma, is revealed,
- ✓ The observation of several power groups, each of which can illuminate the critical incident from its own bias or basis. Nine competing forces are shown here: professional ethics; legal issues, policies; institutional culture, institutional context; public interest, society and community; global context, political framework; and economic contexts.
- ✓ The emergence of the ethical dilemma problem,
- ✓ The decision-making process of people facing an ethical dilemma,
- ✓ Observation of some changes in employees, the institution, and the community as a result of the decision.

The dimensions of ethical dilemmas are as follows [75]:

- ✓ Behavioral Dimension of Ethical Dilemmas: Ethical dilemmas in the behavioral dimension include stakeholders who do not behave properly and problems that occur in the external environment but concern the organization.
- ✓ Structural Dimension of Ethical Dilemmas: Ethical dilemmas in the structural dimension are related to the design and processes of the organization. Structural Ethical Dilemmas are dilemmas experienced by professional professionals in matters related to the governance structure and decision-making processes, policies, and management of resources. Professional professionals experience dilemmas in approving and implementing group decisions that they do not personally want to approve in organizations where there are shared management structures. In these dilemma

situations, professional professionals in management experience value conflicts while choosing between maintaining authority and maintaining autonomy. Dilemmas in the structural dimension may arise from cultural differences within the organization [75].

- ✓ Political Dimension of Ethical Dilemmas: It is thought that demands coming from the close circle of professional professionals are more problematic. In such cases, people who ask for favors from professionals use the feeling of gratitude. For this purpose, political issues such as intimidation or pressure from within or outside the organization cause professionals to experience ethical dilemmas. Professionals encounter the most political dilemmas regarding favoritism.
- ✓ Systemic Dimension of Ethical Dilemmas: Ethical dilemmas experienced in the systemic dimension are ethical dilemmas that arise when managers need to evaluate the performance of professionals because of measuring the success or failure of the services provided [75].

3. Methodology

3.1. Research Method

In the research, the "compilation" method, which is one of the "qualitative" techniques, was used. With this method, to find an answer to the research question "Are there ethical dilemmas in health services?", studies on ethics, ethical dilemmas, ethics in health services, and ethical dilemmas in health services were systematically and without bias, and the studies found were synthesized and combined.

3.2. Data Collection Process

In the data collection process, the document scanning method was used. In this sense, the literature on the phenomena of “ethics, ethical dilemma, ethics in health services, ethical dilemma in health services” was examined. “Science Direct, Dergi Park, YÖK National Thesis Center, Google Books, and Proceedings Books” were used as data sources.

3.3. Data Analysis

One of the important findings reached as a result of the evaluation of the data obtained from the data sources was that the phenomena of ethics, ethical dilemma, ethics in health services, and ethical dilemma in health services were examined with an increasing number of publications in the literature; and it was seen that no classical suggestions could be left out of the methods of coping with ethical dilemma in health services.

4. Discussion

The findings in this study are conceptualized in the overarching structural pattern of ethical dilemmas common in healthcare. While some ethical dilemmas are resolved in a short period, others require longer collaboration between healthcare professionals, patients, family members, and the multidisciplinary team. Differences in beliefs, especially among stakeholders, play an important role in the emergence of dilemmas. Healthcare personnel are more likely to be in ethical dilemmas when faced with uncertainty caused by choices between two or more decisions that are not acceptable or preferable. Therefore, decisions about which one to choose are never clear because both decisions have their advantages and disadvantages.

These dilemmas, whether ethical, moral, or legal, become even more complex when it comes to “end-of-life decision-making processes.” On the other hand, it is emphasized that the personal characteristics and professional experiences of healthcare professionals are among the factors that affect the frequency of ethical dilemmas. In end-of-life care, where the primary goal is to promote comfort and avoid unnecessary treatment, it is the responsibility of the relevant boards in healthcare organizations to

make decisions that are in the best interest of patients. However, the patient and/or the patient's relative has the right to be sure that any decisions made are not based on the personal values of the board members.

Decisions that are contrary to the ethical beliefs of emergency room personnel make them feel like they are in a "stuck situation" or their "hands are tied" and cause them to be "forced to provide treatment" that does not comply with their ethical judgments. Therefore, an "internal conflict" that can be called "ethical distress" occurs. Some of these dilemmas can also be combined with systemic obstacles such as time constraints and high workload. However, the emotional burden caused by this "internal conflict" that can be called "ethical distress" is experienced differently by healthcare professionals. For example, ethical dilemmas are experienced less by personnel such as nurses who are not involved in the decision-making process than by doctors or authorized board members.

Studies conducted on the subject have determined that healthcare professionals who care for critically ill and terminally ill patients also experience ethical dilemmas due to procedures defined as "meaningless interventions" [14,31,32]. This factor has become even more complicated due to the "culture of avoiding the discussion of death". Therefore, it can be said that ethical dilemmas vary according to different environments and contexts. When the literature is examined, it is seen that ethical dilemmas are also affected by the discussions of the “futility of treatment”. Futility here is expressed as a “balancing act” that requires weighing the benefits of treatments against potential risks and side effects. In studies within this scope, it is emphasized that healthcare professionals feel legally obliged to do so even though they are aware that treatments are futile in some cases [8,15].

Another issue emphasized is the importance of having a flexible attitude towards patients or their relatives regarding treatments called “futile” or “in vain”. Because healthcare professionals exhibit flexible behavior due to a variety of factors, especially legal risks and the family’s request to continue treatment studies conducted on the subject have found that when emergency service personnel recognize the care needs early and put them into practice, the end-of-life process of patients in need of palliative care can be positively improved [25,32]. For this reason, it has been suggested as a strategy to improve ethical dilemmas that the emergency service assumes responsibility for initiating palliative interviews and palliative care consultations by healthcare professionals.

4.1. Limitations of the Study

There are some limitations of the study. On the one hand, publications in Science Direct, Dergi Park, YÖK National Thesis Center, Google Books, and Proceedings Books were considered as data sources for the sample. Although the data sources considered are the most reliable databases and include relevant sources, there is a possibility of missing an influential contribution published in a journal not included in the collection. In addition, more weight may have been given to recent articles even though the time elapsed since the publication date of the sources used plays an important role in their contributions and/or the discussions they trigger.

4.2. Future Research/Implications for Researchers

Although the literature reviewed has carefully addressed ethical dilemmas in healthcare, the subject requires empirical evidence across a wider range of dimensions. For example, there is no consensus yet in the academic community that “ethical dilemma” is different from the concept of “dilemma”. Secondly, the difference between the concepts of “morality” and “ethics” has not yet been demonstrated with concrete evidence. More importantly, there is no satisfactory study on which one should be preferred in cases where there is a conflict between law and ethical principles when human life is at stake. The findings in the relevant literature highlight the need for further research in this area by presenting several theoretical and practical implications for researchers and practitioners. In future

research, it may be useful to explore the integration and evolution of intellectual frameworks starting from a systematic review; this may lead to proposing alternatives or changes to existing theoretical foundations. Another important point is that a contextualized framework depending on institutional settings will provide a better understanding of its effectiveness in overcoming the obstacle of ethical dilemmas.

Another implication for future research is the need to conduct research with a working group consisting of academics, health professionals, criminal lawyers, and legislators. Because, regarding the subject, the articles of the Turkish Penal Code regarding "killing a person" and the articles that should be taken into consideration, particularly regarding euthanasia and that include the crime of "assisting suicide" lead to the punishment of the act of "active euthanasia/assisting in death". The necessary regulations can be made in the criminal law to exclude situations where passive/indirect euthanasia has legally valid consent based on sufficient fulfillment of the necessary obligation to inform and where the conditions for the validity of medical intervention are present within the framework of the "patient's right to refuse treatment".

4.3. Evaluation

The qualification of professional ethics as "universal" constitutes one of the overlooked reasons for ethical dilemmas. Indeed, professional norms, which are examined and discussed under the title of 'professional ethics' in literature, are derived from knowledge of human values. However, these norms were created as answers to questions about "what actions a person practicing a certain profession should or should not generally do". According to some researchers, when the subject is examined in terms of ethical boundaries, ethics cannot create an evaluation and behavioral norm that will maintain its validity under all conditions and cannot bring norms about how to behave at certain times. Therefore, the qualification of professional ethics as "universal" would not be correct [79]. Indeed, in a study conducted by Kurt and Keser, where "the relationship between the nationality variable and solving ethical problems was examined", it was determined that especially foreign students were more sensitive in terms of "solving ethical problems by respecting the patient's values" [80].

The evaluations of secular ethics advocates regarding ethical dilemmas are also noteworthy. Advocates of secular ethics argue that the principle of "do not do to others what you do not want done to you!" is flawed and that people may use this principle for their benefit. According to advocates of secular ethics, since individuals have to create themselves and are responsible for their own lives, thinking about their well-being and pursuing their interests is not "bad" or "unethical." According to secular ethicists, who argue that interests and altruism are not mutually exclusive concepts and that their being of the same character does not create any dilemma, we can all sometimes exhibit helpful and sometimes selfish behaviors, as our daily lives constantly show us. In this context, advocates of secular ethics ask the following question: "How can it be justified for us to exhibit helpful behaviors towards others instead of achieving our interests?" [81].

The "Selfish Gene" hypothesis is another fact that should be taken into consideration in evaluating the ethical dilemma issue. Those who provide a scientific explanation regarding the basis of ethics with the 'selfish gene' hypothesis start from the 'general law of ruthless selfishness'. They find a society consisting of people 'centered on the general law of ruthless selfishness' disgusting. Since we are born selfish, generosity and altruism need to be taught. Therefore, when we understand the selfish gene, we will at least have a chance to change its designs [82]. To understand the selfish gene, genetic applications are being made directly on human genes with projects such as the "human genome project" [83]. Pragmatic purposes have made genes an ideal candidate for promising visions. Therefore, the simplicity and predictability of genes have increased their potential to change the world in many ways and have led to an increase in promises regarding genes. This intense interest in genes has shown a significant

increase in recent years and has been seen as the ‘life codes’ of people. It led them to look at the genes that were characterized from a different perspective [75].

Another phenomenon that should be taken into consideration in the evaluation of the ethical dilemma issue is “religious ethics”. Especially according to those who oppose “religious ethics”, “an ethical understanding that is abstracted from religion, distant from theology, and based on reason” has started to rise again. The basic starting point of those who share this idea is that “ethical values are what happens with humans” [85]. Discussions on religion’s “explanation of the meaning of ethics” have been going on for a very long time. Researchers and thinkers use the concept of “religious ethics” to explain some meanings of “morality” related to the validity of human existence. In this sense, Buddhist Ethics is a type of Aristotle’s “virtue ethics”. Some thinkers claim that Jewish Ethics is actually “Deontological Ethics” in the sense of “responsibility ethics” [86]. Western ethicists are now conducting studies investigating the “effect of religion on professional ethics”. In this sense, according to the proposed model of "ethical decision making with religious content", religious content can affect possible alternatives for solving ethical problems. For example, a study conducted in the USA found that "religion has a strong effect on ethical decision-making". Similarly, a study conducted in Taiwan reached the same conclusion [87].

5. Conclusion

It is seen that the attitudes and behaviors that health professionals should exhibit when faced with ethical dilemmas have been sufficiently examined in literature and continue to be examined. However, the most important factor that can help health professionals cope with ethical dilemmas is the “transformational leadership” attitude of the top management. In other words, in addition to “doing their job right/well” and perhaps primarily for them to do “the right/good job”, the top management should establish a “supportive and empowering organizational culture” for health professionals. In this sense, top management tries to make health professionals adopt the vision and mission of the organization by using their sense of self and identity, to be a role model for them, and to ensure that employees are given appropriate tasks by recognizing their strengths and weaknesses. The basic claim of transformational leadership can be explained as “transforming health professionals”. Transformational leaders work in the current cultural environment and aim to transform health professionals and change the organizational culture, giving them a new identity. Thus, employees admire, respect, and trust the management. More importantly, the perception of self-sufficiency among health professionals is increased. In this way, healthcare professionals' belief in their potential and abilities to overcome the difficulties they may encounter regarding ethical dilemmas is activated.

Ethical Statement

This paper is exempt from the Institutional Ethics Committee review since it does not involve human subjects.

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Conflict of interest

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Author Contribution

This study was prepared by a single author.

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Research Article

PHYSICAL CAPACITY OF SPINA BIFIDA AND FACTORS AFFECTING DURING PREGNANCY: A CASE CONTROL STUDY

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***Abstract**: It was aimed to evaluate the physical characteristics of the cases with spina bifida and to review the factors that may affect the etiology of the disease. 48 cases with spina bifida and 48 control groups in other disease groups evaluated. A physiotherapist physically evaluated the cases after their personal information was obtained. A survey form examining the possible factors in the etiology of spina bifida was applied to the families. It was found in the physical examination of the cases that 45.8% had hydrocephalus, and 41.7% had movement restriction due to muscle weakness. When the two groups were compared, lower level of maternal literacy, residence in a rural area, undergoing an infectious disease during pregnancy, drug utilization during pregnancy, and not utilizing folic acids during pregnancy were significantly higher than the control group ($p< 0.05$). Spina bifida was increased by place of residence of family (OR: 2.8, CI: 1.11-7.08), infectious disease during pregnancy (OR: 5.0, CI: 1.05-24.05), and not using folic acid during pregnancy (OR: 3.8, CI: 1.04-13.76). Spina bifida was more common in females and caused extensive leg limitations. It was observed that education, place of residence and conditions experienced during pregnancy had an impact on the disease.*

***Keywords:** Folic Acid, Motor Activity, Joint Range of Motion, Pregnancy Complications, Public Health*

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1. Introduction

Spina bifida is a disease that causes common and treatable neuromuscular dysfunction due to congenital malformation of neural tube development. It is a defect that occurs as a result of incomplete closure of the vertebra and neural tube between the 21st and 28th days of the embryonic period of the central nervous system [1].

The types and severity of the disease may vary depending on the affected parts of the body. Spina bifida occulta (defect in the vertebral arch but no herniation), meningocele (protrusion of the dura and arachnoid without containing neural elements), and myelomeningocele (herniation of the spinal nerves from the large posterior defect in the dura) are the most common types of disease [2].

Spina bifida is more common in females than in males. Its incidence throughout the world is between 0.3-10 per 1000 live births. It is determined as 0.3/1000 in Japan, 1/1000 in Europe, and 2-4/1000 in the United States. Its incidence in Turkey is defined as 3 per 1000 live births [3].

Problems such as low back pain, paraplegia, hydrocephalus, and dysfunctions in bladder and intestines occur in spina bifida depending on the level of neurological damage. The most common clinical findings accompanying the disease are lower extremity muscular strength loss, hip instability, knee contractures, foot-ankle deformities and the development of scoliosis over time [4].

Many factors play a role in the development of the disease, although their direct causes are not known. These factors are associated with high fever during pregnancy, hypertension, diabetes mellitus, malnutrition, some medications, obesity, environmental pollutants, past disease history, mother's age less than 20 and higher than 35, failure to receive prenatal care, low socioeconomic level and the folic acid deficiency [5].

The World Health Organization recommends regular prenatal care and utilization of 400 mcg folic acid supplements per day during pregnancy to prevent health problems such as spina bifida [6]. Diagnosed children are referred to a specialist healthcare team for their follow-up and treatment to be planned. Physiotherapy programs are applied to help independent movement, prevent deformity and strengthen leg muscles [7].

This study aims to identify cases of spina bifida and determine their current functionality levels and the factors that may affect the disease.

2. Materials and Methods

2.1. Type of Study

This study is a case-control type of clinical research.

2.2. Population and Sample of Study

The study was carried out with the participation of 48 cases with spina bifida between the ages of 0 and 2 evaluated in Diyarbakır Gazi Yaşargil Training and Research Hospital Pediatric Clinics and 48 control groups in other disease groups in response to each case.

The case group consisted of patients who were diagnosed in the Neonatal Intensive Care Unit between February 2019 and January 2020 (39 children) (n=39/Diyarbakır Gazi Yaşargil Training and Research Hospital number of live births per year = 21317), and who applied to the Physiotherapy and Rehabilitation Department from the centers outside for physiotherapy needs (9 children). The control group was formed through random selection among the children in the same age group between the same dates, did not have any diseases related to the neuromuscular system, and were hospitalized for any other reason (Child Diseases Service 1, Service 2).

2.3. Data Collection Tools and Implementation of the Study

Personal information (age, gender, etc.) of the children involved in the study was recorded. Spina bifida data were obtained from patient records and the diagnosing pediatrician and neurosurgeon. A physiotherapist evaluated the children in the case group through physical examination. During the physical examination, the physiotherapist assessed the patients' motor development levels, normal joint range of motion, muscle tone, muscle atrophy, and muscle strength tests. The own statement of individuals completed the Survey Form issued by the researchers by scanning the relevant literature by talking face-to-face with the mothers of the children in both groups voluntarily. Questions about parental information (age, gender, occupation, marital status, education, consanguineous marriage) and factors that may cause spina bifida disease were asked in this survey form.

2.4. Ethical Aspects of the Study

Approval of the Ethical Research Board of Dicle University Faculty of Medicine was obtained to conduct the study (Date: 25.01.2018, No: 30). Permission was obtained from the Chief Physician Office of Diyarbakır Gazi Yaşargil Training and Research Hospital to conduct the study. The mothers of each child were informed about the study and signed a written informed consent form indicating that they agreed to participate.

2.5. Evaluation of Data

The survey data were recorded in a computer environment and evaluated with the SPSS 21.0 package program during statistical analysis. The numbers and percentages were given together in the tables. Chi-Square test and logistic regression analysis were used during statistical analyses. Odds ratio (OR) and confidence interval (CI) values are given in logistic regression analysis. $p< 0.05$ was accepted as the significance level.

3. Results

66.7% (n=32) of the cases were female, and 45.8% (n=22) were between 0-6 months. It was observed that 52.1% (n=25) of the cases in the control group were male and 60.4% (n=29) were between 0-6 months. When they were considered individually, it was observed that the gender, age, ages of mothers, and occupation status of fathers in the case and control groups were similar ($p> 0.05$) (Table 1).

Besides, it was determined that all mothers in both groups were housewives, 50.0% of them were illiterate, and 35.4% of the families resided in rural areas.

Table 1. Demographic characteristics of the cases and control groups

	Spina Bifida		Control Group		Total		Significance[a]
	n	%	n	%	n	%	p
Gender							
Male	16	33.3	25	52.1	41	42.7	>0.05
Female	32	66.7	23	47.9	55	57.3	
Age							
Smaller than 6 months	22	45.8	29	60.4	51	53.1	>0.05
6-12 months old	17	35.4	5	10.4	22	22.9	
12-24 months old	9	18.8	14	29.2	23	24.0	
Mother's Age Group							
Age of 18 and below	2	4.2	1	2.1	3	3.1	>0.05
Age of 19-34	31	64.6	39	81.3	70	72.9	
Age of 35 and above	15	31.3	8	16.7	23	24.0	
Father's Occupation							
Worker	24	50.0	19	39.6	43	44.8	>0.05
Craftsman/Farmer	9	18.8	8	16.7	17	17.7	
Officer	2	27.1	8	16.7	10	10.4	
Unemployed	13	4.2	13	27.1	26	27.1	

[a] :Fischer exact chi-square test

The presence of spina bifida, which was diagnosed due to the births in the hospital, was found to be 1.8% (n=39/Diyarbakır Gazi Yaşargil Training and Research Hospital number of live births per year = 21317) (Figure 1).12.8% of these patients were in the meningocele (n=5) and 87.2% were in the myelomeningocele (n=34) type spina bifida group.

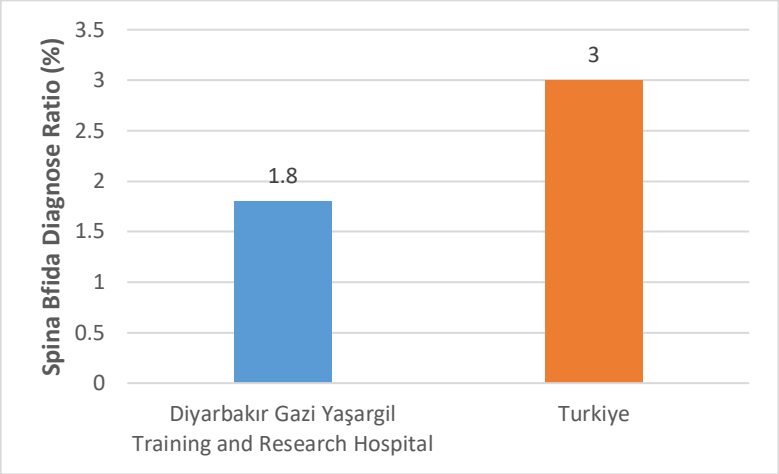

Figure 1. Incidence distribution of spina bifida in the study in Turkey

When the cases with spina bifida were evaluated in terms of physical examination, it was found that 45.8% (n=22) had hydrocephalus, 52.1% had high levels of lesions and 41.7% (n=20) had movement restriction due to muscular weakness. It was observed that the upper extremity joint range of motion was in average range values in 87.5% (n=42) of them. While the lower extremity range of motion was in the normal range in 54.2% (n=26) of them, it was found that the restrictions were mostly in the form of limitation in the whole leg (involvement of hip, knee, and feet together) with 20.8% (n=10) (Table 2).

Table 2. Physical Examination Evaluations of Children with Spina Bifida

	n	**%**
Level of Lesions		
High (L1 and higher)	25	52.1
Mid (L2-5)	19	39.6
Low (S1 and lower)	4	8.3
Hydrocephalus		
Yes	22	45.8
No	26	54.2
Muscular Strength		
Complete	28	58.3
Restricted	20	41.7
Upper Extremity Joint Range of Motion		
Normal Range	42	87.5
Restricted	6	12.5
Lower Extremity Joint Range of Motion		
Open	26	54.2
Limitation in the whole leg[b]	10	20.8
Knee flexion contracture, hip flexion-abductor contracture	7	14.6
Gastrocnemius contracture	3	6.2
Foot deformities (pes plano valgus)	2	4.2

[b] Group with knee flexion contracture, hip flexion-abductor contracture and foot-ankle deformities

Low level of mothers' literacy (64.6%), residency in rural areas (79.2%), high fever/infectious disease during pregnancy (37.5%), drug utilization during pregnancy (27.1%) and not using folic acid during pregnancy (83.3%) was significantly higher in the case group than the control group (Table 3).

No relationship was determined between spina bifida and the consanguineous status of the parents, the presence of siblings with spina bifida, the mother's age, receiving prenatal care, exposure to radiation during pregnancy, and cigarette/alcohol/drug use during pregnancy (p>0.05).

Table 3. Some Factors That May Affect the Etiology of Spina Bifida Disease

	Spina Bifida		**Control Group**		**Significance[a] p**
	n	**%**	**n**	**%**	
Education Level of Mother					
Illiterate	31	64.6	17	35.4	**0.019***
Literate	9	18.8	11	22.9	
Primary-secondary school	7	14.6	16	33.3	
High school	1	2.1	4	8.3	
Place of Residence of Family					
City	10	20.8	22	45.8	**0.009****
Rural area	38	79.2	26	54.2	
Affinity Status of Mother and Father					
No	28	58.3	22	45.8	>0.05
Yes	20	41.7	26	54.2	
Prenatal Care					
Yes	37	77.1	41	85.4	>0.05
No	11	22.9	7	14.6	
Infectious Disease During Pregnancy					
Yes	18	37.5	3	6.2	**0.001****
No	30	62.5	45	93.8	
Drug Utilization During Pregnancy					
Yes	13	27.1	1	2.1	**0.002****
No	35	72.9	47	97.9	
Status of Using Folic Acid During Pregnancy					
Yes	8	16.7	19	39.6	**0.013***
No	40	83.3	29	60.4	
Smoking During Pregnancy					
Yes	8	16.7	6	12.5	>0.05
No	40	83.3	42	87.5	

[a]:Fischer exact chi-square test;*p<0.05; **p<0.01

Spina bifida was increased by place of residence of family (OR: 2.8, C: 1.11-7.08), infectious disease during pregnancy (OR: 5.0, CI: 1.05-24.05), and not using folic acid during pregnancy (OR: 3.8, CI: 1.04-13.76) (Table 4).

Table 4. Factors associated with Spina Bifida

					95% CI	
	B	**S.E.**	**p**	**OR**	**Lower**	**Upper**
Mother's Age	0.023	0.056	0.673	1.024	0.918	1.142
Place of Residence of Family	1.033	0.471	**0.028***	2.811	1.116	7.081
Education Level of Mother	-1.520	1.708	0.373	0.219	0.008	6.220
Infectious Disease During Pregnancy	1.616	0.798	**0.043***	5.034	1.053	24.058
Drug Utilization During Pregnancy	2.347	1.241	0.059	10.457	0.918	119.167
Using Folic Acid During Pregnancy	1.335	0.657	**0.042***	3.801	1.049	13.766

S.E.: Standard Error; OR: Odds ratio; CI: Confidence interval; Logistic regression analysis; *:p< 0.05

4. Discussion

Preventive health services, which are the basis of public health, are the primary, secondary and tertiary prevention methods that can be applied to prevent the development of Neural Tube Defect (NTD) and the unwanted complications that may develop due to it. The most important, safe and effective method in primary prevention is maternal folic acid supplementation. In addition, screening, early diagnosis and treatment have an important place in secondary prevention. It is known that folate has a direct role in the closure of the neural tube [8, 9]. It is essential for the course of the disease to detect the cases with spina bifida in the early period, to minimize the neurological damages that may occur, and to identify the factors that may affect the disease.

It was found that 66.7% of the cases with spina bifida in the study were females. Saygi et al. found in the study they conducted in Turkey that the rate of females with spina bifida was 51.2% [10]. In a survey conducted in Northern Ireland, the rate of females (68%) was higher [11]. In the study, it was observed that the presence of spina bifida was more in females than in males in line with the literature.

The incidence of spina bifida was found to be 01.8% in the study. In a survey conducted in Afyon, it was reported that spina bifida/ meningocele/ meningomyelocele types were found at the rate of 2%o [12]. Its incidence in Turkey was reported to be 3/1000 [3]. While it is 6.1/1000 in Ethiopia, it varies between 1 and 3 per 1000 births throughout Africa [13]. It was found to be 2.92/10000 in a study conducted in Germany [14]. The incidence of spina bifida varies by regions and countries. The fact that the rate in the study is lower than the average in Turkey may be because the study was limited to only the births in the hospitals and the cases that reach the hospital.

It was found in the physical examination of the cases that 45.8% of them had hydrocephalus. Singh et al. reported that hydrocephalus is the most common lesion observed in patients with spina bifida [15]. Since the presence of hydrocephalus may affect the functionality of children in the subsequent stages of the disease, treatment in the early period is required.

It was determined that the upper extremity range of motion is restricted in 12.5% of the cases. Kumari and Singh reported in their study that congenital malformations affecting the upper extremity were 14% [16]. Windman et al. found that shoulder and upper arm muscular strength was lower in patients with spina bifida compared to the healthy control group [17]. Evaluation of the upper extremity is a criterion that should not be missed during physical examination. In the study, it was observed that the lower extremity range of motion was in the form of restriction in the whole leg, knee-hip involvement, and foot-ankle deformities. It was reported in the studies that the most common lower extremity problems accompanying the disease were hip instabilities, knee contractures, and foot-ankle deformities [4, 18]. All joint range of motion restrictions evaluated in the lower extremities will affect the mobility and walking levels of children in the future. Involving the children in physiotherapy and rehabilitation programs in the Neonatal Unit in the early stage may increase their functionality.

When both groups were compared, it was found that 64.6% of the mothers of the cases in the case group were illiterate. De Marco et al. reported in their study that the incidence of spina bifida decreases as the level of maternal education increases [19]. Ong et al. stated that a low maternal education level poses a high risk for spina bifida [20]. A low level of education may cause a low level of knowledge about the disease and insufficient use of healthcare services.

The fact that 79.2% of the families with children with spina bifida reside in rural areas was found to be closely related to the disease in the study. The prevalence of spina bifida is much higher, especially in rural areas of northern China than in urban areas [21]. In a survey conducted in Congo, it was reported that the farawayness of healthcare centers in rural areas is the most critical obstacle to

care [22]. This may be in association with the geographical location, environmental exposure, diet, and problems in accessing healthcare services. The difficulty in accessing rural areas causes the primary health care services, where public health services are carried out, not to be provided and these services not to be inspected regularly. The Ministry of Health should be able to provide primary health care services equally to all parts of the country.

It was found that 37.5% of the mothers in the case group had an infectious disease due to high fever or other reasons during pregnancy. During pregnancy, fever not only affects the mother, but it can also lead to fatal involvement, affect the outcome of the pregnancy, and increase morbidity and mortality. Although the mechanism by which the fever can affect the development of the neural tube is unknown, there is an increased correlation between maternal peripheral fever and neural tube defects [23, 24]. Screening, early diagnosis, and treatment have an important place in secondary prevention. Access to healthcare services and regular pregnancy follow-ups will ensure timely combat of such infectious diseases.

The utilization of various medications (analgesics, antihypertensives, antibiotics, etc.) during pregnancy was found to be higher (27.1% of the cases) than in the control group. Othman et al. reported that 26.3% of the mothers used medications (analgesics and herbal medicines) during pregnancy [25]. Kondo et al. reported in their study demonstrating the utilization of antiepileptic drugs without folic acid supplements that affected pregnancies resulted in 20.2 times higher risk [26]. The prevalence of congenital malformations should be reduced by preventing the unconscious utilization of medications by pregnant women and recommending the use of medicines, the efficacy of which was proven, as low as possible.

Not using folic acid during pregnancy was significantly higher than the control group with 83.3% of the mothers in the case group. They pointed out in their studies that Neural Tube Defects with increased mortality and morbidity risk such as spina bifida and anencephaly occur as a result of folic acid deficiency during the intrauterine development process [27, 28]. It is known that it is an important approach for women who may conceive to improve public health to eat foods fortified with folic acid or foods rich in folate to reduce the risk of birth defects [8, 29]. In Canada, compulsory fortification of selected foods with folic acid has been shown to reduce the incidence of neural tube defects by 46% [30]. There is no food fortification with folic acid in many countries, like Turkey. The Ministry of Health's proposals for food fortification with folic acid have been officially submitted to the Ministry of Agriculture and Forestry, and no regulation has been made on this issue yet [31]. Ministries need to start food fortification processes as soon as possible and offer this to the public at a low cost. Vitamin supplements are needed to achieve the recommended daily dose of Folic acid. The World Health Organization recommends folic acid supplements and folic acid-rich food consumption of 400 mcg per day or 2800 mcg per week during pregnancy to prevent such health problems [6]. Health authorities in Turkey can encourage the use of folic acid by providing free folic acid distribution support to pregnant women within the scope of primary health care services. In addition, it was determined half of the women (53.7%) did not hear or read about folic acid, and less educated women were more unaware of folic acid in the "Awareness and use of folic acid among reproductive age and pregnant women" study conducted in Turkey [32]. In our study, the insufficient use of folic acid in women in both groups may be related to this issue. Therefore, we think that the use of folic acid before pregnancy can be increased by increasing health literacy and more frequently informing expectant mothers before they become pregnant.

No relationship was found between the spina bifida and the consanguineous status of the parents and the mother's use of cigarettes/alcohol/drugs during pregnancy. It was also reported that consanguineous marriage is a risk factor for the incidence of spina bifida [15]. In a study performed in Turkey, it was stated that no correlation was found between consanguineous marriage and spina bifida

[33]. The result of the study complies with the results of the study in Turkey. In the study, while none of the mothers used alcohol and drugs during pregnancy, 16.7% of the case group used cigarettes. It was observed that there is no correlation between smoking and alcohol intake levels in terms of the risks of spina bifida [34, 35].

5. Conclusion

Spina bifida was more common in females and caused hydrocephalus and extensive leg limitations. It was observed that the education level of the mother, place of residence, undergoing infectious diseases during pregnancy, utilization of medications during pregnancy and not using folic acid during pregnancy are effective on spina bifida.

It is very clear that expectant mothers are regularly informed, and called for doctor's control, health literacy will be increased, the use of folic acid before and after pregnancy will be increased, and the disease incidence will decrease compared to the previous ones. In addition, the complications, morbidity, and mortality that may develop with these children by timely and appropriate interventions and their inclusion in physiotherapy and rehabilitation programs starting from the earliest period will significantly decrease.

Ethical statement:

Approval of the Ethical Research Board of Dicle University Faculty of Medicine was obtained to conduct the study (Date: 25.01.2018, No: 30).

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Conflict of interest:

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Authors' contributions:

S.E.: Conceptualization, data collection and translation. M.Ar.: Design of the study, statistical analysis, and writing of the study. M.As.: Resources and validation. G.S.: Validation and writing-review & editing.

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Research Article

A GLOBAL RISK IN THE COVID-19 PANDEMIC: ANALYSIS WOMEN'S UNMET NEEDS FOR MODERN CONTRACEPTIVE

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Abstract: *The unmet need for contraception in the COVID-19 pandemic is a global risk. This study analyzed the unmet modern contraceptive needs of Turkish women in the COVID-19 pandemic. This cross-sectional study was conducted with 263 Turkish women of reproductive age who were reached through social media channels between February and December 2022. Categorical data on unmet family planning needs were compared using Chi-square tests, and the effects of risk factors were analyzed through multivariate logistic regression. Women were administered a web-based online questionnaire with data. During the COVID-19 pandemic, the risk of unmet needs increased 5.29 times in women aged 30-39 years compared to women aged <30 years (p=0.028). The risk of unmet need was 4.69 times higher in women whose husbands had a high school education level or less compared to women whose husbands had a university degree (p=0.044). The unmet need of those who did not have an abortion during the pandemic increased 5.34 times (p=0.013). Women who did not receive information on modern contraceptive methods from nurses/midwives had a 15.6-fold higher risk of unmet needs than those who did (p=0.013). Being in their 30s during the COVID-19 pandemic, having a spouse's education level of high school or less, not experiencing abortion during the pandemic, and not receiving information about contraceptive methods from nurses/midwives were factors that increased the risk of unmet modern contraceptive need. Contraceptive healthcare providers should prioritize women at risk, especially during times of restrictions such as the pandemic. They should guide all women, men, and adolescents with telemedicine and/or hybrid care practices.*

Keywords*: Contraception, COVID-19, Global Health, Pandemics, Women,*

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1. Introduction

Coronavirus disease (COVID-19), caused by the SARS-CoV-2 virus, was declared a pandemic on March 11, 2020. The COVID-19 pandemic has affected the whole world in social, economic, and health areas to the present day [1,2] Reasons such as pandemic restrictions and fear of going to a health institution negatively affected the choice, use, and maintenance of contraceptive methods [3]. Difficulties in accessing contraceptive services started with the quarantine process. Unintended pregnancies in women increased [4] An increase in unintended pregnancies was also reported in past pandemics [5]. The effects of unmet contraceptive needs in pandemics are long-term [6].

The unmet need for contraception is the family planning needed to space births when women are undecided about the desire and timing of a child [7]. Reducing the need to zero for all is one of the main goals of the Sustainable Development Goals [8]. The United Nations Population Fund (UNFPA) estimated that if the quarantine lasted six months at the start of the pandemic, unplanned pregnancies

would increase by seven million [9]. During the pandemic, ensuring access to long-acting and emergency contraceptives has become even more critical to reduce the unmet need for contraception [10].

During the pandemic, contraceptive use decreased, especially in low- or middle-income countries, due to service disruption or deemed unnecessary [11]. Therefore, an increase in unintended pregnancies is a global risk. The pandemic, which has affected the whole world, has shown countries worldwide the necessity to be prepared for possible pandemics [12]. During pandemic processes, especially in poor countries, access to modern contraceptives and determining the unmet need are essential for evaluating the continuity of the service [2,10]. There are no published reports on the unmet modern contraceptive needs of Turkish women in the COVID-19 pandemic. This study in Turkey analyzed Turkish women's unmet contemporary contraceptive needs during the COVID-19 pandemic.

Research Questions

1. Is there a difference between the obstetric data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic?
2. Is there a difference between the contraception data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic?
3. What are the risk factors that have an impact on the unmet need for modern contraceptives?

2. Materials and methods

2.1. Setting

This is a descriptive and cross-sectional study. Consent for the web-based survey was obtained by the Declaration of Helsinki. This study was conducted between February and December 2022 by sharing a web-based online survey (Google Forms) with Turkish women on WhatsApp, Facebook, and Instagram social media channels. The responses to the study were asked to be answered considering the process experienced during the quarantine period from March 2020, when the pandemic was declared. The sample selection was based on the study by Roy et al. (COVID-19 family planning prevalence 23%). It was calculated that n = 425 women should be included in the study to determine the determined prevalence value at a 95% confidence level and with a margin of error of d = 0.04.[13] The sample size was calculated as n=425. The form was completed by n=425 women aged between 18 and 49 years, married or sexually active, with an ongoing menstrual cycle. They confirmed they agreed to participate in the study through the online questionnaire. n=162 women were excluded from the study because they stated they did not need contraceptives. Data from the remaining n=263 women were analyzed (Figure 1).

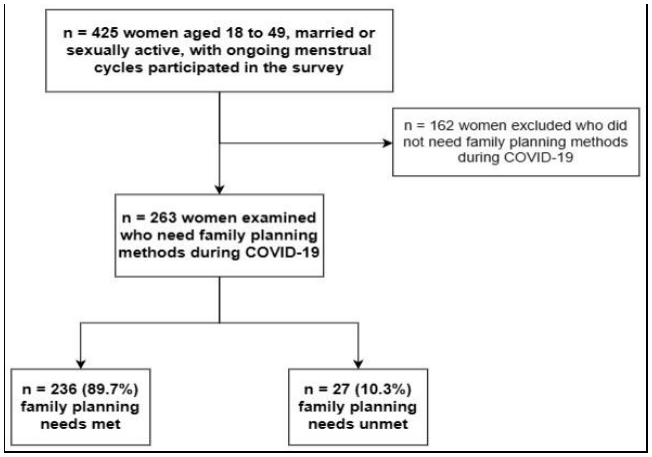

Figure 1. Flow chart of the study

On the first page of the questionnaire, an informed consent form with information about the purpose and procedure of the study was presented. After those who agreed to participate gave consent, the data collection form was displayed. The form consisted of 16 structured questions on personal, obstetric-gynecological, COVID-19 pandemic contraceptives, and unmet needs for modern contraceptives [2, 13-18].

Ethical statement

Ethics committee approval was obtained from the Committee for Evaluation of Non-invasive Scientific Research of Trakya University, Faculty of Medicine (TUTF-GOBAEK 2022/30).

2.2. Statistical analysis

Results were expressed as numbers and percentages. Pearson, Yates, or Fisher Chi-square tests were used to compare the categorical data of women with and without unmet family planning needs. Effects of risk factors on unmet needs for family planning were examined by multivariate logistic regression analysis with enter method. Odds Ratios and %95 Confidence Interval for Odds Ratios were calculated. A p-value <0.05 was accepted as statistically significant. Statistical analysis was done using IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.

3. Results

Comparison of personal data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic was examined and the results were presented in Table 1.

Table 1. Comparison of personal data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic (n=263)

		Unmet Need for Modern Contraceptives		
		Without (n=236) ***n (%)***	**With (n=27)** ***n (%)***	**p**
Age group	20-29	71 (95.9)	3 (4.1)	0.065
	30-39	107 (85.6)	18 (14.4)	
	>39	58 (90.6)	6 (9.4)	
Marital status	Married	228 (90.1)	25 (9.9)	0.274
	Single	8 (80)	2 (20)	
Working in a pandemic	Yes	97 (91.5)	9 (8.5)	0.567
	No	139 (88.5)	18 (11.5)	
Education	High school and below	117 (86.0)	19 (14.0)	0.065
	University and above	119 (93.7)	8 (6.3)	
Husband's education	High school and below	102 (83.6)	20 (16.4)	**0.004****
	University and above	134 (95.0)	7 (5.0)	
Family type	Nuclear family	213 (89,9)	24 (101)	0.738
	Extended family	23 (88.5)	3 (11.5)	
Income status	Income less than expenditure	29 (80.6)	7 (19.4)	0.132
	Income equal to expenditure	166 (90.7)	17 (9.3)	
	Income more than expenditure	41 (93.2)	3 (6.8)	
Place of residence	Province	158 (92.9)	12 (7.1)	**0.038***
	District	69 (85.2)	12 (14.8)	
	Village	9 (75)	3 (25)	
COVID-19 infection in the pandemic	Yes	126 (88.7)	16 (11.3)	0.707
	No	110 (90.9)	11 (9.1)	

Pearson, Yates, or Fisher Chi-square test; *:p<0.05; **:p<0.01

In the study, women whose husbands were university graduates had a less unmet need for modern contraceptives (p=0.004). Women in provinces and districts were also less in need (p=0.038). Among n=236 women with non-unmet needs, 88.7%, and among n=27 women with unmet needs, 11.3% had COVID-19 infection (Table 1).

Comparison of obstetric and contraception data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic were examined and the results were presented in Table 2.

Table 2. Comparison of obstetric and contraception data of women with and without unmet need for modern contraceptives in the COVID-19 pandemic (n=263)

		Unmet Need for Modern Contraceptives		**p**
COVID-19 pandemic		**Without (n=236)** ***n (%)***	**With (n=27)** ***n (%)***	
Desired/planned pregnancy	Yes	56 (94.9)	3 (5.1)	0.213
	No	180 (88.2)	24 (11.8)	
Giving birth	Yes	54 (91.5)	5 (8.5)	0.786
	No	182 (89.2)	22 (10.8)	
Unwanted/unplanned pregnancy	Yes	21 (80.8)	5 (19.2)	0.162
	No	215 (90.7)	22 (9.3)	
Having an abortion	Yes	15 (75)	5 (25)	**0.041***
	No	221 (90.9)	22 (9.1)	
Receiving information on modern contraceptive methods	Yes	160 (90.9)	16 (9.1)	0.498
	No	76 (87.4)	11 (12.6)	
Family	Yes	44 (86.3)	7 (13.7)	0.516
	No	192 (90.6)	20 (9.4)	
Friends	Yes	28 (87.5)	4 (12.5)	0.754
	No	208 (90)	23 (10)	
Nurse/Midwife	Yes	82 (98.8)	1 (1.2)	**0.002**
	No	154 (85.6)	26 (14.4)	
Physician	Yes	56 (93.3)	4 (6.7)	0.422
	No	180 (88.7)	23 (11.3)	
Internet	Yes	59 (90.8)	6 (9.2)	0.935
	No	177 (89.4)	21 (10.6)	
Use of modern contraceptive methods				
Birth Control Pill	Yes	39 (100)	0 (0)	**0.019***
	No	197 (87.9)	27 (12.1)	
Intrauterine Device	Yes	37 (100)	0 (0)	**0.019***
	No	199 (88.1)	27 (11.9)	
Injection	Yes	6 (100)	0 (0)	1.000
	No	230 (89.5)	27 (10.5)	
Tubal Ligation	Yes	6 (100)	0 (0)	1.000
	No	230 (89.5)	27 (10.5)	
Condom	Yes	107 (100)	0 (0)	**0.000**
	No	129 (82.7)	27 (17.3)	
Purchase of modern contraceptive method service from a health institution	Yes	34 (91.9)	3 (8.1)	0.778
	No	202 (89.4)	24 (10.6)	

Pearson, Yates, or Fisher Chi-square test; Pearson, ; *:p<0.05; **:p<0.01; ***:p<0.001

Women who did not have an abortion during the COVID-19 pandemic had fewer unmet needs (p=0.041). Women who received information about modern contraceptive methods from a nurse/ midwife had fewer unmet needs (p=0.002). Condoms (n=107), birth control pills (n=39), and intrauterine devices (n=37) were the 1st, 2nd, and 3rd modern contraceptive methods, respectively. During the COVID-19 pandemic, all women who used modern contraceptives such as birth control pills (p=0.019), intrauterine devices (p=0.019), and condoms (p<0.001) had no unmet needs (Table 2).

The effect of risk factors on the unmet need for modern contraceptives by multivariate logistic regression analysis was examined and the findings of the study were presented in Table 3.

Table 3. Effect of risk factors on unmet need for modern contraceptives by multivariate logistic regression analysis[a]

Factors	Category	p	Odds Ratio	%95 Confidence Interval for Odds Ratio
Age	20-29		1 (Reference)	
	30-39	0.028	5.29	1.19 – 23.45
	>39	0.383	2.09	0.40 – 10.90
Education	University		1 (Reference)	
	High school and below	0.687	0.75	0.18 – 3.11
Husband's education	University		1 (Reference)	
	High school and below	**0.044***	4.69	1.04 – 21.01
Place of residence	Province	0.295		
	District	0.281	1.70	0.65 – 4.47
	Village	0.162	3.48	0.61 – 20.06
Having an abortion in the COVID-19 pandemic	Yes		1 (Reference)	
	No	**0.013***	5.34	1.43 – 19.95
Getting information from nurse/ midwife about modern contraceptive methods in COVID-19 pandemic	Yes		1 (Reference)	
	No	0.013*	15.60	1.80 – 135.12

[a]Multivariate logistic regression analysis ; *p<0.05

When we examined the effect of risk factors on unmet need for modern contraceptives by multivariate logistic regression analysis, the risk of unmet need was 5.29 times (95% CI: 1.19 - 23.45) higher in women aged 30-39 years compared to women aged <30 years during the pandemic (p=0.028). The risk of unmet need was 4.69 times (95% CI: 1.04 - 21.01) higher in women with a spouse with a high school education or less than women with a spouse with a university degree (p=0.044). Women who did not have an abortion during the pandemic had a 5.34-fold (95% CI: 1.43 - 19.95) higher risk of unmet needs. The risk of unmet need was 15.6 times (95% CI: 1.80 - 135.12) higher in women who did not receive information about modern contraceptive methods from nurses/midwives (p=0.013) (Table 3).

4. Discussion

This study showed that Turkish women who preferred the modern contraceptive method used during the COVID-19 pandemic did not have unmet needs. Being in their 30s during the pandemic, having a spouse's education level of high school or less, not having a pregnancy abortion during the

pandemic, and not receiving information about contraceptive methods from the nurse/mother were factors that increased the risk of unmet modern contraceptive need.

Participants mostly used condoms, followed by the contraceptive pill and intrauterine device (IUD) as modern contraceptive methods during the pandemic. All women (100%) who used modern contraceptives during the COVID-19 pandemic had no unmet need for contraception (Table 2). In Nigeria, 30.8% of women used modern contraceptive methods early in the pandemic [2]. In Jordan, 79.7% of women accepted traditional methods. In addition, 35.3% of women became pregnant during curfew, and 90% of pregnancies were unplanned [13]. In Nigeria, the prevalence of modern contraceptive use was 32.8% [14]. In Bangladesh, the rate of contraceptive method use was 36.03% [15]. In other studies conducted during the pandemic, traditional methods were more common. In Italy, it was reported that women used both long-acting and short-acting oral contraceptives during the pandemic, and none experienced unplanned pregnancies [16]. In Australia, oral contraception was the only standard method among women of reproductive age at the onset of the pandemic [17]. In Ireland, it was determined that 72% of women did not use any contraceptive in the first six months of the pandemic, while 23% preferred hormonal contraceptive use [18]. In the US states of Arizona, Iowa, and Wisconsin, during the pandemic, most women (86-87%) were using oral contraceptives [19]. In Bangladesh, the rate of contraceptive method use was 36.03%. About 40.95% used oral contraceptives, 8.04% injections, 6.53% condoms, and 5.03% Norplant [20]. In Jordan, more than 56% of women reported using a variety of contraceptives, with the most commonly used being IUD (28.9%), coitus interruptus (16.3%), and male condoms (13.6%) [13]. In India, it was reported that only the progesterone pill could be safely initiated without face-to-face counseling and that 3-month injections, intrauterine contraception, or subcutaneous implant placement are appropriate options [20]. Economically disadvantaged populations have experienced inequitable access to contraception during the pandemic. Free contraception and promoting the most effective methods in disadvantaged people can reduce unintended pregnancies [21] .This study showed that modern contraceptives during the pandemic reduced unmet needs. As a result, countries can encourage women to use long-term modern contraceptives during pandemics.

The population survey conducted before the pandemic in Turkey (Turkey Demographic and Health Survey-TDHS 2018) announced that the unmet need for contraceptives increased significantly in women over 35 years of age and women who did not intend to give birth more [7]. This study found that women aged 30-39 had a 5.29-fold increased risk of unmet needs compared to women aged <30 during the pandemic. In addition, women aged 30-39 were less likely to seek contraceptive services (Table 3). In Bangladesh, women aged 20-24 years were 1.85 times more likely to use contraceptives than women aged 35-49 years [15]. In Nigeria, women aged 30-34 were 4.46 times more likely to be inconsistent in their fertility preferences than women aged 15-24 years [14]. Another study in Nigeria found that women aged 20-29 were 50% less likely to use modern contraceptives during the pandemic than women aged 30-39. However, due to the closure of educational institutions during the pandemic, parents asked young people to return home, which was interpreted as limiting their sexual activities [2]. In Ethiopia, women under 20 were 5.2 times more likely to experience unintended pregnancies than those over 34 [22]. In Australia, women aged 25-34 had fewer problems accessing contraception than women aged 18-24 and working women [17]. In the USA, younger people (aged 18-34) reported more frequent delays or inability to obtain contraception services due to COVID-19 than those older than 35 years [19]. The relationship between age and the risk of unmet contraceptive needs varies between countries. The results of this study suggest that the increased risk among Turkish women over 30 years of age may be due to their indecisiveness about their fertility choices during the pandemic and their avoidance of service provision. Health professionals, authorities, and politicians should pay close attention to young and young adult women to reduce unintended pregnancies during the pandemic.

The unmet need for modern contraceptives was lower in women whose husbands were university graduates (Table 1). The risk of unmet needs was 4.69 times higher for women whose husbands had a high school education or less (Table 3). In TDHS 2018, one in every five educationally disadvantaged women was found to have an unmet need [7]. In Nigeria, respondents with secondary education reported higher rates of modern contraceptive use than those with only primary education [2]. In Bangladesh, women with secondary education were 1.65 times more likely to use contraceptives than those with a bachelor's degree or higher. It was stated that this result, which remains unclear, should be further investigated [15]. This study's finding was that having a spouse with a university degree or higher increased awareness of contraceptive service uptake in Turkey.

In this study uniquely, the unmet need of women who did not have an abortion during the COVID-19 pandemic was 5.34 times higher (Table 3). In Turkey before the pandemic, it was announced that the desire to have fewer births led women to use contraceptives [7]. This study found that women who did not need abortion or curettage because they did not desire to become pregnant during the pandemic needed contraception. In the US, telemedicine abortion service increased from 67% in the six months before the pandemic to 90% in the first six months after. The pandemic announcement made access to abortion more difficult. Experts advocated for adopting "no-test medication abortion " without face-to-face consultation [23]. The COVID-19 pandemic announcement and the requirement to stay at home and exercise restraint worsened barriers to accessing abortion care.

Participants reported that they received the most information on contraceptive methods during the pandemic from nurses/midwives (n=83), the Internet (n=65), and physicians (n=60) (Table 2). The risk of unmet needs was 15.6 times higher for those who did not receive information on contraceptive methods from nurses/midwives during the pandemic (Table 3). In Bangladesh, friends/relatives (26.58%) and health workers (17.09%) were reported to be the primary source of information on contraceptive methods. It was determined that women who followed the contraceptive method recommendations given by family medicine workers were 2.68 times more likely to use contraceptives than women who did not [15]. In a study of contraceptive providers in 49 US states during the pandemic, 85% of providers reported that their clinics continued offering telehealth services. Providers have experienced numerous challenges in contraceptive service delivery, including technological access and confidentiality. It was noted that the hybrid care model could be used for contraceptive care delivery during the pandemic [24]. Many practices that did not have services or strategies for some contraceptive methods before the pandemic initiated these services during the pandemic. Services started included telehealth for contraception initiation (43%) and continuation (48%) and renewal of contraception prescriptions without the need for a visit (36%) [25]. In pandemic restrictions, implementing healthcare delivery strategies that reduce the need for face-to-face visits, such as telehealth, where a hybrid care model can be applied, may reduce contraception service interruptions.

The fact that access to modern contraceptives during the pandemic period was provided by means other than healthcare institutions, is a limitation of the research in terms of clarity of unmet need.

5. Conclusion

During the COVID-19 pandemic, the contraception needs of Turkish women using modern contraceptives for birth control were adequately met. During the pandemic, the risk of unmet current contraceptive needs was high among women in their 30s, women with a husband's education of high school or less, women who did not have an abortion during the pandemic, and women who did not receive information on contraceptive methods from nurses/midwives. Uninterrupted access is essential as the need for modern contraceptive services continues under all circumstances. Increasing rates of unplanned pregnancies due to unmet needs suggest that telemedicine and/or hybrid care should be prioritized in healthcare delivery. Considering the pandemic phase, especially in low- or middle-income

countries should provide the basis for continuous safe contraceptive service through local policies. In addition, healthcare providers should be guided and motivated to ensure that all women/men/adolescents can access secure contraceptive services in future pandemics, especially by identifying women at high risk of need.

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Ethical statement:

Ethics committee approval was obtained from the Committee for Evaluation of Non-invasive Scientific Research of Trakya University, Faculty of Medicine (TUTF-GOBAEK 2022/30).

Conflict of interest:

The authors declare no conflict of interest.

Authors' Contributions:

H. K. S: Conceptualization, Methodology, Acquisition of data for the study, Formal analysis, Writing - Original draft preparation

Z. E. K: Acquisition of data for the study, Formal analysis, Writing - Original draft preparation

All authors read and approved the final manuscript.

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Research Article

DELIRIUM AND RELATED FACTORS IN PATIENTS HOSPITALIZED IN THE INTERNAL INTENSIVE CARE UNIT

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Abstract: *This study was conducted to examine delirium and its associated factors in patients hospitalized in the internal intensive care unit. The study was conducted in the internal medicine intensive care unit of the University of Health Sciences, Gazi Yaşargil Training and Research Hospital between July 2022 and February 2023. The sample consisted of 103 patients admitted to the internal intensive care unit. Data were collected using the Patient Information Form, Glasgow Coma Scale (GCS), the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU), the Nursing Delirium Screening Scale (Nu-DESC), and the Standardized Mini-Mental Test (SMMT). There were statistically significant differences found in SMMT scores across age groups ($F=4.376$; $p<0.01$). Nu-DESC scores varied significantly according to education levels ($\chi^2=12.504$; $p<0.01$). There were significant differences in SMMT scores were observed based on cohabitation status ($Z=-2.246$; $p=0.025$). Nu-DESC scores differed significantly based on nasogastric tube (NG) use ($Z=-2.316$; $p=0.021$), and SMMT scores also showed significant differences concerning NG use ($Z=-2.695$; $p=0.007$). A negative, moderate, and statistically significant correlation was found between Nu-DESC and SMMT scores ($r=-0.617$; $p<0.001$). This study identified age, education level, cohabitation status, and nasogastric tube use as factors associated with delirium in patients hospitalized in the intensive care unit. A significant relationship was also found between Nu-DESC and SMMT scores. As delirium is a multifactorial syndrome, understanding the factors predisposing patients to delirium is crucial for its prevention. Therefore, it is recommended to develop educational programs for early identification of delirium and to monitor patients for signs of delirium.*

Keywords: *Delirium, İntensive care unit,Patients, Nursing*

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1. Introduction

The Intensive Care Unit (ICU) stands out from other hospital departments providing treatment and care due to its unique therapeutic procedures, monitoring tools and equipment, physical factors, and sensory environment [1]. During their stay in the ICU, patients often experience discomfort due to their illness while also being separated from family and friends. This situation can lead to more pronounced psychological, physical, and environmental issues than those the patient has previously encountered. As a result, critically ill patients admitted to an intensive care unit may develop delirium, also known as acute confusional state, intensive care syndrome, or intensive care psychosis [2].

Delirium is generally reversible but presents as an acute syndrome affecting the brain. It is considered to be an altered state of mind between a coma or stupor at one end and a normal state of wakefulness at the other [3]. Approximately 80% of patients observed in the ICU exhibit sudden changes

in mental status, accompanied by agitation, attention deficits, disorganized thinking, and cognitive alterations [4]. Keeping a critically ill individual in a stress-laden environment has been shown to exacerbate delirium and its clinical manifestations [5]. Delirium affects at least 1 in 6 elderly hospitalized patients. While the condition is typically short-lived and improves over time, it persists for weeks or months in nearly 20% of cases. The hallmark symptom of delirium is brief episodes of inattention. It is characteristic of disorientation (awareness of time, place, and person), impaired alertness, memory deficits, visual misinterpretation, perceptual errors, delusions, hallucinations, increased hyperactivity, and disordered thought processes [6].

Delirium is associated with a significant increase in the length of stay in hospital, the rate of readmission to hospital, and mortality [7]. Despite often being detected late, it significantly contributes to morbidity and mortality in affected patients [8]. A cohort study involving patients diagnosed with delirium reported a mortality rate of 39% within one year [9]. Generally, between 25% and 78% of ICU patients, regardless of whether they experience delirium, face cognitive impairments following discharge, highlighting the need for greater attention during the post-critical illness period [10]. These cognitive impairments can persist in some patients for up to six months after hospitalization [11].

Delirium is a common and serious problem in patients admitted to intensive care units and is associated with poorer short-term outcomes such as increased mortality in intensive care units and in hospitals, longer duration of mechanical ventilation and longer hospital stays [12]. Pharmacological treatment for delirium has proven insufficient, necessitating the development and implementation of physical and cognitive rehabilitation programs as additional strategies to improve delirium-related outcomes in hospital settings [13,14].

A range of non-pharmacological interventions has been developed to prevent delirium in hospitalized patients. Many of these adopt a multifactorial approach, involving protocols, training, or system redesign. Nursing practices also include evaluating and modifying medications, promoting mobilization, and enhancing the patient's environment [15].

When delirium occurs in ICU patients, it leads to adverse outcomes such as self-extubation, removal of catheters, prolonged hospital stays, higher mortality rates, and, consequently, increased healthcare costs. Identifying and preventing delirium as part of routine nursing care in the internal ICU is essential for reducing morbidity and mortality. This study was conducted to examine delirium and its associated factors in patients hospitalized in the internal intensive care unit.

2. Materials and Methods

2.1. Research Type

This descriptive study aimed to examine delirium and its associated factors in patients hospitalized in the internal intensive care unit.

2.2. Population and Sample

The research was conducted between July 2022 and February 2023 at the Gazi Yaşargil Training and Research Hospital, affiliated with the University of Health Sciences. The study sample consisted of patients admitted to the intensive care unit during the specified dates who met the inclusion criteria. The sample size was determined using the G*Power 3.0.10 software. Based on the power analysis, a sample size of 90 was deemed sufficient, with a 95% confidence interval, an effect size of 0.6, and a 5% margin of error. To account for potential dropouts or losses, 103 patients were included in the final sample [16]. Patients were eligible for the study if they were over 18 years of age, able to communicate, had been hospitalized in the intensive care unit for at least 48 hours, and had no neurological or psychiatric conditions. Inclusion also required that the patients met the first and second features, as well as the third

or fourth features, of the CAM-ICU assessment and had a total GCS score of 10 or higher. Patients who did not meet these criteria were excluded from the study.

2.3. Data Collection Tools

The data for this study were collected using the Patient Information Form, the Glasgow Coma Scale (GCS), The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU), the Nursing Delirium Screening Scale (Nu-DESC), and the Standardized Mini-Mental Test (SMMT).

Patient Information Form: Patient Information Form: The form prepared by the researchers is based on a review of the relevant literature [17, 18]. It is designed to collect socio-demographic data, such as age, gender, marital status, education level, cohabitation status, number of comorbid conditions, and multiple drugs. The form also investigates potential delirium triggers, including substance use (smoking, alcohol), use of prosthetics, vision and hearing impairments, mode of ICU admission, use of central venous catheters (CVC), Foley catheters, nasogastric (NG) tubes, and oral intake disorders.

Glasgow Coma Scale (GCS) was developed by Teasdale and Jennett in 1974 and has become a widely used international tool for assessing comatose patients [19]. It allows for the rapid identification of changes in a patient's level of consciousness. GKS score varies between 3 and 15. A score of 13–15 indicates full consciousness, while scores below 8 indicate a comatose state [20]. For this study, only patients with a GCS score of 10 or higher were included, as they are considered at risk for developing delirium and were thus eligible for evaluation.

The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) was developed by Ely and colleagues in 2001, with its Turkish validity and reliability study completed by Akıncı and colleagues in 2005 [21, 22]. The CAM-ICU evaluates four key features: an acute onset or fluctuating course of cognitive processes, difficulty in focusing and maintaining attention, disorganized thinking or distorted thought processes, and alterations in cognitive functions. If features 1 and 2 are present along with either feature 3 or 4, the assessment is considered positive for delirium. The CAM-ICU is a quick evaluation tool, requiring an average of two minutes to complete. Its Cronbach's alpha internal consistency coefficient is 0.96 (22), while in this study, it was calculated as 0.73. Patients were assessed once daily using the CAM-ICU, and those meeting the criteria for features 1 and 2, along with either feature 3 or 4, were categorized as having delirium.

The Nursing Delirium Screening Scale (Nu-DESC) is a tool developed by Gaudreau and colleagues in 2005 [23]. Its Turkish adaptation was conducted by Karataş and colleagues in 2019 [18]. Nu-DESC score varies between 0 and 10. Patients who score 2 or higher are classified as having "delirium." The Nu-DESC has a Cronbach's alpha internal consistency coefficient of 0.74 (18). In this study, the Cronbach's alpha coefficient for Nu-DESC was found to be 0.83. Patients were evaluated once daily during working hours using the Nu-DESC, and those with scores of 2 or higher were defined as having "delirium."

The Standardized Mini-Mental Test (SMMT) was developed by Folstein and colleagues in 1975 to assess the degree of cognitive impairment (24). The Turkish validity and reliability study was conducted by Güngen and colleagues in 2002, and the test has since been used as the Standardized Mini-Mental Test (SMMT) in Turkey [25]. A total score of 23 or below indicates cognitive impairment. The maximum score is 30, with scores between 21–23 suggesting mild cognitive impairment, and scores of 20 or below indicating moderate to severe cognitive impairment. The Cronbach's alpha internal consistency coefficient for the SMMT is 0.92 [25]. In this study, the Cronbach's alpha coefficient was determined to be 0.78. Patients were evaluated once daily during working hours, and scores of 23 or

below were considered indicative of cognitive impairment, classifying the patient as being at risk for delirium.

2.4. Data Collection

The data for this study were collected between July 2022 and February 2023 from patients hospitalized in the internal intensive care unit of the Gazi Yaşargil Training and Research Hospital, affiliated with the University of Health Sciences. These patients volunteered to participate in the study and met the inclusion criteria. After being informed about the study, patients provided both verbal and written consent. The data collection tools included the Patient Information Form, which captured descriptive characteristics of the patients; GCS, which assessed consciousness levels; Nu-DESC, which identified delirium and clinical features; CAM-ICU, which assessed patients at high risk of delirium; and SMMT, which evaluated the impact of cognitive impairment. Surveys were administered by the researcher to patients who had been in the ICU for at least 48 hours.

2.5. Ethical Considerations

Permission to use the scales employed in this study was obtained from their respective authors. Ethical approval for the study was secured from the Ethics Committee of Gazi Yaşargil Training and Research Hospital, affiliated with the University of Health Sciences. (Date: 22.7.2022; Number:137). Additionally, institutional approval was obtained from the Gazi Yaşargil Training and Research Hospital to conduct the research.

2.6. Evaluation of Data

The collected data were analyzed using IBM SPSS Statistics 26. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the data. For comparisons of measurement values between two independent groups, the Independent Sample t-test was used, while the ANOVA test was applied for comparisons among three or more independent groups. For variables with significant differences among three or more groups, pairwise comparisons were performed using the Tukey test, considering the lack of homogeneity of variances. The Mann-Whitney U test was used for comparisons between two independent groups, and the Kruskal-Wallis H test was applied for comparisons among three or more groups. For pairwise comparisons of variables with significant differences among three or more groups, Bonferroni corrections were applied. In cases where at least one of the two quantitative variables did not conform to a normal distribution, the Spearman correlation coefficient was used.

3. Results

According to Table 1, the average age of the patients was 75.57 ± 13.99 years, with 39 individuals (37.9%) in the 75–84 age group. It was found that 55 patients (53.4%) were female, 99 (96.1%) were married, and 50 (48.5%) were illiterate. Additionally, 59 patients (57.3%) were living with their children, 32 (31.1%) had no comorbidities, and 78 (75.7%) were on multiple medications (Table 1).

Table 1. Distribution of Patients' Socio-Demographic Characteristics

Variable	n	%
Age categories		
<65	22	21.4
65-74	16	15.5
75-84	39	37.9
>=85	26	25.2
Gender		
Female	55	53.4
Male	48	46.6
Marital status		
Married	99	96.1
Single	4	3.9
Education level		
Illiterate	50	48.5
Primary school	31	30.1
Middle school	16	15.5
High school	6	5.9
People living with		
Wife	39	37.9
Children	59	57.3
Siblings	3	2.9
No relatives	2	1.9
Number of comorbid diseases		
No disease	32	31.1
1	30	29.1
2	27	26.2
3	14	13.6
Multiple drug		
Yes	78	75.7
No	25	24.3

According to Table 2, it was determined that 61 patients (59.2%) did not use substances, 56 (54.4%) had dentures as prosthetics, 28 (27.2%) had visual impairments, and 59 (57.3%) had hearing impairments. Additionally, 89 patients (86.4%) were admitted to the ICU through the emergency department. It was found that 56 patients (54.4%) used a central venous catheter (CVC), 98 (95.1%) had a Foley catheter, 34 (33%) used a nasogastric (NG) tube, and 77 (74.8%) had oral intake disorders.

Table 2. Distribution of Patients' Socio-Demographic Characteristics

Variable	n	%
Substance use (Smoking, Alcohol)		
Yes	42	40.8
No	61	59.2
Prosthesis use (Dentures)		
Yes	56	54.4
No	47	45.6
Visual impairment		
Yes	28	27.2
No	75	72.8
Hearing impairment		
Yes	59	57.3
No	44	42.7
ICU admission type		
Emergency	89	86.4
Ward	14	13.6
CVC usage		
Yes	56	54.4
No	47	45.6
Foley catheter usage		
Yes	98	95.1
No	5	4.9
NG Tube Usage		
Yes	34	33.0
No	69	67.0
Oral intake disorder		
Yes	77	74.8
No	26	25.2

ICU: Intensive Care Unit, CVC: Central Venous Catheters,NG: Nasogastric

According to Table 3, a statistically significant difference was found in SMMT scores across age groups (F=4.376; p=0.006). To determine the source of this difference, Tamhane pairwise comparisons were conducted, considering the lack of homogeneity of variances. The results indicated significant differences between individuals in the 65–74 age group and those in the <65, 75–84, and ≥85 age groups. The SMMT scores of individuals aged 65–74 were significantly higher than those of the other groups. A statistically significant difference was also observed in Nu-DESC scores based on education levels (χ^2=12.504; p=0.006). Bonferroni-corrected pairwise comparisons revealed significant differences between individuals with no formal education, those who completed primary or middle school, and those who graduated from high school. High school graduates had significantly higher Nu-DESC scores compared to those with no education or only primary or middle school education. Regarding cohabitation status, SMMT scores showed a statistically significant difference (Z=-2.246; p=0.025). Individuals living with their spouses had significantly higher SMMT scores compared to those living with their children (Table 3).

Table 3. Comparison of Nu-DESC and SMMT Scores

Variable	n	NU-DESC Score		SMMT Score	
		Mean±SD	**Medyan [IQR]**	**Mean±SD**	**Medyan [IQR]**
Age categories					
<65 (1)	22	5.41±2.08	5.0 [5.0]	14.41±4.80	15.0 [10.0]
65-74 (2)	16	4.19±1.60	4.0 [0.8]	18.31±2.44	18.0 [3.5]
75-84 (3)	39	4.97±1.55	5.0 [2.0]	15.38±2.93	15.0 [5.0]
≥85 (4)	26	5.15±1.80	5.0 [3.3]	14.27±4.62	16.0 [7.5]
Statistical analysis		χ^2=4.351 p=0.226		F=4.376 **p=0.006** [2-1,3,4]**	
Gender					
Female	55	5.18±1.76	5.0 [3.0]	14.6±4.30	16.0 [5.0]
Nale	48	4.77±1.75	4.0 [3.0]	15,79±3,59	16.0 [4.8]
Statistical analysis		Z=-1.268 p=0.205		t=-1.051 p=0.296	
Education level					
Illiterate (1)	50	5.22±1.61	5.0 [2.0]	15.02±3.96	15.5 [5.0]
Primary school (2)	31	4.54±1.71	4.0 [3.0]	15.68±4.21	16.0 [6.0]
Middle school (3)	16	4.38±1.92	3.5 [2.8]	17.13±2.55	16.5 [4.8]
High school (4)	6	7.00±1.26	7.5 [2.3]	11.66±4.18	10.0 [6.5]
Statistical analysis		χ^2=12.504 **p=0.006* [1,2,3-4]**		χ^2=7.583 p=0.055	
People he/she lives with					
Wife	39	4.59±1.89	4.0 [3.0]	16.74±3.42	17.0 [4.0]
Children	59	5.11±1.64	5.0 [2.0]	15.01±3.78	16.0 [5.0]
Statistical analysis		Z=-1.784 p=0.075		Z=-2.246 **p=0.025***	
Number of comorbid diseases					
No disease	32	5.00±1.92	5.0 [3.5]	14.91±4.87	15.5 [8.8]
1	30	4.83±1.86	4.0 [3.3]	14.83±3.55	15.5 [3.5]
2	27	4.78±1.58	5.0 [3.0]	16.29±3.71	17.0 [6.0]
3	14	5.71±1.49	6.0 [2.3]	15.64±3.13	15.5 [5.3]
Statistical analysis		χ^2=3.354 p=0.340		χ^2=2.096 p=0.553	
Multiple drug					
Yes	78	4.88±1.71	5.0 [3.0]	15.33±3.96	16.0 [5.0]
No	25	5.32±1.91	5.0 [3.0]	15.40±4.17	15.0 [6.5]
Statistical analysis		Z=-1.081 p=0.280		Z=-0.123 p=0.553	

Nu-DESC; Nursing Delirium Screening Scale, SMMT; Standardized Mini-Mental Test, SD;Standard Deviation; *:p < 0.05; **:p<0.01

According to Table 4, a statistically significant difference was found in Nu-DESC scores based on nasogastric (NG) tube use (Z=-2.316; p=0.021). Patients using NG tubes had significantly higher Nu-DESC scores compared to those not using NG tubes. Similarly, a statistically significant difference was observed in SMMT scores based on NG tube use (Z=-2.695; p=0.007).

Table 4. Comparison of Nu-DESC and SMMT Scores (Continued)

		NU-DESC Score		SMMT Score	
Variable	**n**	**Mean±SD**	**Medyan [IQR]**	**Mean±SD**	**Medyan [IQR]**
Substance use (Cigarettes, Alcohol)					
Yes	42	4.83±1.86	4.0 [3.0]	15.71±3,89	16.0 [6.0]
No	61	5.09±1.70	5.0 [2.0]	15.10±4,07	16.0 [5.0]
Statistical analysis		Z=-0.997		t=0.768	
		p=0.319		p=0.444	
Prosthesis use					
Yes	56	4.98±1.72	5.0 [2.0]	14.84±3,97	15.5 [6.0]
No	47	5.00±1.82	5.0 [3.0]	15.96±3,97	16.0 [6.0]
Statistical analysis		Z=-0.030		t=-1.423	
		p=0.976		p=0.158	
Visual impairment					
Yes	28	5.18±1.76	5.0 [3.0]	14.14±3.93	15.0 [6.0]
No	75	4.92±1.77	5.0 [3.0]	15.80±3.94	16.0 [6.0]
Statistical analysis		Z=-0.681		Z=-1.900	
		p=0.496		p=0.057	
Hearing impairment					
Yes	59	4.93±1.65	5.0 [2.0]	15.19±3.86	16.0 [5.0]
No	44	5.06±1.92	5.0 [4.0]	15.56±4.19	16.0 [5.0]
Statistical analysis		Z=-0.193		Z=-0.823	
		p=0.847		p=0.411	
ICU Admission					
Emergency	89	5.03±1.79	5.0 [2.0]	15.18±3.85	16.0 [5.0]
Ward	14	4.71±1.54	5.0 [3.0]	16.43±4.79	18.0 [6.8]
Statistical analysis		Z=-0.493		Z=-1.385	
		p=0.622		p=0.166	
CVC Usage					
Yes	56	5.00±1.89	5.0 [1.0]	15.13±3.89	15.5 [5.0]
No	47	4.98±1.62	5.0 [2.0]	15.62±4.14	16.0 [5.0]
Statistical analysis		Z=-0.034		Z=-0.824	
		p=0.973		p=0.410	
Foley Catheter Usage					
Yes	98	5.01±1.74	5.0 [2.0]	15.31±4.05	16.0 [5.0]
No	5	4.60±2.30	5.0 [4.0]	16.20±2.59	17.0 [5.0]
Statistical analysis		Z=-0.537		Z=-0.354	
		p=0.591		p=0.723	
NG Tube Usage					
Yes	34	5.56±1.67	6.0 [3.0]	13.97±3.73	14.0 [5.5]
No	69	4.71±1.75	4.0 [3.0]	16.02±3.96	17.0 [5.0]
Statistical analysis		Z=-2.316		Z=-2.695	
		p=0.021*		**p=0.007****	
Oral intake disorder					
Yes	77	5.05±1.79	5.0 [2.5]	14.97±4.00	15.0 [5.0]
No	26	4.80±1.67	5.0 [2.3]	16.46±3.82	17.0 [6.0]
Statistical analysis		Z=-0.497		t=-1.657	
		p=0.619		p=0.101	

Nu-DESC; Nursing Delirium Screening Scale, SMMT; Standardized Mini-Mental Test, SD;Standard Deviation; *:$p < 0.05$; **:$p<0.01$, ICU; Intensive Care Unit, CVC; Central Venous Catheters**,** NG; Nasogastric

According to Table 5, the mean Nu-DESC score of the patients was 4.99±1.76, while the mean SMMT score was 15.35±3.99. A moderate, statistically significant negative correlation was identified between Nu-DESC and SMMT scores (r=-0.617; p<0.001). This indicates that as SMMT scores increase, Nu-DESC scores decrease, and conversely, as SMMT scores decrease, Nu-DESC scores increase.

Table 5. Analysis of the Relationship Between Patients' Nu-DESC and SMMT Scores

Variable	X	SD	1	2
1. Nu-DESC score	4.99	1.76	1	r: -0.617*****
2. SMMT score	15.35	3.99		1

Nu-DESC; Nursing Delirium Screening Scale, SMMT; Standardized Mini-Mental Test, SD;Standard Deviation, *****p < 0.001

4. Discussion

In our study, the average Nu-DESC score of the patients was 4.99±1.76, and a significant relationship was found between Nu-DESC scores and both education level and NG tube use. When examining the relationship between delirium and education level, it was observed that 48.5% of the patients were illiterate, 30.1% had completed primary school, 15.5% had completed middle school, and 5.9% were high school graduates. A statistically significant difference was identified in Nu-DESC scores based on education levels. High school graduates had significantly higher Nu-DESC scores compared to illiterate patients and those who had completed primary or middle school.

In our study, 94.1% of patients with positive delirium cases had low education levels. This finding suggests that patients with insufficient verbal communication skills may face difficulties in understanding and completing the test, potentially leading to lower Nu-DESC scores.

In a study by Martins et al. investigating the relationship between delirium and education level in elderly patients, a significant association was found between low education levels and delirium [26]. Similarly, Elibol's study revealed that delirium was more prevalent among illiterate patients, and a statistically significant relationship was identified between delirium and low education levels [27]. However, in Guliyev's thesis, no relationship was found between delirium and education level [28].

The literature shows varying results, but the findings of our study are consistent with the majority of existing studies. This supports the conclusion that low education levels are associated with higher rates of delirium.

In patients, especially the elderly, as cognitive functions deteriorate, there is a decline in daily living activities, a worsening of nutritional intake, and an increased need for support. The rate of nutritional deficiencies in elderly individuals ranges from 11% to 44%, but this rate can rise to as high as 60% among hospitalized patients [29]. In our study, 77 patients (74.8%) had oral intake disorders, and 34 patients (33%) required nasogastric tube (NG) feeding due to impaired oral intake. The presence of chest tubes, endotracheal tubes, nasogastric feeding, urinary catheters, arterial monitoring, constipation, and lack of urinary output are precipitating factors for the development of delirium [30].

In our study, a statistically significant difference was found in Nu-DESC scores based on NG tube use. Patients using NG tubes had significantly higher Nu-DESC scores compared to those not using them (p<0.05). The higher Nu-DESC scores in patients with NG tubes are thought to be associated with inappropriate behaviors, such as attempts to remove the tubes.

In a study by Bellelli et al., the presence of nasogastric tubes, central venous catheters (CVC), and urinary catheters was identified as a contributing factor to the development of delirium [31]. Similarly, a study by Al-Hoodar et al. investigating the incidence of delirium and associated factors in ICU patients found a relationship between NG tube use and delirium [32]. The findings of our study

align with the existing literature, confirming the association between NG tube use and higher delirium scores.

In our study, the mean SMMT score of the patients was 15.35±3.99, and a significant relationship was found between SMMT scores and age, cohabitation status, and NG tube use. A statistically significant difference was observed in SMMT scores across age groups. Tamhane pairwise comparisons, accounting for the lack of variance homogeneity, revealed significant differences between the 65–74 age group and the <65, 75–84, and ≥85 age groups. Patients in the 65–74 age group had significantly higher SMMT scores compared to the other age groups.

The findings indicate that individuals aged 65–74 have higher SMMT scores and a lower risk of developing delirium compared to other groups. These results align with those of a meta-analysis by Cao et al., which highlighted a higher risk of postoperative delirium in elderly patients with perioperative cognitive dysfunction [33].

In the study conducted by Çuhadar et al. on elderly individuals living in nursing homes, cognitive impairment was observed, and a significant relationship was found between age and SMMT scores. As age increased, the incidence of cognitive impairment also rose [34]. Similarly, Güngen et al. reported that the average SMMT score was lower in individuals aged 80 and above [25]. However, Hargrave et al., in their study on hospitalized patients, did not find a significant relationship between age and delirium [35].

Although the literature includes studies with varying findings on the relationship between age and delirium, our study aligns with those indicating that patients in the 75–84 and ≥85 age groups have significantly lower SMMT scores. Many other studies in this field support our findings, highlighting the correlation between advancing age and cognitive decline, which increases the risk of delirium.

In our study, a statistically significant difference was found in SMMT scores based on the individuals patients lived with. Patients living with their spouses had significantly higher SMMT scores compared to those living with their children. Van Rompaey et al., in their study on ICU patients, identified that the risk of developing delirium was higher among those living alone [36]. Similarly, a study involving 420 elderly patients residing at home or in nursing homes found that those who were married had higher education levels, and engaged in healthy living behaviors were more likely to live at home [37]. Özen Çınar et al., in their study examining the biological, psychological, and social dimensions of individuals aged 65 and above, found that depressive symptom scores were higher among widowed/divorced elderly individuals compared to those who were married [38]. However, Guliyev's thesis did not find a significant relationship between marital status and delirium [28].

The literature presents varied results; however, in this context, the higher SMMT scores of patients living with their spouses may indicate a better social life, aligning our findings with the literature.

Additionally, a statistically significant difference was found in SMMT scores based on nasogastric (NG) tube use. Patients not using NG tubes had significantly higher SMMT scores compared to those using NG tubes. This suggests that the use of an NG tube increases the risk of developing delirium. A study by Salluh et al., which evaluated the epidemiology of delirium in ICU patients, identified a significant relationship between the presence of urinary catheters, central venous catheters, and delirium [39]. The results of our study are consistent with the existing literature, supporting the association between NG tube use and an increased risk of delirium.

A negative, moderate, and statistically significant relationship was found between Nu-DESC and SMMT scores. An inverse relationship was observed between these scales: as SMMT scores increased, Nu-DESC scores decreased, and vice versa. Higher SMMT scores indicate better cognitive functioning, while higher Nu-DESC scores reflect more severe impairment.

In a descriptive and relational study by Bahar et al., conducted with 55 ICU patients, areas such as disorientation, inappropriate behavior, inappropriate behavior, and communication, illusions were evaluated using Nu-DESC, and it was found that longer hospital stays were associated with worsening conditions in these areas [40]. Similarly, Durmayüksel et al., in a study involving 892 patients, reported that as MMSE (Mini-Mental State Examination) scores increased, the risk of delirium decreased [41].

From this perspective, a comparative analysis of patients' medical and descriptive characteristics using both Nu-DESC and SMMT has not been encountered in the literature. A decrease in SMMT scores signifies worsening cognitive impairment, indicating a poor prognosis. Similarly, an increase in Nu-DESC scores also reflects a poor prognosis.

The relationship between these two scales underscores their importance in identifying delirium and assessing its risks. Although both scales are widely used in separate studies for delirium detection, the statistical relationship observed between them in this study represents a meaningful contribution to the literature. This highlights their complementary value in evaluating cognitive function and delirium risk in clinical settings.

5. Conclusion and Recommendation

The findings of this study indicate that age groups, cohabitation status, and nasogastric (NG) tube use significantly affect SMMT scores, while education level and NG tube use significantly impact Nu-DESC scores. A negative, moderate, and statistically significant relationship was observed between Nu-DESC and SMMT scores. With the use of diagnostic scales such as SMMT and Nu-DESC by nurses, the quality of care can be improved as a result of early identification of risk factors and application of appropriate nursing care to the patient. It is recommended that health professionals working in the ICU should be utilize appropriate assessment scales and trained in the management of patients with delirium and studies with larger samples should be conducted to strengthen the evidence base.

Ethical statement:

Before data collection, written approval was taken from the ethics committee of Health Sciences University Gazi Yaşargil Training and Research Hospital Sciences University Ethics Committee (Decision date and number: 22/07/2022-137) and the institution where the study was conducted.

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Conflict of interest:

The authors declare no conflict of interest.

Authors' Contributions:

Study design: MA, LZA
Data collection and/or analysis: MA
Preparation of the article: MA, LZA
All authors read and approved the final manuscript.

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Research Article

AWARENESS AND PERCEPTION TOWARDS BREASTFEEDING AMONG NURSING STUDENTS OF TERTIARY CARE CENTRE IN NEW DELHI

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Abstract: *Poor breastfeeding and complementary feeding practices are widespread. The beneficial effect of breastfeeding depends on correct breastfeeding practices like timely initiation, colostrum feeding, and avoidance of prelacteal feeding. Breastfeeding support from healthcare professionals can be effective in influencing a mother's decision to initiate and maintain breastfeeding. To assess knowledge, and perception regarding breastfeeding and complementary feeding and to identify various misconceptions about breastfeeding among nursing students. This descriptive, cross-sectional study was conducted among 120 Nursing students by the Department of Community Medicine, NDMC Medical College and Hindu Rao Hospital Delhi, India. The information was collected by interviewing the nursing students with the help of pretested, predesigned proforma. Statistical Package for Social Sciences (SPSS), version 21 was used for analysis. In this study, significance was set at $p<0.05$.*
The majority of nursing students belong to the 18- 24 years age group with a mean age of 20.95 ± 1.37 (mean ± SD) years. The majority of the participants (71.7%) had adequate knowledge concerning exclusive breastfeeding. Most of the participants were aware of good attachment (77.5%) and proper positioning (89.2%) for breastfeeding. Lack of knowledge and various misconceptions about breastfeeding were reported. Nursing students need to receive adequate breastfeeding training so that they can provide the necessary support to the mothers for the betterment of the newborn.

Keywords: *Breastfeeding, complementary feeding, infant nutrition, knowledge, nursing students, prelacteal feeds.*

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1. Introduction

Nutrition plays an important role during a child's first year of life and is essential to ensure the growth and development of the child. Correct and adequate breastfeeding during the first 2 years of life plus complementary feeding starting from the first 6 months of life are the critical component of care in childhood. It is a major determinant of short- and long-term health outcomes in individuals, and hence of the social and economic development of communities and nations [1].

"A newborn baby has only three demands. These are warmth in the arms of his/her mother, food from the breasts, and security in the knowledge of her presence; breastfeeding satisfies all three" [2].

Complementary foods are often introduced too early or too late and are often nutritionally inadequate and unsafe. From the age of 6 months, an infant's need for energy and nutrients exceeds what is provided by breast milk, and complementary feeding becomes necessary to fill the energy and nutrient gap [3].

Poor breastfeeding and complementary feeding practices are widespread. Worldwide, it is estimated that only 34.8% of infants are exclusively breastfed for the first 6 months of life, with the majority receiving some other food or fluid in the early months [4]. In India under-five mortality and infant mortality rates are 29.1 and 26 per 1000 live births, respectively and almost 50% of it is attributable to malnutrition [5]. Optimal breastfeeding practices include exclusive breastfeeding for the first six months of life, early initiation of breastfeeding within one hour of life, and continued breastfeeding for up to and beyond two years of age [6]. In India, according to NFHS 5 approximately 64% of children under 6 months of age are exclusively breastfed and 46% of children aged 6-8 months receive solid or semi-solid food and breastmilk [7]. Compared to infants who initiated breastfeeding within 1 h after birth, infants who initiated breastfeeding 2–23 h after birth had a 33% greater risk of neonatal mortality, and infants who initiated breastfeeding 24 h after birth had a 2.19-fold greater risk of neonatal mortality [8]. Despite lots of awareness and other activities regarding breastfeeding, very little progress has been recorded in recent studies. It has been shown that only 30-40% of mothers started early breastfeeding within 1 hour and 60-70% have done exclusive breastfeeding for 6 months [9,10]. Suboptimal breastfeeding or not breastfeeding is associated with lower intelligence and economic losses of about $302 billion annually or 0.49% of the world's gross national income [11].

A mother’s decision to initiate and maintain breastfeeding is influenced by many factors including the practical and emotional support, and encouragement from health professionals. A Cochrane Review reported that breastfeeding support from health professionals can be effective in extending the duration of breastfeeding [12]. It is therefore important that nursing students acquire knowledge about breastfeeding and develop skills to support and provide appropriate care to pregnant women, and to mothers with infants, in order to support mothers to breastfeed [13].

Nurses being the largest group of professionals play an important role in educating and supporting breastfeeding activities as their clinical experience and also in their personal practice as potential mothers. In a few studies it has been seen that 80% of nurses have good knowledge towards breastfeeding, but very less have a positive attitude toward breastfeeding and fewer have good intentions for breastfeeding in the future [14].

1.1. Rationale of study

Since health professionals are responsible for planning and implementing newborn feeding practices, it is necessary they have adequate academic knowledge about them, which makes it possible to overcome personal beliefs so that they can implement scientifically based guidelines that are beneficial to babies. Thus, the present study aims to assess the knowledge and perception regarding breastfeeding and complementary feeding among nurses. This study could also serve as a resource to identify gaps in nursing training, which is an important step toward improving the work practices of future health professionals.

2. Materials and Methods

2.1. Objectives and Design

This study is designed as descriptive and cross-sectional to assess knowledge, and perception regarding breastfeeding and complementary feeding and to identify various misconceptions about breastfeeding among nursing students.

2.2. Participants

The institution-based cross-sectional study was conducted from March 2024 to May 2024. The study was conducted among nursing students of North Delhi Municipal Corporation Medical College and Hindu Rao Hospital.

Inclusion criteria: All the students willing to participate and present on the day of study were included.
Exclusion criteria: Nursing students who were not willing to give consent were excluded from the study.

Four nursing batches were considered for the study. Each batch consisted of 40 students. The complete universe of students was taken with informed written consent. The purpose of the study was explained prior to the data collection. The interview was carried out in a confidential, non-obligatory, and non-judgmental manner. The anonymity of the students was ensured and utmost confidentiality of the information collected was maintained.

We stratified undergraduate nursing students according to the year of admission and enrolled at least 30-35 students from each stratum. We had fixed the criteria that at least 80-90% of students should be present in each class. Students were chosen randomly using computer-generated random numbers by giving a serial number to each present student. Single attempts were made to collect data from each admission year student.

2.3. Data Collection

The questionnaire form consisted of three parts. The first part of the questionnaire included 8 questions about the socio-demographic characteristics of the students (Age, gender, religion, marital status, socioeconomic class, semester). The second part of the questionnaire included 19 questions consisting of knowledge regarding breastfeeding and complementary feeding. The questions in the second part were prepared by professionals from the field. While preparing the questions in the second part, the Infant Young Child Feeding (IYCF) practices questionnaire given by WHO was used [15]. In the last part of the questionnaire, 11 questions consisting of perception and future intentions toward knowledge regarding breastfeeding and complementary feeding were asked to students. While preparing the questions in the third part, IYCF-E toolkit by the Centre for Disease Control and Prevention was used [16]. The study tool was pre-tested, pre-designed, and semi-structured questions were validated. From the responses/options given, the correct answers were counted as a student had to select one correct answer from the options provided. This was followed by a lecture and interactive session on the same topic.

2.4. Ethical considerations

The Institutional Ethics Committee gave its clearance before data collection (North MDC Medical College and Hindu Rao Hospital of the Dean, date:15.02.2024 and approval number: 2024/256). Permission from the principal of the nursing college was taken. Students gave both verbal and written consent. The Informed Consent Form was used to obtain written consent and contained information about the study's voluntary nature, participants' right to withdraw at any time, and the confidentiality of their names. The principles of the Helsinki Declaration were followed in the conduct of this study. Advice regarding correct breastfeeding activities and complementary feeding was given.

2.5. Operational Definitions

1. Early Initiation of Breastfeeding means breastfeeding all normal newborns (including those born by cesarean section) as early as possible after birth, ideally within the first hour. Colostrum, the milk secreted in the first 2-3 days, must not be discarded but should be fed to newborns as it contains high

concentrations of protective immunoglobulins and cells. No pre-lacteal fluid should be given to the newborn [17].

2. Exclusive breastfeeding for the first 6 months means that an infant receives only breast milk from his or her mother or expressed breast milk, and no other liquids or solids, not even water. The only exceptions include the administration of oral rehydration solution, oral vaccines, vitamins, minerals supplements, or medicines [17].

3. Complementary feeding is the process starting after 6 months of life when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The period is between 6 and 24 months, and by 6 months infants are developmentally ready to transition to semi-solids and progress to solid foods with advancing age [18].

4. Attachment for Breastfeeding

A baby needs to be well attached for successful breastfeeding so that he or she can suckle effectively. Difficulties often occur because a baby does not take the breast into his or her mouth properly and so cannot suckle effectively. All healthcare professions need to understand the correct technique of attachment for breastfeeding to make mothers' experiences more comfortable and less painful.

Good attachment is essential as shown in Figure 1. The points to notice are: much of the areola and the tissues underneath it, including the larger ducts, are in the baby's mouth; the breast is stretched out to form a long 'teat', but the nipple only forms about one-third of the 'teat'; the baby's tongue is forward over the lower gums, beneath the milk ducts (the baby's tongue is cupped around the sides of the 'teat'); the baby is suckling from the breast, not from the nipple. As the baby suckles, a wave passes along the tongue from front to back, pressing the teat against the hard palate, and pressing milk out of the sinuses into the baby's mouth from where he or she swallows it. The baby uses suction mainly to stretch out the breast tissue and to hold it in his or her mouth. The oxytocin reflex makes the breast milk flow along the ducts, and the action of the baby's tongue presses the milk from the ducts into the baby's mouth. When a baby is well attached his mouth and tongue do not rub or traumatize the skin of the nipple and areola. Suckling is comfortable and often pleasurable for the mother. She does not feel pain.

Poor attachment as demonstrated in Figure 2. The points to notice are only the nipple is in the baby's mouth, not the underlying breast tissue or ducts; the baby's tongue is back inside his or her mouth and cannot reach the ducts to press on them. Suckling with poor attachment may be uncomfortable or painful for the mother and may damage the skin of the nipple and areola, causing sore nipples and fissures (or "cracks"). Poor attachment is the most common cause of sore nipples and may result in the inefficient removal of milk and the low supply [19].

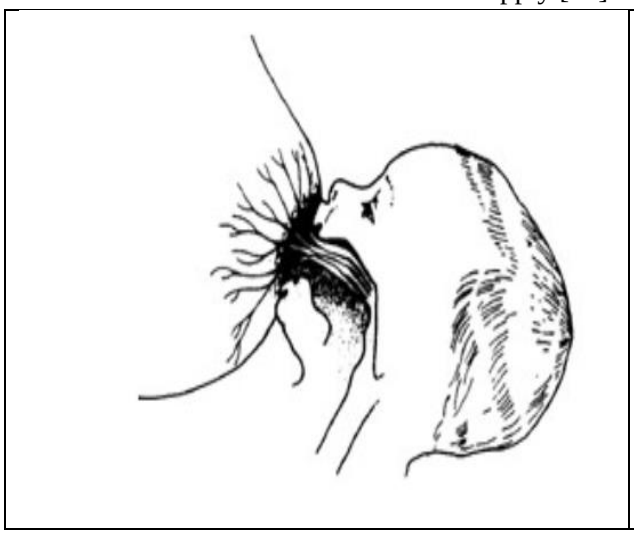

Figure 1. Good attachment

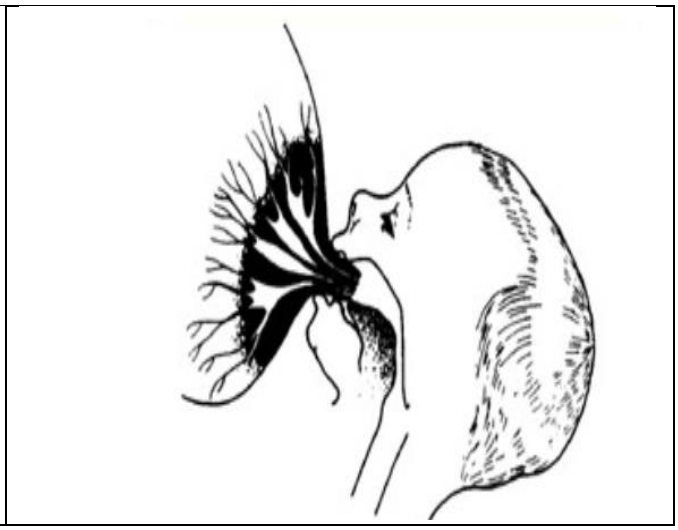

Figure 2. Poor attachment

2.6. Data Analysis:

The data were analyzed by Microsoft Office Excel and Statistical Package for Social Sciences (SPSS 21). After statistical analysis, the findings of the study were presented by tables and figures. Descriptive results of the study were given by percentages. A chi-square analysis was performed to examine the relationship between the expected qualitative variables. A p-value of less than 0.05 was taken to declare a difference "significant".

3. Results

The sociodemographic characteristics of nursing students contributed to the study were examined and the results were given in Table 1.

Table 1: Distribution of the sociodemographic characteristics of academic nursing students (n=120)

Sociodemographic Characteristics	Number (n=120)	%
Age distribution (age in years)		
18-20	55	45.83
21-23	62	51.7
24	3	2.5
Religion		
Hindu	112	93.3
Muslim	3	2.5
Sikh	5	4.2
Type of family		
Nuclear	98	81.7
Joint	22	18.3
Socioeconomic status		
Class I	44	36.7
Class II	68	56.7
Class III	7	5.8
Class IV	1	0.8
Semester/year of nursing course		
1st year	25	20.8
2nd year	35	29.2
3rd year	33	27.5
4th year	27	22.5

The socio-demographic and educational characteristics of these nursing students have been summarized in Table 1. It shows that a majority of them belong to the 18- 24 years age group with a mean age of 20.95 ± 1.37 (mean ± SD) years, and the sample comprised of students from first to fourth years of education. All the students were girls and unmarried. The majority of students (93.3%) were from Hindu families. Most of the participants belonged to the nuclear family. Out of 120 nursing students, 68 belonged to class II socioeconomic status according to the modified B.G Prasad classification [20] (Table 1).

Knowledge regarding breastfeeding among nursing students was asked of the nursing students and the results are given in Table 2.

Table 2: Knowledge regarding breastfeeding among nursing students (n=120)

Variable	Frequency(n=120)	%
Initiation of breastfeeding should be done:		
a. Within one hour of birth	87	72.5
b. After one hour of birth	33	27.5
Do you know about "colostrum"?		
Yes	118	98.3
No	2	1.7
Is Colostrum better than any pre-lacteal feed?		
Yes	103	85.8
No	17	14.2
*Reason of giving Colostrum to babies is/are?		
a. It fights against infections and provide immunity	116	
b. It is easily digestible by babies	11	
c. Any pre-lacteal feed can cause harm to new born babies	12	
Which prelacteal feed is good according to you, for newborn babies?		
a. Honey	26	21.7
b. Ghutti	56	46.7
c. Ajwain water	5	4.1
d. Other if any	6	5
e. Nothing	27	22.5
Do you know the concept of exclusive breastfeeding?		
Yes	86	71.7
No	34	28.3
During exclusive breastfeeding, water can be given to infants?		
Yes	4	3.3
No	101	84.2
Don't know	15	12.5
Which milk/ feed is most commonly given, if breast supply is not sufficient or nil?		
a. Cow's milk	44	36.7
b. Other animal milk	1	0.8
c. Infant formula milk	67	55.8
d. Don't know	8	6.7
Breastfeeding should be continued till		
a. 6 months	35	29.2
b. 6 months-1 year	41	34.2
c. 1-2 year	08	6.7
d. Till 2 years	34	28.3
e. Don't know	2	1.6
Have you heard of good attachment for breastfeeding?		
Yes	93	77.5
No	19	15.8
Don't know	8	6.7
Have you heard of proper positioning for breastfeeding?		
Yes	107	89.2
No	12	10
Don't know	1	0.8

*Multiple responses

Considering the results of Table 2 majority (72.5%) of participants were aware of knowledge regarding initiation of breastfeeding within one hour of birth. Most of the participants were aware that colostrum was better than any pre-lacteal feed. Overall majority of the participants (71.7%) had adequate knowledge concerning exclusive breastfeeding. Most nursing students reported that promoting breastfeeding was important for infant health, and most students demonstrated knowledge about the advantages of breastfeeding, such as "breast milk provides stronger immune protection for the child than formula milk".

There was a lack of knowledge regarding prelacteal feeds that they are good for newborns. Only 22.5 % of students agreed that no prelacteal feeds were to be given. Only 28.3% of students knew that breastfeeding should be continued till 2 years. There was a lack of knowledge regarding the duration of breastfeeding. This increases the chances of infection in babies. Awareness of the health benefits of colostrum should be increased by further breastfeeding education and support. Most of the participants were aware of good attachment (77.5%) and proper positioning (89.2%) for breastfeeding (Table 2).

Knowledge regarding Complementary feeding among nursing students was examined and the results were presented in Figure 3.

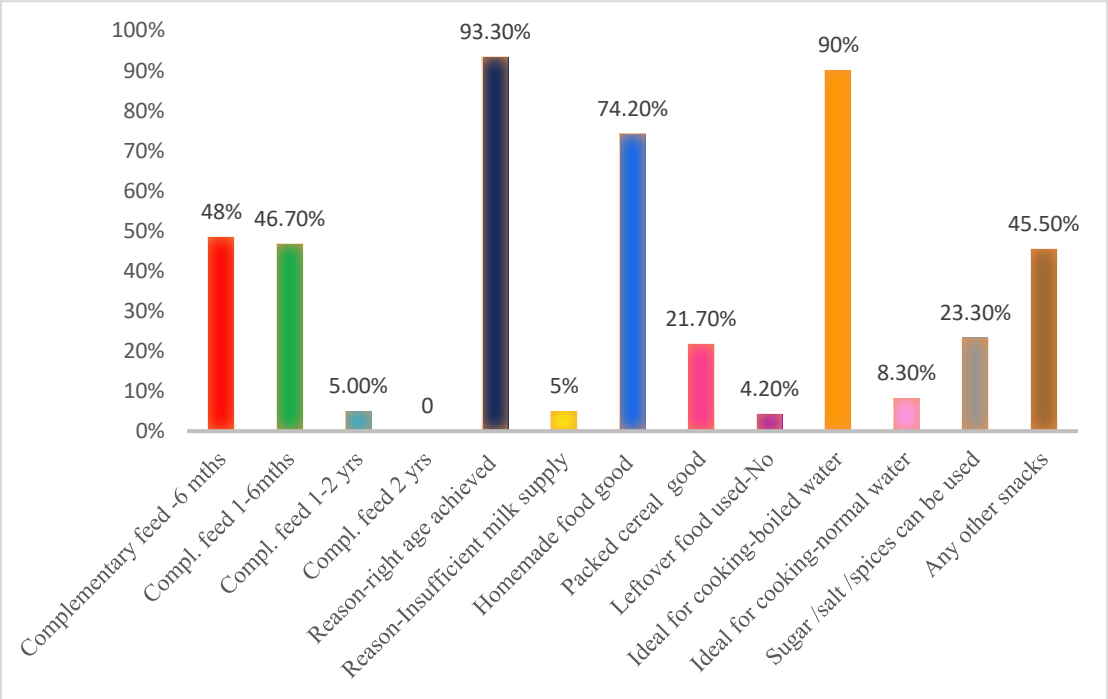

Figure 3: Knowledge regarding Complementary feeding among nursing students

Considering Figure 3 less than half of the students (46.7%) were of the opinion regarding complementary feeding started at a period of 6 months up to 1 year. Lack of knowledge regarding initiation of complimentary feeding was seen in nursing students. Majority (112) of the students had knowledge regarding the reason for starting complementary feed when the right age was achieved and body dietary needs has increased. Majority of students (74.2%) had knowledge about homemade food is good for child as complementary feed. Only 2 students were of the opinion that both homemade and packed food can be used. 90% participants marked boiled water as ideal for cooking complementary feed. Most of the nursing students (73.3%) knew that there is no need of sugar, salt or spices for preparation of child's food. Lack of knowledge was seen regarding snacks. More than half of the nursing students (49.2%) were of the opinion that no other snack is required for the child.

Perceptions regarding breastfeeding and complementary feeding were asked to the nursing students and the results are given in Table 3.

Table 3: Perception regarding breastfeeding and complementary feeding (n=120)

Variable	Frequency(n=120)	%
Mothers should breastfeed their babies within 1 hour after delivery		
Yes	104	86.7
No	1	0.8
Don't know	15	12.5
Only Breast milk is not sufficient for a baby in the first six months of life		
Yes	16	13.3
No	99	82.5
Don't know	5	4.2
Water should be given to babies below 6 months of age.		
Yes	19	15.8
No	80	66.7
Don't know	21	17.5
Herbs/herbal drinks are beneficial to the health of babies especially in the first 6 months		
Yes	10	8.3
No	99	82.5
Don't know	11	9.2
Formula feeding is healthier and supplies more nourishment than breastfeeding for babies below 6 months of age		
Yes	10	8.3
No	93	77.5
Don't know	17	14.2
The size of the breast determines the amount of breast milk produced		
Yes	33	27.5
No	70	58.3
Don't know	17	14.2
Breastfeeding should be continued when semi-solid or solid foods are introduced		
Yes	76	63.3
No	33	27.5
Don't know	17	9.2
Breastfeeding in the public should be discouraged because that creates an uncomfortable situation		
Yes	16	13.3
No	97	80.8
Don't know	7	5.9
Breastfeeding helps a mother to make a strong bond with her baby.		
Yes	119	99.2
No	0	0
Don't know	1	0.8
Husband/Partner should play a supportive role in breastfeeding		
Yes	109	90.8
No	4	3.3
Don't know	7	5.9
As a woman, would you prefer breastfeeding personally?		
Yes	109	90.8
No	0	0
Don't know	11	9.2

Considering Table 3 a majority (86.7%) of the students perceived that mothers should breastfeed their babies within 1 hour after delivery.13.3% of students had a misconception that breast milk is not sufficient for a baby in the first six months of life. 10 students out of 120 had misconceptions regarding herbs/herbal drinks that they are beneficial to the health of babies, especially in the first 6 months. 17.5%

of students had no perception regarding water whether to be given or not to babies before 6 months of age.

8.3% of nursing students perceived that formula feeding is healthier and supplies more nourishment than breastfeeding for babies below 6 months of age. 33 students out of 120 had misconceptions regarding the size of the breast which determines the amount of breast milk produced. The majority (99.2%) of the participants perceived that breastfeeding fosters a close bond between the mother and child. Healthcare professionals including doctors and nurses should encourage it. More than half of the participants (82%) wanted their future child to be breastfed (Table 3).

4. Discussion

In this study knowledge level of nursing students was assessed given breastfeeding and complementary feeding. Nursing students need to receive adequate breastfeeding training so that they can provide the necessary support to the mothers for the betterment of the newborn.

Our study sample was formed only by female participants. It is a normal observation that the nursing profession is generally feminized in this type of study. It was difficult to compare as available literature in view of nursing students acquiring breastfeeding knowledge is scarce. Despite this, some of our results are similar to those seen in other research works.

The study showed the majority of the students (71.7%) had adequate awareness regarding exclusive breastfeeding, contrary to a study conducted in Egypt [21] where only 19.8% of participants had adequate knowledge. Exclusive breastfeeding for six months was also known by nursing students of Karachi (76%) [22]. This indicates the importance of breastfeeding education and its influence in improving nursing students' knowledge and their future behaviors. Breastfeeding campaigns can be encouraged to promote exclusive breastfeeding for six months.

In the present study, participants knew the benefits of breastfeeding for both baby and mother and the importance of the early initiation of breastfeeding.

There was a lack of knowledge regarding the duration of breastfeeding. Only 28.3% of the nursing students recommended that mothers should continue breastfeeding for 2 years. In contrast in a similar study conducted by Altwalbeh [23] where 79% of participants knew the duration of breastfeeding. Health education sessions regarding breastfeeding practices can have a positive influence.

Only 22.5 % of students agreed that no prelacteal feeds are good for newborns. Prelacteal feeds like gold rubbed in water, honey, distilled water, honey, ghutti, ajwain water, glucose, etc., should not be given. These items will satisfy the thirst and will reduce the vigor to suck and may lead to diarrhea and helminthic infestation. Due to a lack of knowledge regarding prelacteal feeds newborn is often deprived of colostrum which is rich in protein and immunoglobulins. Lack of knowledge and various misconceptions about breastfeeding were reported. Snacks like porridge, biscuits, mashed bananas, fruit juices, and soups, can be given in addition to homemade food as reported in the study. There is a misconception regarding snacks among nursing students. Biscuits, fruit juices, and fruit drinks should be avoided [24].

Regarding the grades of nursing students, a statistically significant difference was found between students' grades and knowledge, p=0.0007, where 4th-grade nursing students showed greater breastfeeding knowledge levels than 1st-grade nursing students. Nursing students accept more knowledge through their studies in nursing faculty.

In our study participants were aware of good attachment (77.5%) and proper positioning (89.2%) for breastfeeding. While in a study conducted in a tertiary health center in Karnataka, students had poor knowledge regarding good attachment (40%) and proper positioning (48%) for breastfeeding [25]. In the neonatal period, the establishment of early contact is crucial. To achieve maximum benefits of

breastfeeding feeding the mother and baby should be appropriately positioned. A poorly attached baby is likely to suckle ineffectively.

Most of the participants (78%) perceived that formula feeding is not healthier and does not supply nourishment more than breastfeeding for babies below 6 months of age. Formula feeding is as good as breast milk in a study conducted by Linares et al. [26]. Majority of the nursing students felt breastfeeding is more convenient and healthier than formula feeding. Promoting breastfeeding can have additional benefits also. As compared to formula feeding it is economical as there is no need to purchase bottles and feeding formulas.

58.3% of students knew that the size of the breast doesn't determine breast milk production. Lack of knowledge and misconceptions were identified among nursing students. 100% of the participants perceived that breastfeeding helps a mother to make a strong bond with her baby. A study was conducted in Jordan [23] where 83.3% of participants felt the same.

In our study, 90.8% of participants will prefer breastfeeding in the future. In a similar study by Khresheh et al. 82% of the students wanted to breastfeed their future child. The personal interest component also makes a positive impact in learning breastfeeding practices as these generations will be mothers in the future.

In the present study more than three-fourths (80.8%) participants perceived breastfeeding in public should not be discouraged. In contrast in a similar study conducted by Saudi Arabia [27], the majority (72%) of participants perceived breastfeeding in public as embarrassing, unacceptable, and makes breastfeeding less attractive. Awareness is needed for the general public to support breastfeeding mothers so that they feel comfortable to breastfeed in public.

5. Conclusion

Our study identified that nursing students understand that breastfeeding is the preferred method to feed newborns and infants and they acknowledge that it brings many health benefits for the mother and baby. The core purpose of the Baby-Friendly Hospital Initiative (BFHI) is it protect, promote, and support breastfeeding. It also ensures that mothers and newborns receive timely and appropriate care before and during their stay in a facility providing maternity and newborn services, to enable the establishment of optimal feeding of newborns, which promotes their health and development. Nursing students need to receive adequate breastfeeding training so that they can contribute to BFHI's success by facilitating successful breastfeeding initiation and exclusivity. The valuable results obtained in this study can be considered for future research work among nursing students for acquiring breastfeeding knowledge and to promote the development of educational interventions for future policies and programs.

Limitations of the study:

This study has some limitations. The studied population does not fairly capture all undergraduate students around Delhi, as only one nursing college has drawn the study participants. Besides responses can be influenced by social desirability as self-reported questionnaires were used.

Ethical Statement:

The Institutional Ethics Committee gave its clearance before data collection (North MDC Medical College and Hindu Rao Hospital of the Dean, date:15.02.2024 and approval number: 2024/256).

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Conflicts of interest:

There are no conflicts of interest.

Author's Contribution:

The author's contribution to the study is equal.

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