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ORIGINAL RESEARCH

Relationship between Health Literacy Level and Contraceptive Method Preferences: Intrauterine Device vs. Elective Curettage

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ABSTRACT

Providing reproductive health services is essential to a healthcare system. Reproductive health is an important component of the World Health Organization, indicating that women and men have the right to information and access to safe and effective contraceptive methods. Unfortunately, not all individuals are aware of the reliable contraceptive methods currently available today; this is the main factor leading to unwanted pregnancy, which is terminated with Elective Curettage. The present study aims to compare the Health Literacy (HL) levels of patients who use intrauterine devices (IUD) for contraception with those who underwent Elective Curettage (E&C) to terminate unwanted pregnancies. This cross-sectional study was conducted with 467 participants who applied to the Family Planning Department to terminate unintended pregnancy with E&C (n=59) and those who used an IUD for contraception (n=408). The study shows no differences between the groups according to the HL level determined for the overall HL scale. However, the "Health Promotion" subscale's median score was higher in the E&C group (p=0.002). The logistic regression analysis showed that the tendency of unemployed women to prefer E&C was 11.15 times more than that of employed women. Moreover, those with a history of curettage were 4.95 times more likely to prefer the E&C method. In conclusion, "Health Promotion" is related to the ability to evaluate the health warnings of the environment. It can be interpreted that the environment influences women's E&C preferences. The frequent occurrence of E&C in unemployed women must also be examined in a sociocultural context.

Keywords: Health literacy. Health promotion. Family planning department. Intrauterine device. Elective curettage.

Sağlık Okuryazarlığı Düzeyi ile Kontraseptif Yöntem Tercihleri Arasındaki İlişki: Rahim İçi Araç ve Elektif Küretaj

ÖZET

Üreme sağlığı hizmetlerinin sağlanması sağlık sistemi için esastır. Üreme sağlığı, Dünya Sağlık Örgütü'nün önemli bir bileşeni olup, kadınların ve erkeklerin güvenli ve etkili kontraseptif yöntemler hakkında bilgi edinme ve bunlara erişim haklarının olduğunu belirtir. Ne yazık ki, günümüzde mevcut olan güvenilir kontraseptif yöntemlerden tüm bireyler haberdar değildir; bu durum, istenmeyen gebeliklere yol açan ve bu gebeliklerin elektif küretaj ile sonlandırılmasında ana faktördür. Bu çalışma, doğum kontrolü için rahim içi araç (RİA) kullanan hastalar ile istenmeyen gebelikleri sonlandırmak için elektif küretaj (E&C) uygulanan hastaların Sağlık Okuryazarlığı (SOY) düzeylerini karşılaştırmayı amaçlamaktadır. Bu kesitsel çalışma, istenmeyen gebeliklerini E&C ile sonlandırmak üzere Aile Planlaması Departmanı'na başvuran (n=59) ve doğum kontrolü için RİA kullanan (n=408) toplam 467 kişi ile gerçekleştirilmiştir. Çalışma, SOY ölçeği için belirlenen genel ölçek puanına göre gruplar arasında bir farklılık olmadığını göstermektedir. Ancak, "Sağlığın Geliştirilmesi" alt ölçeği üzerinden elde edilen medyan puanı E&C grubunda daha yüksektir (p=0,002). Lojistik regresyon analizi, çalışmayan kadınların E&C'yi tercih etme eğiliminin, çalışan kadınlara göre 11,15 kat daha fazla olduğunu göstermiştir. Ayrıca, küretaj öyküsü olan kadınların E&C yöntemini tercih etme riski 4,95 kat daha yüksektir. Sonuç olarak, bildiğimiz üzere "Sağlığın Geliştirilmesi", çevrenin sağlık uyarılarını değerlendirme yeteneği ile ilgili olup bu durum, çevrenin, kadınların E&C tercihlerini etkilemiş olabileceği şeklinde yorumlanabilir. Çalışmayan kadınlarda E&C'ye sık başvurulması sosyokültürel bir bağlamda incelenmelidir.

Anahtar Kelimeler: Sağlık okuryazarlığı. Sağlığın geliştirilmesi. Aile planlaması polikliniği. Rahim içi araç. Elektif küretaj.

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The provision of reproductive health services is an essential part of a healthcare system. Reproductive health is an essential component of the World Health Organization (WHO), indicating that women and men have the right to information and access to safe and effective contraceptive methods.[1]

Contraception aims to prevent unwanted pregnancies. A wide range of reliable contraceptive options is available nowadays, which can be classified as reversible, barrier, or permanent methods.[2] Couples who are not well-informed about contraception or those who do not visit the Family Planning Department (FPD) often use emergency contraception methods or elective curettage (E&C). Those last two are among the most undesirable methods. These methods are more expensive, and E&C is an invasive surgical procedure. The risk of E&C depends on how safely this procedure is performed. The most frequent complications may be uterine perforation, infections, and placental retention.[3] The E&C rate was reported as 35% worldwide between 2010 and 2014. In contrast, this rate was reported as 27 % in developed countries and 37 % in developing countries.[4,5] The rate of E&C has decreased by only 4% since 1999.[6] Despite a slight decrease in E&C rates globally, there remains a need for improved access to and understanding of safer contraceptive methods. The IUD is one of the most reliable and widely used modern long-acting reversible contraceptive (LARC) methods worldwide and can reduce the overall number of unwanted pregnancies more than any other method of contraception.[7] IUD use is common among couples due to the long contraceptive effectiveness after a single application. This feature currently makes IUD the most preferred method of contraception. These attributes and the easy acceptance of this method in patient counseling services referred us to the idea to compare the Health Literacy of IUD users and the individuals who undergo E&C procedure.

Health Literacy (HL) is defined as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and to use services needed to make appropriate health decisions".[6,8,9] Health literacy (HL) significantly shapes individuals' ability to access and comprehend health information, make informed decisions, and utilize healthcare services. According to Morris et al. [10], an improvement in health outcomes parallel to increased health literacy can be achieved.

The National Assessment of Adult Literacy (NAAL) found that 36% of participants scored "basic" or "below basic" in terms of HL.[11] Studies have shown that low HL is associated with poor participation in preventive health services, such as immunization and cancer screening. [12] Promoting HL is an important part of modern medicine.[13] HL also plays an essential role in increasing social welfare and decreasing health inequalities. The essential role of health literacy has been re-emphasized during the COVID-19 pandemic, highlighting its critical importance.[14]

In a study conducted by Woldegiorgis et al., the authors observed a strong relationship between women's literacy rate and contraception prevalence.[15] Parker et al.[16] hypothesized that functional HL affected contraceptive knowledge, attitudes, and behaviors and suggested that future research should focus on functional HL and the use of contraceptives.

The present study aims to compare the health literacy level of patients who use an IUD for contraception with those who do not use any birth-control methods and subsequently undergo E&C, which is a non-preventive and non-permanent method.

Material and Method

This study was conducted with 467 patients who agreed to participate in the current study. Participants who applied to Bursa City Hospital Family Planning Department (FPD) were divided into two groups: patients who do not use any contraceptive methods and terminate unintended pregnancy with E&C (n=59), and a second group who reported that they use IUDs to prevent unwanted pregnancies (n=408). The study inclusion criteria were all participants who could speak and understand Turkish and had no cognitive diseases. The study's exclusion criteria were conditions or diseases that prevent filling questionnaires: loss of vision, hearing or sensory, and motor and cognitive (dementia, psychosis) skills. All participants were informed about the subject of this study. The socio-demographic form, obstetric data form, and the Turkish version of the European Health Literacy Survey Questionnaire (HLS-EU-Q16) scale were performed when they applied for outpatient examinations. Demographic characteristics, history of smoking and alcohol usage, education level, employment status, and comorbid diseases were recorded for each patient. Obstetric data: number of gravida, parity, abortion, and curettage history was recorded for each participant.

A European Health Literacy Survey Questionnaire was used to evaluate participants' HL and carried out through face-to-face interviews between patients and clinicians. The HLS-EU-Q16 scale, which consists of 16 questions, was used to assess HL. The scale includes three sub-domains: "Health Care (HC)," "Disease Prevention (DP)," and "Health Promotion (HP)".[17] The first sub-domain includes 1st to 7th, the second sub-domain 8th to 12th, and the last contains 13th to 16th questions. The completion time of each questionnaire was five to ten minutes. The ethics committee of Bursa Uludag University approved the study with reference number 2019-16/9.

Statistical Analysis

A Shapiro–Wilk test was used to assess whether the variables followed a normal distribution. Variables were reported as mean ± standard deviation or median (minimum: maximum) values. According to the normality test results, the Mann-Whitney U test was used to compare the groups. The Chi-square test compared categorical variables. Logistic regression analysis was performed to determine independent risk factors affecting the preferred E&C procedure. SPSS (IBM Corp. Released 2012. IBM SPSS Statistics for Windows. Version 20.0.Armonk. NY: IBM Corp.) software was used for statistical analysis. Type I error rate was set as 5%.

Results

There was no difference between groups according to age distribution. Median BMI was higher in the group using IUD for contraception (Table I). The groups differed according to financial status (p<0.001). In subgroup analyses, it was determined that the proportion of participants with low economic status was higher in the E&C group (p<0.001). In comparison, the proportion of middle-income participants was higher in the group that preferred IUDs (p<0.001). There was no difference between the groups according to the distribution of high-income participants (p=0.215). There is no difference between the groups according to the level of education (p=0.075). The rate of those who have a profession is higher in the group using IUD (p=0.013). The number of family members was higher in the E&C group (p=0.033) (Table I).

The number of gravida, parity, and abortion was higher in the E&C group. The number of participants with a history of E&C was higher in the E&C group than in the group using the IUD (p<0.05) (Table II).

Study groups had no differences according to the literacy level determined for the scale in overall HL, "Health Care," and "Disease Prevention" subscales (p>0.05). However, the "Health Promotion" subscale's median score was higher in the E&C group (p=0.002). When the reliability coefficients of the scale and its sub-dimensions are examined, the reliability is excellent for the overall scale and suitable for the sub-dimensions (Table III).

Table II. Obstetrics outcomes of the participants

	n	IUD	n	Curettage	p-value
Gravida	408	3(1:15) *2.75±1.37*	59	4(2:7) *4±1.17*	**<0.001**[a]
Parity	408	2(0:6) *2.18±0.91*	59	2(1:4) *2.49±0.84*	**0.003**[a]
Abortion	402	0(0:12) *0.37±0.91*	58	0(0:3) *0.62±0.77*	**<0.001**[a]
Curettage History	407	71(78%)	59	20(22%)	
Present		71(17.40%)		20(33.90%)	**0.003**[b]
Absent		336(82.60%)		39(66.10%)	

IUD: Intrauterine device. Data presented as mean±st. deviation, median(minimum : maximum) and n(%). a: Mann Whitney U Test, b: Pearson Chi-Square Test

Table I. Demographic characteristics of the participants

	n	IUD	n	Curettage	p-value
Age*(years)*	408	34.50(18:58) *34.03±7.89*	59	35(23:43) *34.30±5.64*	0.710[a]
BMI*(kg/m²)*	405	26.37(16.53:44.62) *26.68±4.53*	59	24.61(17.30:36.26) *25.26±4.70*	**0.020**[a]
Financial Status					
Poor		33(8.10%)		14(23.70%)	
Medium	406	327(80.50%)	59	35(59.30%)	**<0.001**[b]
Good		46(11.30%)		10(16.90%)	
Education Level					
Below high school		239(58.60%)		41(69.50%)	
High school	408	104(25.50%)	59	15(25.40%)	0.075[b]
Above high school		65(15.90%)		3(5.10%)	
Smoking	408	112(27.50%)	59	22(37.30%)	0.118[b]
Profession					
Employed	345	119(34.50%)	48	8(16.70%)	**0.013**[b]
Unemployed		226(65.50)		40(83.30%)	
Chronic disease*	407	54(75%)	59	18(25%)	**0.001**[b]
Family Member	408	4(1:12) *4.36±1.29*	59	5(3:7) *4.54±0.88*	**0.033**[a]

IUD: Intrauterine device. Data presented as mean±st. deviation, median(minimum : maximum) and n(%).
a: Mann Whitney U Test, b: Pearson Chi-Square Test, BMI: Body Mass Index
*: Percentile values were calculated over the group (n=72) with chronic disease.

Table III. Health literacy level of the participants

	Health Literacy (HL)	IUD (n=408)	Curettage (n=59)	TOTAL (n=467)	Cronbach Alpha
Overall	*Adequate*	247(60.50%)	39(66.10%)	286(61.20%)	0.900
	Inadequate	161(39.50%)	20(33.90%)	181(38.80%)	
	p-value	0.412[b]			
	HL Score	33.33(1.04:50) *32.72±9.42*	33.33(8.33:48.96) *33.14±9.58*	33.33(1.04:50) *32.78±9.43*	
	p-value	0.374[a]			
Health Care	*Adequate*	266(65.20%)	37(62.70%)	303(64.90%)	0.803
	Inadequate	142(34.80%)	22(37.30%)	164(35.10%)	
	p-value	0.709[b]			
	HL Score	33.33(4.76:50) *33.15±9.04*	33.33(4.76:47.62) *32.20±9.25*	33.33(4.76:50) *33.03±9.06*	
	p-value	0.607[a]			
Disease Prevention	*Adequate*	266(65.20%)	40(67.80%)	306(65.50%)	0.758
	Inadequate	142(34.80%)	19(32.20%)	161(34.50%)	
	p-value	0.694[b]			
	HL Score	33.33(3.33:50) *32.40±10.63*	33.33(3.33:50) *32.69±10.90*	33.33(3.33:50) *32.43±10.65*	
	p-value	0.617[a]			
Health Promotion	*Insufficient*	316(77.50%)	50(84.70%)	366(78.40%)	0.805
	Excellent	92(22.50%)	9(15.30%)	101(21.60%)	
	p-value	0.203[b]			
	HL Score	33.33(4.17:50) *34.51±9.88*	37.50(8.33:50) *38.91±10.21*	33.33(4.17:50) *35.05±10.02*	
	p-value	0.002[a]			

IUD: Intrauterine device. Data presented as mean±st. deviation, median(minimum : maximum) and n(%).

a: Mann Whitney U Test, b: Pearson Chi-Square Test

Univariate logistic regression analysis was performed for each variable reported within the univariate analysis to determine the factors affecting E&C preference. The variables that met the criteria $p<0.25$ were included in the multivariate logistic regression analysis. Since the overall and subscales points for health literacy could not meet the $p<0.25$ criteria for univariate logistic regression analysis, these points could not be the candidates for the multivariable logistic regression model. As a result of univariate logistic regression analysis, body mass index, financial status, education level, profession, chronic disease, smoking, curettage history, gravida, parity, and the number of abortions were included in the multivariate analysis, and the results of the relevant analysis are given in (Table IV).

The logistic regression analysis showed that the data set is compatible with the regression model ($p = 0.740$), and the obtained regression model was significant ($p <0.001$). Through the analysis results, a one-unit increase in the BMI level reduced the use of the E&C by 12%, and as a result of the increase in BMI, the tendency to IUD was realized. For the financial status variable, it was seen that middle-income participants prefer using IUDs over low-income participants. It was observed that the level of education did not affect the preference of E&C in general. Smokers are 2.34 times more likely to prefer the E&C. Being employed was found to be a determinant of the contraception method chosen. The tendency of unemployed women to prefer E&C was 11.15 times more than employed ones. The preference for E&C was 2.96 times more in those with no chronic disease. While the increase in gravida tended towards E&C, the one-unit change observed in the number of parity and abortions indicated that the participants preferred the IUD. Finally, those with a history of curettage were 4.95 times more likely to prefer the E&C procedure.

Table IV. Independent risk factors that affect the choice of curettage

	Wald	p-value	OR	95% CI Lower	95% CI Upper
BMI	7.25	**0.006**	0.88	0.80	0.96
Financial Status					
Poor (Ref.cat.)	-	-	1	-	-
Medium	4.98	**0.026**	0.32	0.12	0.87
Good	1.72	0.189	2.85	0.60	13.59
Education Level					
Above high school (Ref.cat.)	-	-	1	-	-
Below high school	0.08	0.775	0.77	0.13	4.52
High school	0.01	0.956	1.05	0.18	6.09
Smoking					
Non-smoker (Ref.cat.)	-	-	1	-	-
Smoker	4.22	**0.040**	2.34	1.04	5.28
Profession					
Employed(Ref.cat.)	-	-	1	-	-
Unemployed	10.32	**0.001**	11.15	2.56	48.58
Chronic Disease					
Present(Ref.cat.)	-	-	1	-	-
Absent	6.07	**0.014**	2.96	1.25	7.01
Gravida	30.20	**<0.001**	7.62	3.69	15.71
Parity	14.48	**<0.001**	0.25	0.12	0.51
Number of Abortion	18.49	**<0.001**	0.18	0.08	0.39
Curettage History					
Present(Ref.cat.)	-	-	1	-	-
Absent	6.10	**0.013**	4.95	1.39	17.54
Model χ^2=94.21; **p<0.001**					
Hosmer and Lemeshow Test: p=0.740					
n=467					

BMI: Body Mass Index, OR: Odds ratio, CI: Confidence Interval, Ref. Cat.: Reference category

Discussion and Conclusion

There were no differences between the IUD and E/C groups according to the literacy level determined for the overall HL scale and "Health Care" HL "Disease Prevention" HL subscales. However, the "Health Promotion" HL subscale's median score was higher in the E&C group. "Health Promotion" HL topics include the impact of the environment, media, and family on human health. Women's ability to evaluate environmental impacts comes to the fore among E&C users. Perhaps the E&C decision-makers for the expectant mother are their partners or family members. Recent studies on this issue reveal a gap in the involvement of partners in the counseling services of FPD; unfortunately, women covertly use

contraceptives. This irresponsibility in partners' behavior leads to unwanted pregnancy, resulting in the termination of pregnancy by E&C.[18] Another study highlighted the need for partners' involvement in the interventions to enhance IUD utilization.[19] Moreover, the results of this study indicate that IUD use was strongly associated with husband/partner support for IUD use.[19]

Obesity has risen sharply over the past three decades.[20] The National Survey of Family Growth (NSFG) found that nearly one in two American women of reproductive age is overweight or obese.[21] As we know, the increased incidence of obesity in pregnancy is associated with adverse maternal and neonate outcomes and increased healthcare, economic, and social costs.[22] Moreover, a suboptimal maternal metabolic environment has long-term adverse effects on the offspring's health through the concept of 'fetal programming.' Because pregnancy for overweight and obese women presents additional risks, an important issue is using FPD to prevent unplanned pregnancies in this population. Preconceptual counseling for obese women is an important topic that can reduce the rate of unwanted pregnancies with a high rate of complications.[23]

In their research, Chuang et al. found that obese women were more likely to report contraceptive nonuse than normal-weight women.[24] Our study shows the opposite result: according to logistic regression analysis, our data shows that a one-unit increase in the BMI level reduced the use of the E&C method by 12%, and as a result of the increase in BMI, the tendency to IUD was realized. In the present study, women with a higher median BMI were in the group using the IUD for contraception. Over the past two decades, overweight women have gained awareness about pregnancies in that unfavorable condition.

On the other hand, logistic regression analysis shows that being employed was a determinant of the contraception method. The tendency of unemployed women to prefer E&C was 11.15 times more than employed women. Employment was found to be inversely related to E&C preferences. E&C users were more common among low-income and unemployed women. Low family income can be seen as an obstacle to adding new members to the family. Unemployment may have led women to neglect knowledge about contraception. E&C is not considered an adequate method of contraception and was observed more frequently in non-working candidate mothers. Employed women may be more conscious of contraception due to fear that it may remove them from their careers.

Moreover, logistic regression analysis shows that those individuals with a history of curettage were 4.95 times more likely to opt for the E&C method. A woman with a previous history of E&C has an increased rate of repetitive E&C. Although E&C is considered a low-risk surgical procedure, it is an invasive method of contraception. Long-acting reversible contraceptives should be preferred as first-line methods because of their effectiveness and durability. Recurrent E&C has also been reported in previous studies.[5] The inadequacy of family planning education can explain repetitive E&C.[25] A negative impact is that family planning education clinics remain in the background in most settlements. Turkey is also a country that encourages childbearing. Obstetricians, family physicians, and family health workers should work more actively in family planning education.

The heterogenity in the number of participants in the groups can be considered a limitation in the present study. We explain the heterogeneity in the number of patients between the two study groups in the present study by the frequency of choice of contraceptive methods among couples. Since this research is a cross-sectional study, it reflects the proportion and number of patients in the current time frame. In addition, the fact that the study was conducted in a single center is another limitation. Multicenter qualitative studies are needed to evaluate the factors that affect women's E&C decisions.

Results of the study showed that the "Health Promotion" HL score was higher in women who preferred E&C. "Health Promotion" HL is related to the ability to evaluate the health warnings of the environment. It can be interpreted that the environment influences women's decisions for E&C. Another essential suggestion is that health providers should invite partners to participate jointly in FPD, which can avoid the use of inappropriate contraceptive methods. The frequent occurrence of E&C in unemployed women also needs to be examined in a sociocultural context. If women are affected by the environment regarding E&C, the obstetricians, family physicians, and midwives should accurately provide information about the most appropriate contraception method.

Ethics Committee Approval Information:
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Researcher Contribution Statement:
Idea and design: S.R.O, H.D.; Data collection and processing: S.R.O., Z.A.; Analysis and interpretation of data: G.O., Z.A.; Writing of significant parts of the article: S.R.O, G.O., H.D.

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