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Research Article

ADHERENCE TO PROPHYLAXIS IN RELATION TO QUALITY OF LIFE AND ANXIETY LEVEL IN TURKISH PATIENTS WITH SEVERE HAEMOPHILIA A

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Abstract: *Bleeding increases anxiety and reduces quality of life (QoL) for patients with severe haemophilia A. Prophylaxis is a therapeutic approach that enhances QoL for these individuals; however, compliance is a major issue. This study investigated adherence to prophylaxis in relation to QoL and anxiety level in patients with severe haemophilia A and in their parents. Forty-three patients with severe haemophilia A were stratified into three groups by age: 12 children aged 2-13 years, 17 adolescents aged 14-21 years, and 14 adults aged >21 years (range, 21-65 years). Quality of life and anxiety level were assessed using the 36-item Short Form Health Survey (SF-36) and the State-Trait Anxiety Inventory (STAI), respectively. Regular prophylaxis (RP) and pharmacokinetic (PK)-guided prophylaxis were prescribed for 30 and 13 patients, respectively. All the children (n=12; nine who received RP, three who received PK-guided prophylaxis) and 10 (58.8%) of the adolescents (all of whom received PK-guided prophylaxis) were completely adherent to prophylaxis. Seven (41.2%) of the adolescents and all 14 adults (100%) were non-adherent to prophylaxis. Compared to findings for the adolescents, anxiety level was higher among the children's parents and among the adult patients ($p<0.05$ for both). The QoL level was lower for the adult patients than for the parents of child patients and for the adolescent patients ($p<0.05$ for both). Regarding patients with severe haemophilia A, PK-guided prophylaxis for adults and home treatment for small children would enhance adherence to prophylaxis, increase QoL and reduce anxiety levels.*

Keywords: *Prophylaxis, adherence, quality of life, anxiety, haemophilia*

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1. Introduction

Haemophilia is a rare bleeding disorder, which leads to early disability if untreated with factor concentrates on time. For patients with severe haemophilia A, the risk of bleeding increases anxiety and reduces quality of life (QoL). Regular prophylaxis is a therapeutic approach that enhances QoL for these individuals; however, compliance is a major issue [1-5]. In addition to patient compliance, pharmacokinetic (PK) guided prophylaxis would allow optimizing the treatment of individual haemophilia patients [6-10]. Although several studies have evaluated the QoL of patients with severe haemophilia, to the best of our knowledge, no study has yet investigated QoL together with anxiety level in these patients [11-17].

This observational study was aim to analyse adherence to prophylaxis in relation to QoL and anxiety level through questionnaires answered by older patients with severe haemophilia A and the parents of child patients.

2. Materials and Methods

Forty-three patients with severe haemophilia A who were attended in haemophilia camp in 2019 were enrolled in this study. These patients were stratified into three groups by age: 12 children aged 2-13 years, 17 adolescents aged 14-21 years, and 14 adults aged >21 years (range, 21-65 years). Individuals were excluded from the study if they were diagnosed haemophilia B or von Willebrand Disease. Quality of life and anxiety level were assessed in the children's parents and in the adolescent and adult patient groups using the 36-item Short Form Health Survey (SF-36) and the State-Trait Anxiety Inventory (STAI), respectively. The study was approved by the Ethics Committee of Gazi University.

The following patient data were recorded: type of prophylaxis (regular prophylaxis or PK); viral test results (human immunodeficiency virus [HIV], hepatitis B virus [HBV], and hepatitis C virus [HCV]); inhibitor status; location/s and frequency of joint damage; presence of target joints (defined as joints that had sustained bleeding at least three times in the past 6 months); surgery; radiosynovectomy.

Ethical Considerations: This work was carried out by obeying research and ethics rules. Ethical committee consent was obtained from the Ethics Committee of Gazi University, Ankara, Turkey (Date: 28.01.2019, Number: 77).

2.1. Assessment of Prophylaxis and Patient Activity Status

Twenty-seven patients without inhibitor were prescribed a regular prophylactic regimen of standard half-life recombinant factor VIII 25-40 IU/kg three times weekly. The remaining 13 patients without inhibitor received PK-guided prophylaxis and were assessed using myPKFIT®. Prophylaxis with activated prothrombin complex concentrates was given as 50 to 75 IU/kg three times weekly in three patients with inhibitor. The following were recorded before the questionnaires were applied: whether the patient had received prophylaxis, whether the patient had experienced vascular access problems, prophylaxis interval/s, adherence to prophylaxis, and where the prophylaxis was administered and by whom. Adherence to prophylaxis was defined as one of two categories in accordance with comparable report [18]. Patients who received 80-100% of prescribed doses were recorded as "completely adherent" to prophylaxis, and those who received less than 80% of prescribed doses were

recorded as "nonadherent." School and work success, and patient activity status, including participation in a sports or exercise program and time spent surfing the Internet, were recorded as well.

2.2. Study Questionnaires: The 36-Item Short Form Health Survey and the State-Trait Anxiety Inventory

The SF-36, an internationally standardized, validated and reliable QoL questionnaire, was answered by all adolescent patients, adult patients, and the parents of the child patients. The SF-36 is a self-report instrument that consists of 36 questions in eight domains: physical functioning (PF), role physical (RP), role emotional (RE); general health (GH), vitality (VT), social functioning (SF), mental health (MH), and bodily pain (BP) [16]. The score for each domain depends on the responses to the questions in the questionnaire. Scores range from 0, which indicates the worst possible QoL, to 100, which indicate the best possible QoL.

The STAI is composed of two separate 20-item subscales that measure trait (baseline) (STAI-T) and state (situational) (STAI-S) anxiety [17]. This is a self-report questionnaire that can be administered in an individual format. Specific instructions are provide for each of the S-Anxiety and T-Anxiety subscales, and each of these sections is completed in 10 minutes. The STAI-S evaluates how a person feels in a certain situation and condition, and the STAI-T evaluates how a person feels regardless of a certain situation and condition. The STAI was also completed by all adolescent and adult patients, and by the parents of the child patients. The total score for this questionnaire ranges between 20 and 80, with higher scores indicating high level of anxiety.

2.3. Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS., Inc., Chicago, IL, USA) version 15.0. Comparisons among group results were performed using the Mann-Whitney *U* test. Spearman's correlation analysis was used to evaluate for a statistical association between joint damage and SF-36 score. Reliability of data was calculated using Cronbach's alpha analysis. The Cronbach's alpha was 0.7-0.9 and the significance level was set at $p<0.05$.

3. Results

The median ages were 6 years for the children's group (n=12), 17 years for the adolescent group (n=17), and 34 years for the adult group (n=14). The results of viral screening for HIV, HBV and HCV were negative in all cases. Presence of an inhibitor was detected in three (7.0%) of the 43 patients, one adolescent (2.3% of all patients), and two adults (4.7% of all patients). These individuals had high inhibitor titers (35–95 BU) for more than 10 years. All were on bypassing-agent prophylaxis. Demographic characteristics of the patients in the study are listed in Table 1.

Assessment of joint bleeding revealed 16 patients (37.2%) with no target joint (*i.e.*, individuals with zero joint bleeds or one bleed only) and 27 (62.8%) with target joints. Of the 16 individuals with no target joints, 10 children (83.4% of all the children) and four adolescents (23.3% of all adolescents) had a single joint bleed, and two children (the remaining 16.6% of all children) had no joint bleeding. Of the 27 individuals with target joints, 15 patients (10 adolescents [58.4% of all adolescents] and five adults [35.7% of all adults]) had <3 target joints and 12 patients (three adolescents [18.3% of all adolescents] and nine adults [64.3% of all adults] had ≥3 target joints. Eight patients had only a single target joint (five knees [62.5%], two elbows [25.5%], one ankle [12.0%]), seven patients had two target

joints (knee and elbow in five cases; knee and ankle in two cases), and 12 patients had three or more target joints (knee, ankle and elbow in 11 cases; knee, ankle, elbow, and hip in one case). Nine (33.3%) of the 27 patients with target joints had undergone surgery, 17 (62.9%) had undergone radiosynovectomy, and one (3.8%) had undergone a hip prosthesis procedure [19].

Table 1. Demographic characteristics of the patients (n=43) with severe haemophilia A.

Characteristics	
Median age (years)	15
min-max (years)	(2-65)
	n (%)
Age groups	
2-13 years	12 (28.0)
14-21 years	17 (39.5)
>21 years	14 (32.5)
Inhibitor	
Present	3 (6.9)
Absent	40 (93.1)
Prophylaxis	
Regular	30 (70.8)
Pharmacokinetic	13 (30.2)
Adherence to prophylaxis	
Adherent	22 (51.2)
Non-adherent	21 (48.8)
Home treatment	
Yes	37 (86.1)
No	6 (13.9)
Target joint	
Yes	27 (62.8)
No	16 (37.2)
Surgery	
Yes	10 (23.2)
No	33 (76.8)

3.1. Prophylaxis Status

All of the child patients (100.0%; nine on regular prophylaxis and three on PK-guided prophylaxis) and 10 adolescent patients (58.8%; all on PK-guided prophylaxis) were completely adherent to prophylaxis. Seven (41.2%) of the adolescent patients and all 14 (100%) of the adult patients were non-adherent to prophylaxis. All 12 children experienced vascular access problems due to their young age. Half of them (all those younger than 7 years of age) were receiving prophylaxis in hospital, whereas the other six were receiving it at home (two older than 10 years doing self-treatment; four

between 7 and 10 years being treated by their parents). All the adolescent patients were receiving treatments at home, with 15 (88.2%) self-administering and two (11.8%) being treated by a family member. All the adult patients were self-administering their prophylaxis at home.

3.2. Activity Status

Of the 43 total patients, 34 (79.0%) said they spent less than 6 hours surfing the Internet and nine (21.0%) reported spending more than 6 hours. Fifteen patients (34.9%) said they were exercising regularly, whereas 13 (30.2%) exercised rarely and 15 (34.9%) had never exercised more than walking. Nine (64.3%) of the 14 adult patients expressed that they were reluctant to receive prophylaxis because they had a sedentary lifestyle and did not participate in sports activities.

3.3. Quality of Life Assessment: 36-Item Short Form Health Survey

The respective Cronbach's alpha coefficients for the questions evaluating the RE, RP, PF, and BP domains were 0.90, 0.92, 0.78, and 0.96 (Table 2). Regarding the PF, VT, MH, and GH domains, the adolescent group had significantly higher mean scores than the adult group (*p*:0.01, *p*:0.007, *p*:0.03, and *p*:0.02, respectively) (Table 3). The parents of the child patients had a significantly higher mean score for the VT domain than the adult patients (*p*:0.04) (Table 3). The patients on PK prophylaxis had significantly higher mean scores for the PF, RP, MH, SF, and GH domains than the patients receiving regular prophylaxis (*p*:0.001, *p*:0.03, *p*:0.04, *p*:0.01, and *p*:0.02, respectively) (Table 4). When data for all 43 patients were analyzed, significant negative correlations were detected between number of target joints and the mean scores for the PF (*r*= -0.51; *p*:0.001), SF (*r*= -0.75, *p*:0.001), BP (*r*= -0.60, *p*:0.001), and GH (*r*= -0.62, *p*:0.001) domains (Figure 1, Figure 2).

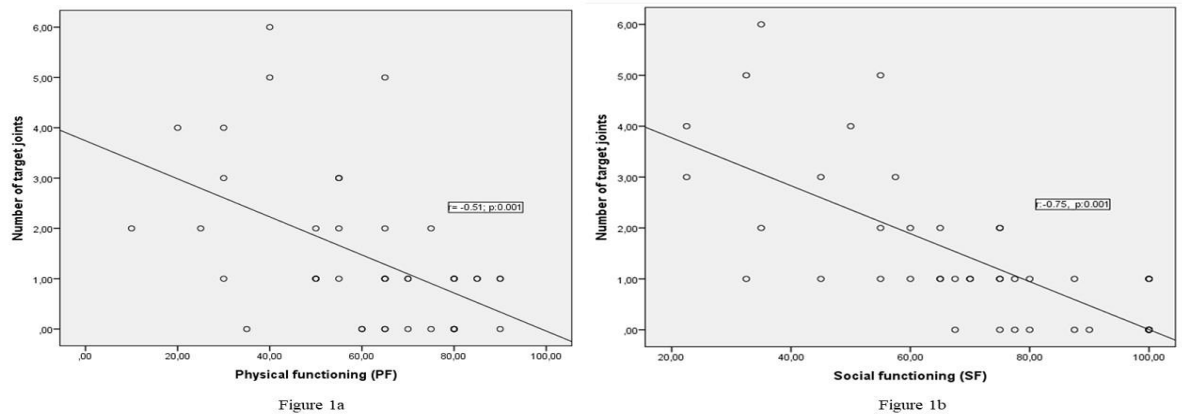

Figure 1. Correlations between number of target joints and the mean scores for the physical functioning (1a) and social functioning (1b)

Table 2: Mean scores and internal consistency of quality of life (SF-36) scale and State Trait Anxiety Inventory (STAI) anxiety scale in 43 patients with severe haemophilia A

	Items	Mean(SD)	Cronbach α
SF-36 scale			
PF	10	60.8±20.4	0.78
RP	4	50.5±45.4	0.92
RE	4	62.4±44.5	0.90
VT	4	61.7±19.6	0.56
MH	5	68.9±13.5	0.21
SF	2	69.4±22.9	0.38
BP	2	64.7±29.6	0.96
GH	5	52.7±11.4	0.14
Total		60.9±18.9	0.82
STAI scale			
STAI-T	20	35.7±9.3	0.90
STAI-S	20	40.4±6.7	0.77
Total		38.1±7.1	0.93

SF-36, Short Form-36; PF, physical functioning; RP, role physical; RE, role emotional; VT, vitality; MH, mental health; SF, social functioning; BP, bodily pain; GH, general health; STAI, State-Trait Anxiety Inventory; STAI-T, STAI-trait; STAI-S, STAI-state.

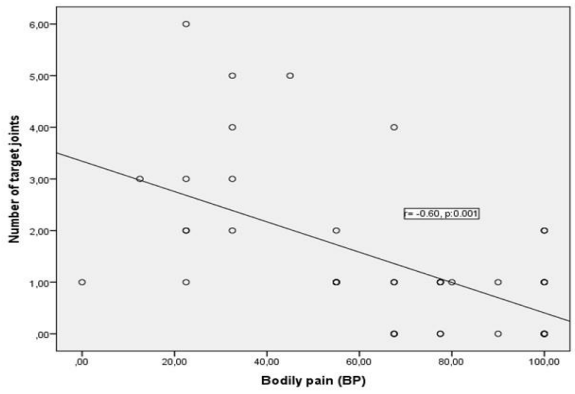

Figure 2a

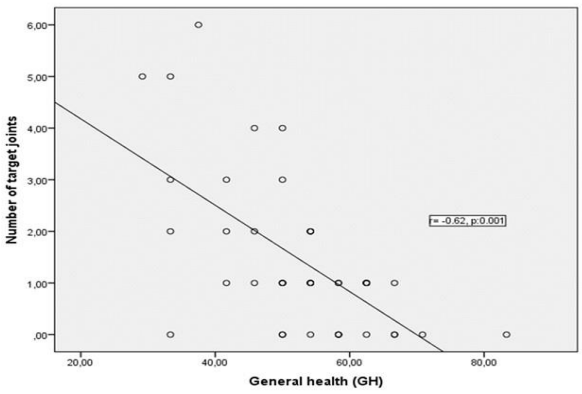

Figure 2b

Figure 2. Correlations between number of target joints and the mean scores for the bodily pain (2a) and general health (2b)

3.4. Anxiety Assessment: State-Trait Anxiety Questionnaire:

The Cronbach's alpha coefficients for STAI-T and STAI-S were 0.90 and 0.77, respectively (Table 2). The adult patients had significantly higher scores on the STAI-T than the adolescents and the parents of the child patients (*p*:0.04 and *p*:0.04, respectively), and this reflected higher levels of regret and anxiety among the adult patients. The adolescent patients had significantly lower scores on the STAI-S than the adult group and the children's parents (*p*:0.04 and *p*:0.03, respectively); thus, the adolescents felt comparatively happier and safer (Table 3). The mean STAI-T and STAI-S subscale scores for the patients on PK-guided prophylaxis were not significantly different from those for the patients receiving regular prophylaxis (*p:*0.51 and *p:*0.32, respectively) (Table 4).

Table 3. Comparison of the mean scores of Short Form-36 scale and the State-Trait Anxiety Inventory between the study groups

	Children n=12 Mean±SD	Adolescents n=17 Mean±SD	Adults n=14 Mean±SD	p*	p**	p***
SF-36 scale						
PF	62.1±18.6	69.4±15.1	49.2±23.1	0.27	0.21	**0.01**
RP	43.7±45.3	61.7±43.4	42.8±48.4	0.36	0.86	0.37
RE	69.4±45.9	66.7±40.8	50.0±48.4	0.72	0.26	0.31
VT	63.5±15.8	70.2±15.3	49.8±22.1	0.32	**0.04**	**0.007**
MH	68.6±13.6	73.6±13.2	63.4±12.5	0.42	0.23	**0.03**
SF	65.8±22.7	78.9±15.3	61.1±27.5	0.10	0.64	0.06
BP	61.2±32.6	70.0±22.3	61.2±35.6	0.48	0.96	0.58
GH	51.7±9.6	59.8±9.3	44.9±10.1	0.06	0.07	**0.02**
STAI scale						
STAI-T	33.7±10.3	33.8±8.5	39.5±8.4	0.94	**0.04**	**0.04**
STAI-S	41.2±4.8	36.1±7.3	43.4±6.8	**0.04**	0.25	**0.03**

SF-36, Short Form-36; PF, physical functioning; RP, role physical; RE, role emotional; VT, vitality; MH, mental health; SF, social functioning; BP, bodily pain; GH, general health; STAI, State-Trait Anxiety Inventory; STAI-T, STAI-trait; STAI-S, STAI-state.* Comparison between children and adolescents; ** Comparison between children and adults;
*** Comparison between adolescents and adults

Table 4. Comparison of the mean scores of Short Form-36 scale and the State-Trait Anxiety Inventory between the prophylaxis types

	PK prophylaxis n=13 Mean±SD	Regular prophylaxis n=30 Mean±SD	p
SF-36 scale			
PF	70.1±14.3	49.2±15.4	**0.001**
RP	63.5±43.6	34.2±43.4	**0.03**
RE	69.4±45.9	66.7±40.8	0.44
VT	66.6±11.8	56.1±14.3	0.10
MH	72.6±11.9	64.2±14.2	**0.04**
SF	77.1±15.7	59.8±25.1	**0.01**
BP	71.3±22.5	56.3±23.3	0.09
GH	56.2±11.7	48.2±9.4	**0.02**
STAI scale			
STAI-T	36.9±7.1	38.4±7.5	0.51
STAI-S	37.8±8.5	40.3±6.8	0.32

SF-36, Short Form-36; PF, physical functioning; RP, role physical; RE, role emotional; VT, vitality; MH, mental health; SF, social functioning; BP, bodily pain; GH, general health; STAI, State-Trait Anxiety Inventory; STAI-T, STAI-trait; STAI-S, STAI-state.PK:Pharmacokinetic.

4. Discussion

This observational study revealed that adults with haemophilia A were completely non-adherent to prophylaxis, and tended to feel less safe and unhappier than younger haemophilia A patient. The adults also tended to have more severe haemorrhage-related joint damage and feel more anxious in general. The findings also showed that parents of children with haemophilia A were more stressed than adolescent patients and this is likely because of vascular access problems. Our findings indicated that adherence to prophylaxis enhanced QoL and reduced anxiety in adolescents 14-21 years of age. A study from Turkey reported that the rate of adherence to prophylaxis was found to be higher in adolescents than in children and adults [12]. Because adolescents were trained about self-infusions in Haemophilia summer schools. Other results of that particular study suggested that regular prophylaxis led to reduced joint disability and improved QoL in haemophilia patients, which is consistent with our study findings. Another investigation of haemophilia patient from Greece [11] revealed that decreased scores for the PF and energy domains of the SF-36 were in line with the pathological joint score. This is concordant with our finding that number of target joints was negatively correlated with scores for the PF, SF, BP, and GH domains of the SF-36 in our 43 patients with severe haemophilia A. Significantly higher mean scores for the PF, MH, VT, and GH domains in our adolescent patients compared with adult patients indicated better QoL in the younger group. Moreover, the results of the noted Greek study also suggested that affected emotional and mental health (as documented via the SF-36) led to reduced mobility and avoidance of sports activities due to the risk of bleeding [11]. This is supported by our finding that only

30% of our 43 total patients exercised regularly. Similarly, Lehmeier *et al.* reported that only 35% of patients with haemophilia were involved in physical activity [20].

In contrast, we observed high rates of adherence to prophylaxis and regular exercise in the child patient group (2-13 years of age), and they had good joint health because prophylaxis was closely monitored by their families; however, the STAI-S results revealed that, compared with adolescent patients, the parents of affected children carried more anxiety due to vascular access problems and lack of on-time treatment at home. We attribute this to families being in a more emotional state because of bleeding risk. Problems related to vascular access increase the anxiety levels of parents of children with haemophilia. We believe that self-administration at home for nearly 90% of the adolescent patients enhanced their adherence to treatment. This resulted in mostly PK-guided prophylaxis, which improved QoL and reduced anxiety levels for these individuals. Most home support programs have been designed for all haemophilic patients with bleeding, but there is little data on the role these programs play in supporting families of children with haemophilia [9, 21]. A study from Norway revealed that training the mothers of children older than 4 years about vascular access was associated with improved QoL and reduced anxiety level [9]. Likewise, in our study, lower STAI-S score in the adolescent age group compared with the parents of affected children were attributed to the fact that the adolescent patients sought out vascular access training themselves. Most haemophilia centres recommend that factor prophylaxis can be administered at home by parents and patients who receive training from health care professionals. However, Turkey's current national healthcare system does not include such a routine home treatment program. Our results indicate that parents of young children with haemophilia should be trained in self-administration of factor treatment at home, and that this formal training is needed as part of our national health care program.

All adult patients (defined as >21 years) was non-adherent to prophylaxis, and these individuals had higher numbers of target joints than the younger groups. Longer period of life with the disease is likely a factor in this; however, our study showed that adherence to prophylaxis decreased with age, as did the number of target joints increased. The literature notes several reasons for marked decrease in adherence to regular prophylaxis, particularly in adults: cost of prophylaxis, inadequate dose, problems with drug supply, increased risk of cardiovascular diseases, and decreased bleeding due to decelerated metabolism making patients believe they do not need regular factor infusion, which subsequently results in increased joint disability [22-24]. In Turkey, prophylaxis treatment is reimbursed unless the dose exceeds 1,500 IU three times a week in patients without inhibitor for haemophilia. This means that individualized prophylaxis is not possible for most patients, which is why only 13 of our patients were able to receive PK-guided prophylaxis. Whereas prophylaxis treatment is reimbursed without dose limitation in Germany and Canada, it may be partially reimbursed or not reimbursed at all depending on state of residence in the United States [10]. Although few studies have measured adherence to PK-guided prophylaxis in all age groups with haemophilia A, we believe that implementing PK-guided prophylaxis for adult patients would enhance adherence to prophylaxis, increase QoL, and reduce levels of anxiety and regret, all of which have been observed in adolescents [6-8].

We believe that a significant amount of the joint disability in our adult patient group may have resulted from inadequate factor dose per body weight because of Turkey's reimbursement limit. This disability, in turn, leads to reduced adherence to treatment and less participation in sports activities. Our findings indicate that such patients spend more time surfing the Internet than younger groups, and as

such they avoid sports and exercising because of bleeding concerns. This vicious circle results in a progressively less active lifestyle that can initiate and aggravate joint disabilities.

5. Strengths and Limitations of the study

There are some strengths and limitations of this study. This is the first study determining the both quality of life using SF-36 and anxiety level using STAI in patients with severe haemophilia A. The possibility of measurement bias is probably low since the medical information of the participants was collected by their physicians. The sample size of the survey is small. However, the response rate was higher than expected. In the most comprehensive review to date on haemophilia patients, nearly 20 QoL questionnaires, including the SF-36, were reported to be valid, reliable, and acceptable for this patient group [25, 26]. In our study, we used the validated SF-36 questionnaire and found that Cronbach's alpha reliability rates were high. In a separate study from Turkey that was conducted using the Turkish version of the Haemophilia-Specific Quality of Life Index in paediatric and adult haemophilia patients, Cronbach's alpha reliability was found to be high; however, quality of life index of this study was reported to be inadequate based on the results of a Western European-type QoL questionnaire [12]. Another strength of this study was our use of PK guided prophylaxis approach that allowed tailoring haemophilia therapy in adolescent's haemophilia patients.

6. Conclusions

Our results suggest that PK-guided prophylaxis would enhance adherence to prophylaxis, increase QoL and reduce anxiety levels for adults with severe haemophilia A. The findings also indicate that improved family education about vascular access for home treatment would improve QoL and reduce anxiety for children who have bleeding risk.

Declaration: The authors confirm that they have no interests that might be perceived as posing a conflict or bias.

Ethical Considerations: This work was carried out by obeying research and ethics rules. Ethical committee consent was obtained from the Ethics Committee of Gazi University, Ankara, Turkey (Date: 28.01.2019, Number: 77).

The compliance to Research and Publication Ethics: This work was carried out by obeying research and ethics rules.

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Research Article

INVESTIGATION OF SFLT-1 AND VEGF EXPRESSION IN NORMOTENSIVE AND PREECLAMPTIC PLACENTA. AN IMMUNOHISTOCHEMICAL STUDY

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Abstract*:* *The pathogenesis of preeclampsia is still not clear, but endothelial dysfunction is believed to be one of the most encountered problems during placenta development in preeclamptic patients. Both vascular endothelial growth factor (VEGF) and its antagonist, soluble Fms-Like tyrosine kinase-1 (sFlt-1), have roles in vascular function. In this study, we have investigated the immunohistochemical expression of VEGF and sFlt-1 in term placenta of normotensive and preeclampsia patients. A total of twenty term placentas were obtained from pregnant women, of whom 10 were preeclampsia patients and 10 were normotensive patients. Placentas were dissected and tissue samples were subjected to routine tissue processing protocol, and then embedded in paraffin blocks. Serial sections were obtained from paraffin blocks and stained with H&E and PAS for routine histopathology. VEGF and sFlt-1 immunohistochemistry was performed on the sections. When compared to the control group, severe pathological changes were observed in preeclamptic placentas. An increase in the number of syncytial knots and intervillous bridges, hemorrhage in interstitium, dilatation, and congestion in villous capillaries, increase in fibrin accumulation in villous stroma, and increase in thickening of the basement membrane were very clear. VEGF expression was significantly higher in normotensive placenta compared to the preeclamptic placenta. On the other hand, sFlt-1 expression was significantly increased in preeclamptic placenta villous capillary endothelial cells. When the VEGF and sFlt-1 expression is considered, a higher expression of sFlt-1 at preeclampsia, but a decrease in VEGF expression might be related to endothelial dysfunction in preeclampsia. Overall, this study demonstrates that the imbalance between VEGF and sFlt-1 is one of the major reasons for endothelial dysfunction in the preeclamptic placenta.*

Keywords: *Preeclampsia, placenta, immunohistochemistry, VEGF, sFlt-1.*

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1. Introduction

Although some improvements have been made in its diagnosis and treatment, preeclampsia is still one of the most common causes of maternal and fetal morbidity and mortality in the whole world

[1]. Each year, in developing countries, more than 60,000 mothers die due to preeclampsia-related complications [2]. Preeclampsia is a clinical syndrome that arises after the 20th week of gestation with clinical complications such as hypertension and proteinuria [3]. Fetal complications of preeclampsia can be listed as low birth weight, intrauterine growth restriction (IUGR), preterm birth, and fetal death. On the other hand, maternal complications can be listed as renal failure, HELLP (hemolysis, elevated liver enzyme levels, and low platelet levels) syndrome, liver failure, cerebral edema, and maternal death. Also, some evidence indicates that preeclampsia may be predisposed by various metabolic diseases [4, 5]. Therefore, understanding the pathogenesis of preeclampsia will provide advantages in early diagnosis and treatment thereof. Until today, numerous studies have investigated the pathogenesis of preeclampsia, but the reasons underlying this syndrome haven't been clearly understood yet. The common belief is that there exist morphologic and functional defects in preeclamptic placentas. One of the most commonly revealed hypotheses is the incompleteness of placental angiogenesis and development which is believed to be resulting from endothelial dysfunction [6]. Appropriate placenta development is dependent on vasculogenesis processed with a sensitive balance between pro-and anti-angiogenic factors. Recent studies demonstrate that an imbalance of the volume of pro-and anti-angiogenic proteins in circulation leads to endothelial dysfunction in preeclampsia. Pro-angiogenic, vascular endothelial growth factor (VEGF) and anti-angiogenic, soluble fms-like tyrosine kinase-1 (sFlt-1), the two leading factors in angiogenesis, are believed to play a role in the mitosis of placental endothelial cells. According to this information, the imbalance between VEGF and sFlt-1 is believed to be one of the reasons for preeclamptic endothelial dysfunction. However, there is a conflict among previous studies in correlating the expression level of VEGF and sFlt-1 in preeclamptic endothelial dysfunction [7, 8]. For that reason, in this study, we aimed to investigate VEGF and sFlt-1 expression in preeclamptic and normotensive placenta in a comparative manner.

2. Materials and Methods

2.1. Study Design

The ethical permission for the study was received from the ethics committee of Dicle University Faculty of Medicine. A total of twenty term placentas, of which 10 were preeclamptic and 10 were normotensive, were obtained from the obstetrics clinic of Dicle University Hospital. The demographics of women whose placentas were used in this study are shown in Table-1. Term placentas were fixed in 10% formalin and brought to the laboratory. Total placentas were dissected into small pieces and kept in fixation for 36 hours. Routine histological tissue processing protocol was performed and samples were embedded into paraffin. Serial sections of 5-μm thickness were obtained with a rotary microtome. Some of the sections from each placenta were stained with H&E for histopathological examination. Also, VEGF and sFlt-1 immunohistochemistry was performed on the sections.

Table 1. Demographics of normotensive and preeclampsia mothers are included in this study. Values were expressed as mean±SD.

	Normotensive (n=10)	Preeclampsia (n=10)
Age	28.9±3.5	31.4±5.1
Gravida	4.8±2.4	4±2.9
Parity	3.2±1.2	1.8±3.4
Mean systolic pressure (mmHg)	107.1±8.2	115±4.2
Mean diastolic pressure (mmHg)	70±4.1	76±6.8
Birth weight (g)	2710±420	2668±210.8
Hemoglobin (g/dl)	10.4±1.2	12±1.4
Hematocrit (%)	32.7±4.2	34.1±2.1
Platelet x103 /μL	270.2±72.3	250.3±69.1

Ethical Statement: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study is approved by the Dicle University Faculty of Medicine Ethics Committee. Approval number and date: 166; 08.9.2017.

2.2. Hematoxylin and Eosin Staining

Sections were deparaffinized in two series of xylene, and rehydrated in a decreasing series of alcohol, and brought to distilled water. Slides in distilled water were stained for 8 minutes at room temperature in hematoxylin. At the end of hematoxylin staining, slides were washed with tap water for 5 minutes. After washing, slides were brought to eosin and stained for 2 min and then slides were dehydrated in a series of increasing alcohol series, and thereafter immersed in xylene. Sections were mounted with Entellan and examined under a light microscope.

2.3. Periodic Acid Schiff (PAS) Staining

Identical deparaffinization and rehydration steps were performed on the slides for PAS staining. Then sections were brought to distilled water. Ready to use PAS staining kit (Bio Optica, # 04-130802A) was used and all steps were performed according to the manufacturer's instructions. PAS stained sections were mounted with Entellan and examined under a light microscope. The basement membrane of examined villous capillaries was measured via light microscope-adapted software and all obtained data were evaluated statistically.

2.4. Immunohistochemistry

Deparaffinized sections were washed in PBS and antigen retrieval was performed in EDTA with microwave heating. Tissue sample sections were then brought to room temperature and washed

with PBS. Endogenous peroxidase activity was inhibited by applying a 3% H_2O_2 solution to the tissue sections. Immunohistochemistry was performed with a ready to use the kit, Lab Vision™ UltraVision™ Large Volume Detection System: anti-Polyvalent, HRP (Thermo, Waltham, Massachusetts, USA). All steps of the kit components (Ultra V Block, Biotinylated Goat Anti-Polyvalent, and Streptavidin Peroxidase) were performed according to the manufacturer's instructions. After H_2O_2 application and PBS wash, nonspecific bindings were blocked by Ultra V Block. VEGF (Santa Cruz, California, USA) and sFlt-1(abcam, Cambridge, UK) antibodies were diluted 1:100 in PBS. Sections were incubated with diluted antibodies overnight at +4 °C. Sections were washed with PBS after antibody incubation and Biotinylated Goat Anti-Polyvalent dropped on sections and incubated for 10 minutes at room temperature. At the end of incubation, sections were washed with PBS and incubated with streptavidin peroxidase for 10 minutes at room temperature. The incubated sections were washed in PBS, and then DAB chromogen (Thermo, Waltham, Massachusetts, USA) was applied to develop brown color at antigen-positive parts of the tissue samples. Sections were counterstained with hematoxylin and mounted with Entellan. Quantification of immunohistochemistry was performed by considering the placental villi capillary endothelial cells either positive or negative. Randomly selected 100 villi from each group were examined for quantification. The number of positive endothelial cells was converted to percentages by considering and comparing it with the total endothelial cell counts in each villus.

2.5. Statistical Analysis

Obtained data were evaluated by the normality test to determine whether the values were distributed normally or not. Statistical analysis was performed by the Independent Samples t-Test and $p < 0.05$ was considered as significant. All data were expressed as mean ± SD (standard deviation).

3. Results

3.1. Histopathological Results

Histopathological micrographs of the normotensive and preeclamptic placentas were shown in Figure-1. In the normotensive placenta, villi were observed with regular morphology. Syncytiotrophoblast cells and villous stroma were with normal morphology. Villous capillaries were well organized with the regular basement membrane. Syncytial knots and bridges were very few but were observed to be diffuse within the normotensive placenta. On the other hand, in the preeclamptic placenta, severe morphological degenerations were observed. Hemorrhage at the intervillous region was clearly visible. Vacuolization, edema, and disorganization within the villous stroma, an increase in the number of Hofbauer cells, and perivillous fibrin deposition were detected. In the preeclampsia group, placental syncytiotrophoblasts partially had hypertrophy. Dilatation and congestion within villous capillaries and thickening of the capillary basement membrane were very widespread.

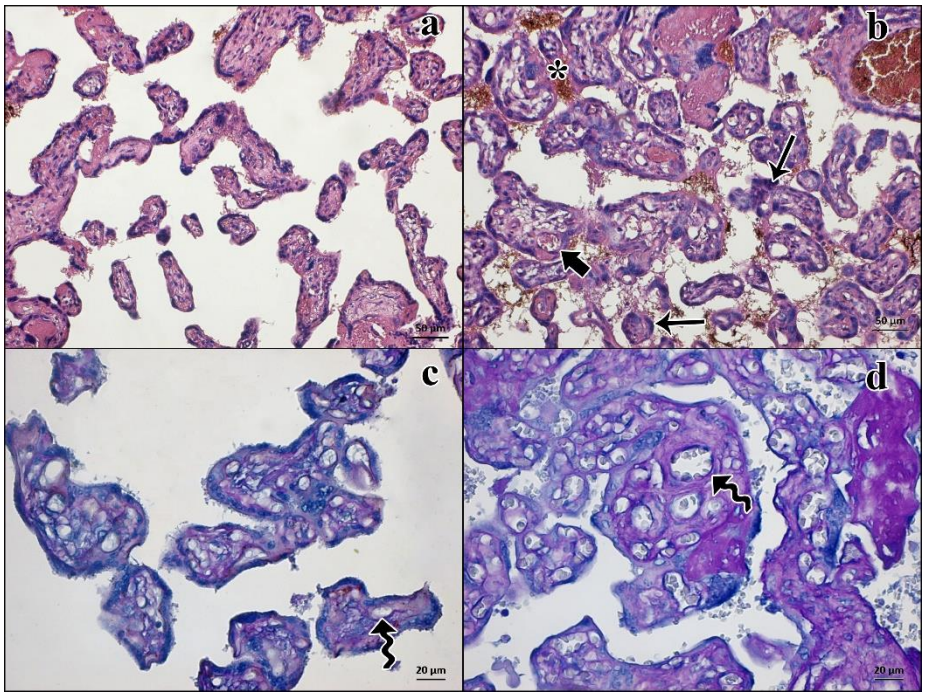

Figure 1. Histopathological micrographs of the normotensive (a,c) and preeclamptic (b,d) placenta. Intervillous hemorrhage (*), syncytial knots and bridges (arrow), congestion in villous capillary (thick arrow), villous capillary basement membrane (curved arrow). **Staining:** H&E (a,b), PAS (c,d). **Bar:** 50 µm (a,b), 20 µm (c,d).

3.2. Immunohistochemistry Results

VEGF expression positivity was observed at villous capillary endothelial cells of both normotensive and preeclampsia placentas. Villous stroma was negative for VEGF, but trophoblastic cells were positive at some parts of the placenta. sFlt-1 positivity was observed in villous capillary endothelial cells, unlike negativity at stroma. Like the distribution of VEGF, syncytiotrophoblast positivity of sFlt-1 was detected in both normotensive and preeclamptic placentas. However, syncytiotrophoblast positivity was more evident in preeclamptic villi (Figure-2).

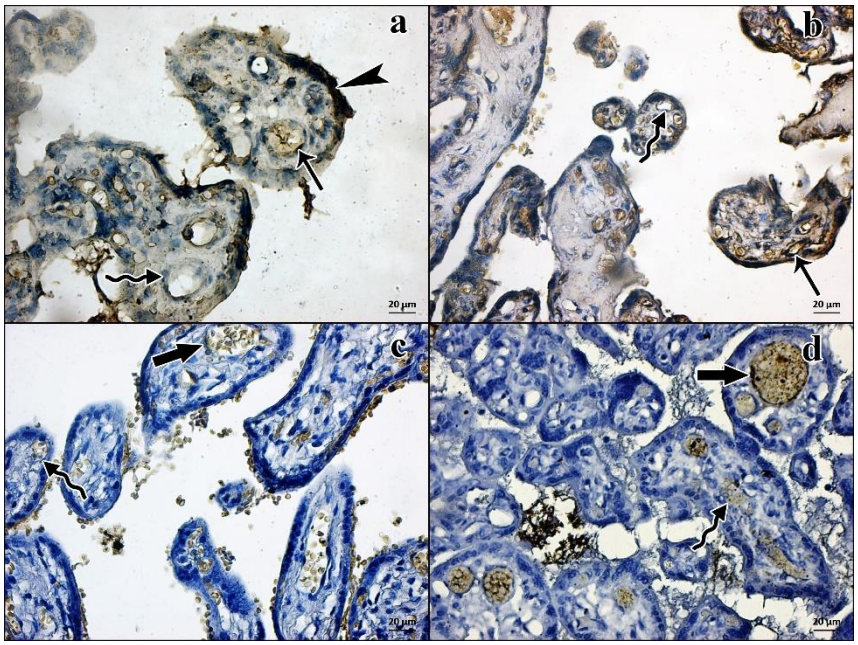

Figure 2. VEGF (a,b) and sFlt-1 (c,d) immunohistochemistry micrographs of normotensive (a,c) and preeclamptic (b,d) placenta. VEGF positive (arrow) and sFlt-1 positive (thick arrow) endothelial cells. Immunonegative endothelial cells (curved arrow) and VEGF positive trophoblastic cells (arrow head). **Staining:** VEGF and sFlt-1 immunohistochemistry. **Bar:** 20 µm.

3.3. Statistical Results

Statistical results of the VEGF and sFlt-1 positivity rates were shown in Figure-3. When villous endothelial cells of normotensive placenta were evaluated, VEGF positivity rate was 50.99 ± 7.17. In the preeclamptic placenta, VEGF positivity rate was 40.85 ± 7.00 and the difference between the groups was significant ($p < 0.01$). However, sFlt-1 positivity rate of normotensive placental villous endothelial cells was 31.40±5.34 and the positivity rate increased in preeclamptic placentas significantly ($p < 0.01$) with a positivity rate of 61.96 ± 8.20. The mean of the villous capillary basement membrane of the normotensive placenta was 1.12 ± 0.30 µm. The thicknesses of preeclamptic placental villous capillaries were 1.33 ± 0.27 µm and significantly higher ($p < 0.05$) than normotensive placental villous capillary basement membrane.

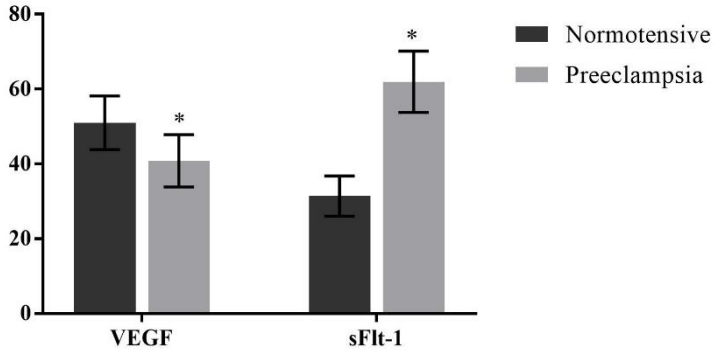

Figure 3. Statistical results of VEGF and sFlt-1 immunohistochemistry analyses. Different superscript on each bar indicates a significant difference between groups ($p < 0.01$).

4. Discussion

The placenta plays a role during gas and metabolite exchange between the mother and the fetus. It is also responsible for various types of metabolic activities during gestation. Failure in placental development may result in edema and proteinuria that are specific complications in preeclamptic pregnancies as well [1]. Although there are numerous studies, the underlying reasons for preeclampsia have not been understood yet. Pre-term delivery is still one of the most widely used treatment methods during preeclamptic pregnancies [9]. Recent studies suggest that VEGF and sFlt-1, which are functional in endothelial development, may be responsible for preeclampsia [10]. For that purpose, in this study, we aimed to investigate the expression of VEGF and sFlt-1 in preeclamptic placentas by immunohistochemistry.

In a previous study, Ibrahim et al. reported that there was severe morphological degeneration in preeclamptic placental villi [11]. In this study, the authors reported an increase in the number of fibrinoid depositions and syncytial knots in villi as well as reporting hemorrhage at the intervillous space. In another study, Navbir et al. reported basement membrane thickening in the preeclamptic placenta when compared to normotensive [12]. Also, villous capillary congestion was reported as a result of preeclampsia in placental histopathology [13]. In our study, we have observed severe villous degenerations like a fibrinoid deposition, an increase in the number of syncytial knots, thickening in the basement membrane of villous capillaries, and capillary congestion. In this regard, our results are consistent with previous studies. Although previous studies reported an increase in the number of villous fibrinoid depositions at the third trimester [14, 15], the tendency of the number of fibrinoid accumulations may be related to preeclampsia as reported by Ibrahim et al [11].

In a study performed by Bonnie K. Dwyer, serum sFlt-1 level was evaluated in normal and high-risk preeclamptic patients [16]. The authors highlighted that sFlt-1 level was significantly different between the groups, but the study reported a decrease in serum sFlt-1 level in high-risk patients. On the other hand, Reuvekamp et al. reported decreased serum VEGF in preeclamptic patients compared to the control group [17]. Bosio-Wheeler-Anthony et al. hypothesized that serum VEGF decrease in preeclamptic patients may be related with increase in sFlt-1[18]. In the literature review, we have found that the insoluble form of Fms Related Receptor Tyrosine Kinase 1 (Flt-1) is expressed in villous capillary endothelial cells and placental macrophages, the Hofbauer [19]. Hypertension, proteinuria, and glomerular endotheliosis were observed in pregnant rats that were subjected to adenoviral gene transfer of sFlt-1 [7]. Another study by Fan et al. reported the upregulation of sFlt-1 and VEGF in the preeclamptic placenta [20]. The results of this study indicated that sFlt-1 upregulation is related to trophoblast activation, but VEGF upregulation is related to maternal decidua. We have obtained immunohistochemistry result in the preeclamptic placenta that partially consistent with the literature. Some of the previously published studies reported increased VEGF and sFlt-1 expression in the preeclamptic placenta [21, 22]. When we consider our study, we observed reduced VEGF positivity and increased sFlt-1 positivity in preeclamptic placental villous endothelial cells. Therefore, our results are partially consistent with previous studies.

Both previous studies and our current study demonstrate that preeclampsia is related to villous endothelial dysfunction and the imbalance between VEGF and sFlt-1 might have a leading role in this process. However, we believe more and detailed studies are needed to understand the function of VEGF and sFlt-1 in the preeclamptic placenta during gestation.

5. Conclusion

As a conclusion, sFlt-1 expression increased in preeclampsia patients villous capillary endothelial cells, but VEGF expression level was reduced significantly. Therefore, there is strong evidence that preeclampsia may be related to the expression level of sFlt-1 and VEGF during preeclamptic placentation.

Ethical Statement: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This study is approved by the Dicle University Faculty of Medicine Ethics Committee. Approval number and date: 166; 08.9.2017

The compliance to the Research and Publication Ethics: This study was carried out in accordance with the rules of research and publication ethics.

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Research Article

THE EFFECTS OF CARE-GIVING UPON FAMILY MEMBERS OF INDIVIDUALS WHO ARE TREATED IN THE PALLIATIVE CARE UNIT: A PHENOMENOLOGICAL APPROACH

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Abstract: *Caregiving family members are individuals who are directly involved in the care of a life-threatening patient, often facing a wide range of tasks, such as physical care, providing emotional support, and taking part in the treatment process. This research was carried out to determine the effects of caregiving upon family members of individuals who are treated in the palliative care unit. This descriptive phenomenological qualitative study was conducted with 16 family members who had been taking primary care of patients for at least three months and agreed to participate in the study. The data were collected in 35-40 minutes by face-to-face interview with a semi-structured interview form. Colaizzi's phenomenological data analysis method was used in the evaluation of the data, and 5 themes were determined. Family members participating in the research stated that they experienced physiological problems such as pain, sleep problems, and fatigue; psychological problems such as stress and fear; economic problems due to job losses and treatment costs; social problems for reasons such as isolation and problems in family relations such as a change in roles and communication disruption. As a result of the research, it was determined that especially all of the family members had psychological and social problems. The problems and needs of family members should be questioned in clinical settings, and they should be directed to support units.*

Keywords: *Palliative care, Family member, Experience, Phenomenological Approach.*

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1. Introduction

Palliative care is an approach to improve the quality of life of the patient and their family, who are faced with a life-threatening disease, and it is considered as the right of every individual and aims to detect and treat physical, psychosocial, and spiritual problems, especially pain, in the early period [1], [2]. This type of care includes a team-based approach that helps to manage the patient's disturbing symptoms, to coordinate care, and to set care objectives by including not only the patient but also family members [3].

Caregiving family members are individuals who are directly involved in the care of a life-threatening patient, often facing a wide range of tasks, such as physical care, providing emotional support, and taking part in the treatment process [4]. In this process, family members pay attention to the patient's drug management, constantly provide psychological support to the patient, and provide personal care of the patient [5-7]. However, many caregiving family members are unprepared for the caregiving role and have limited knowledge that may affect the nature and quality of care provided [4]. Family members who are unprepared to take on the responsibilities brought by the care become very weak against the progress of the disease and the consequences of the process [3]. Increasing symptoms in patients increase stress and care burden, especially in family members living with the patient [5-8]. Studies have shown that family members who care for a patient with a life-threatening illness experience physical health problems such as joint pain, headache, indigestion, and dizziness, as well as fatigue and sleep disorders due to care burden and insufficient sleep [6], [9], [10-11].

However, family members may experience psychosocial problems as they are also affected by the patient's care [9]. Among the psychological problems experienced by family members of patients receiving palliative care, in general, are emotional problems such as anxiety, depression, post-traumatic stress disorder symptoms, tension, helplessness, uncertainty, guilt, anger, fear, and hopelessness [9], [12-13]. Family members also face social isolation and occupational problems as a result of financial problems, restriction of time, and freedom during the care phase [5], [9]. It has also been emphasized that the caregivers have problems in their relations with their spouse and family as well as home life [4]. It is stated in the studies conducted that these problems experienced in the process of providing care may increase the burden of family members and cause them not to meet or delay their own health needs [14-15]. All these physical, social, mental, and financial problems experienced by the family members are alarming as they can reduce the quality of life of the caregiver and threaten their ability [12].

It is among the responsibilities of the palliative care nurse to pay attention to and alleviate the problems experienced by the family members [5]. However, healthcare professionals are either often reluctant to evaluate family members or consider them a time-consuming task [11]. As can be seen, despite the serious care burdens of family members, their problems and needs are rarely questioned in the clinical setting [16]. In addition, only a few studies directly examined the problems experienced by family members who care for inpatients in the palliative care unit [2-3], [5], [9], [14]. To examine in-depth experiences of the caregiving process among family members of those who are treated the palliative care unit is important to determine actual needs during this process and to plan care services targeting these needs.

This research was carried out to determine the effects of giving care for family members of individuals who are treated in the palliative care unit.

2. Methods

2.1. Study Design

The research is planned as a descriptive phenomenological qualitative study.

2.2. Setting and Sample

The population of this study consisted of the family members of the individuals who received inpatient treatment at the Palliative Care Unit (PCU) of Gazi Yaşargil Training and Research Hospital of Diyarbakır University of Health Sciences. Purposive sampling and snowball sampling methods were

used in recruiting the study group. In purposive sampling, the characteristics of those to be included in the study were identified. The sample consisted of a total of 16 family members who (a) undertook primary care of patients for at least three months, (b) residing in Diyarbakır Province, (c) were 18 years of age and over, (d) had no communication and perception problems (e) can understand and speak Turkish, and (f) agreed to participate in the study. Snowball sampling was used in achieving the study-sample. Through snowball sampling, a participant is recruited out of the study-population through interviews and this participant recruits the second one and the second participant recruits the third one; in this manner, the number of the study-sample is increased and the study-sample is enlarged. In descriptive phenomenological qualitative research, no rules have been determined regarding the number of samples, and research is conducted with a small number of sample groups limited to 5 to 25 participants in qualitative studies in which in-depth interviews are held. However, it is known that when the answers of the participants in the sample of the research start to be similar to each other, the research reaches the saturation point and the data collection process is stopped [17]. The study was based on data saturation and interviews were terminated after the 16th individual interview.

2.3. Data Collection

The data were collected by conducting various in-depth individual interviews via a semi-structured questionnaire using a face-to-face interview method. The interviews were held between April 24 and May 8, 2020, when family members for any reason. After obtaining the verbal and written consent of the individuals who agreed to participate in the study, a suitable date and time were determined for face-to-face individual interviews. Due to the Covid-19 pandemic process, the researchers interviewed family members on skype on the specified day and time. Before starting the interviews, the research protocol was explained. For the interviews to be conducted in a healthy way, the interviews were held in a quiet and quiet room determined by researchers and family members between 35-40 minutes. During the interviews, other family members in the house were informed that they should not enter the interview room. During the interviews, statements of family members were recorded with a voice recorder, and notes were taken where necessary. Family members were also asked to convey their feelings and thoughts in writing and by e-mail to better express their feelings. In total, there were made three interviews.

2.3.1 Instruments

The data in this study were collected through a semi-structured interview form [4-5], [7-9], [13], [18-19] prepared by the researchers by reviewing the literature, examining the characteristics of family members. A total of 14 questions including 7 questions (age, gender, marital status, educational status, occupation, disease type, duration of treatment in the palliative care unit) related to individuals who were given care, and 7 other questions (age, gender, marital status, educational status, occupation, the degree of relation, how long the person has been giving care) are in the first part of the interview form. In the second part, 3 open-ended questions covering general areas and not directing were asked to identify the problems experienced by family members. Open-ended questions addressed to the family members in the study are listed as, *'What does it mean to you to have a family member lying in a palliative care unit?', 'What kind of changes does caring for a family member lying in the palliative care unit bring to your life?', and 'What are the difficulties you have experienced in providing care to a family member lying in the palliative care unit?'*

2.4. Ethical Consideration

Before data collection, Ethics committee approval was gained from the Ethics Committee of Non-Interventional Clinical Studies of Burdur Mehmet Akif Ersoy University (Decision Number: GO 2020/106; Date: 15.4.2020) and oral and written consent was also obtained from the family members, and information was given about the use of the voice recorder, and an assurance was provided about the confidentiality of the voice recording. Participant numbers were used instead of the names in the research report. This research was carried out by considering the Good Clinical Practices of the Helsinki Declaration.

2.5. Data Analysis

Colaizzi's seven-step descriptive phenomenological method was used because it provided a systematical analysis of quantitative data obtained from face-to-face interviews with participants and it was often chosen in descriptive phenomenological studies [20]. In the first phase of the data analysis, audio-recordings were one by one listened to by the researchers, were computerized, and were transcribed verbatim. To make sure that audio-transcriptions were correct; original audio-recordings were again listened to and were compared to transcriptions and thus, audio-transcriptions were finalized. Each of these transcriptions was entered into the NVivo 8 computer program and was again read by the researchers. In the second phase, significant and relevant statements were marked. In the third phase, statements marked were again read and their real meanings were explored. In the fourth phase, these meanings explored were categorized under certain theme clusters. In the fifth phase, the findings were combined to define phenomena comprehensively and a detailed explanation of findings and real-life experiences was written. In the sixth phase, researchers reduced the detailed explanations to a short statement that -they thought- caught aspects important to phenomena. In the final phase, researchers again interviewed the participants to verify whether or not transcribed statements included participants' real experiences and their feedbacks were obtained [Figure 1].

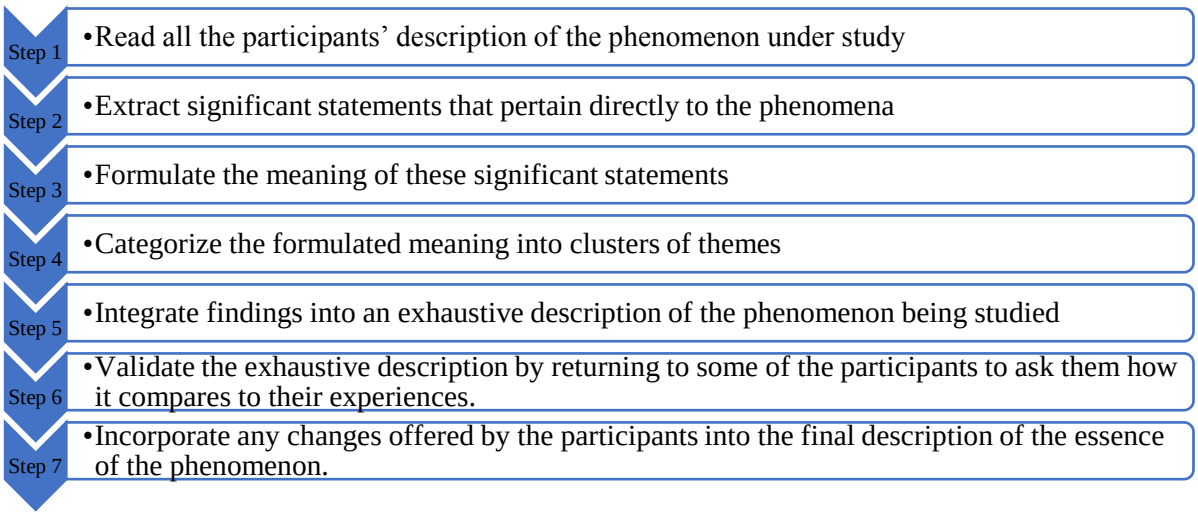

Figure 1: Colaizzi's phenomenological data analysis steps.

2.5.1 Validity and Reliability Studies

Various validity and reliability studies related to data analysis were also carried out. In this context, to ensure reliability in qualitative research, the participants were asked to read the transcripts of their interview records and to confirm that their opinions were transferred correctly. This method, which Lincoln and Guba have named as member's check, is intended to provide internal validity and reliability. Also, two academics experienced in the field of qualitative research were asked for the analysis (assignment of codes and codes to themes) by the researchers on the data transferred to the transcription. In this context, this reliability study, called peer debriefing by Miles and Huberman, was also carried out [21].

2.6. Research Limitations

The findings obtained are limited only to the opinions of the 16 family members participating in the research and cannot be generalized due to the fact that this study was carried out with a descriptive phenomenological qualitative research technique.

3. Results

Half of the family members participating in this study were male and sons of these patients, with 1-5 years of caregiving experience; the vast majority of them were primary school graduates and single (Table 1).

Table 1. Demographic characteristics of family members

Code	Age	Gender	Education Status	Marital status	Job	The degree of proximity	Duration of care
1	30	M	Undergraduate	Married	Civil servant	Son	1-5 years
2	45	F	Undergraduate	Single	Unemployed	Daughter	10 years and↑
3	29	F	Primary education	Single	Housewife	Sibling	1 year↓
4	55	M	Primary education	Married	Retired	Son	1 year↓
5	20	F	Undergraduate	Single	Unemployed	Daughter	1-5 years
6	40	M	Primary education	Married	Unemployed	Son	1-5 years
7	28	F	Undergraduate	Single	Worker	Daughter	1-5 years
8	41	M	Primary education ↓	Married	Worker	Son	1 year↓
9	34	M	Primary education	Married	Unemployed	Son	1-5 years
10	62	F	Primary education ↓	Married	Housewife	Spouse	1-5 years
11	20	F	Primary education	Single	Unemployed	Daughter	1-5 years
12	23	M	Undergraduate	Single	Civil servant	Nephew/Niece	1 year↓
13	30	F	Primary education	Single	Housewife	Sibling	1-5 years
14	40	F	Primary education ↓	Single	Housewife	Daughter	1-5 years
15	19	M	Primary education	Single	Unemployed	Son	11-5 years
16	20	M	Undergraduate	Single	Student	Son	1-5 years

The vast majority of palliative care patients were male, primary school graduates, married, and cancer patients (Table 2).

Table 2. Demographic characteristics of palliative care patients'

Code	Age	Gender	Education Status	Marital status	Job	Disease	Duration of stay in the palliative care unit
1	76	M	Primary education	Married	Unemployed	Alzheimer	2-5 months
2	88	F	Literate	Married	Housewife	Parkinson	2-5 months
3	21	M	Primary education	Single	Unemployed	Decubitus	2-5 months
4	89	F	Primary education↓	Married	Retired	Cancer	1 month
5	65	M	Primary education	Married	Retired	Cerebrovascular disease	2-5 months
6	75	M	Primary education↓	Married	Unemployed	Demans	2-5 months
7	59	M	Primary education	Married	Retired	Cancer	2-5 months
8	75	M	Primary education	Married	Unemployed	Cancer	2-5 months
9	60	M	Primary education↓	Married	Unemployed	Cancer	1 month
10	68	M	Primary education ↓	Married	Unemployed	Heart failure	1 month
11	71	M	Primary education	Married	Retired	Celebral hemorrhage	2-5 months
12	50	F	Primary education	Married	Housewife	Cerebrovascular disease	1 month
13	21	F	Primary education	Single	Unemployed	Diabetes	1 month
14	92	F	Primary education↓	Single	Housewife	Alzheimer	1 month
15	71	F	Primary education	Married	Retired	Cerebrovascular disease	2-5 months
16	73	F	Primary education	Married	Retired	Diabetes	1 month

The main category of the family members participating in the research are the effects of giving care; under a thematic scheme, 5 themes and 10 sub-themes were identified: physical problems (pain, sleep problems, fatigue), psychological problems (stress, fear), economic problems (treatment costs, job losses), social problems (isolation), and family relations (change in roles, communication disruption) (Table 3).

Table 3. Categories and themes resulted from interviews

Category	Themes	Sub-themes
Effects of Care-Giving	Physical problems	Pain
		Sleep problems
		Fatigue
	Psychological problems	Stress
		Fear
	Economic problems	Treatment costs
		Job losses
	Social problems	Isolation
	Family relationships	Change in roles
		Communication disruption

Theme 1: Physical Problems

The vast majority of the family members participating in the study stated that while they cared for their patients, various diseases occurred or their existing diseases worsened, and they particularly experienced pain, sleep problems, and fatigue.

Sub-themes 1.1. Pain

Some of the participant family members stated that their preexisting neck and back pains were aggravated during care-giving whereas some others reported that they had not had preexisting neck, back, and arm pains but suffered from these pains after they started giving care.

- Since I had a herniated disc, I had a lot of difficulty in lifting and lowering the patient. My pain was unbearable (Participant 1).
- I had not had preexisting pains. After I started caring, I had a meniscus and a herniated disk (Participant 2).
- I had a herniated disc for a while, but after I started to care, my pain increased a lot (Participant 6).

Sub-themes 1.2. Sleep problems

The participant family members stated that they experienced sleep problems because they woke up early due to times to give medicines to those whom they cared for, they could not sleep due to fears that something bad would occur, and their sleep was interrupted due to pains and fatigue experienced during care-giving.

- I cannot sleep fearing that something would happen to my father during sleep. I always feel sleepy during the daytime (Participant 6).
- I have to wake up early to give my wife's medication, so I have constant sleep problems (Participant 10).

Sub-themes 1.3. Fatigue

The participant family members emphasized that they constantly felt tired because their burden was aggravated by care-giving, they got tired because they frequently had to lift the patients and to put them down during caring and they were unable to rest because there was nobody to provide care.

- Because I alone performed the care for private areas of my father and had him have a bath, I feel exhausted after the care (Participant 6).
- I started feeling very tired after giving care (Participant 7).
- As my workload increased at home, I am constantly tired (Participant 10).

Theme 2: Psychological Problems

All of the family members who participated in the study stated that they were psychologically affected, that they were constantly in the hospital environment, and that their mood deteriorated when they saw worse patients, they entered a more sensitive mood, and they often experienced stress and fear.

Sub-themes 2.1. Stress

The participant family members told that their stress level elevated because they were at the hospital all the time, their stress went up because of the behaviors of those to whom they gave care and they underwent stress because they consider themselves inefficient and incompetent about care-giving.

- My father was a difficult patient, and this made me psychologically upset. My father's aggressive and irritated mood caused me to get into a more sensitive mood and stress (Participant 1).
- The most important reason for my sadness was the thought of not being able to catch up with / be enough / effective with my mother's care. These thoughts caused my psychology to deteriorate and my stress level was increasing. (Participant 2).

Sub-themes 2.2. Fear

The participant family members reported that they had fears because they felt that those to whom they provided care would die due to the disease diagnosis, treatment would fail, and something would happen to the patients during care.

- Witnessing the discomfort of dozens of people every day affects my psychology. I am very afraid that my father will not be able to recover because he has cancer (Participant 7).
- I am always depressed but my wife's disease affected my psychology further. I have this fear at all times that, something bad will happen while caring for her (Participant 10).

Theme 3: Economic Problems

The vast majority of the family members participating in the research stated that they experienced financial difficulties, that their costs increased due to special examinations, medical products, and transportation, those sick individuals did not work due to their illnesses, and there was no other person who brings money, and caregivers had to cancel their additional jobs and they experienced job losses due to caregiving.

Sub-themes 3.1. Treatment costs

The participant family members stated that they took those to whom they provided care to private medical clinics so that they could have better care and treatment, had to buy some medical devices to give home care and their expenses increased because they often bought medical materials because they had to pay attention to hygiene.

- We bought a hospital bed, air mattress, aspiration, and oxygen device to make my father comfortable. I can say that we turned our house into a hospital. I also had expenses for medical products and cleaning supplies (Participant 1).
- I took my mother to better doctors in order to have her examined due to her illness. Of course, it was a bit expensive (Participant 2).

Sub-themes 3.2. Job losses

The participant family members expressed that they had to change residence places where they used to live in order to give care, therefore lost their jobs and canceled some of their routine affairs because they were obliged to provide care.

- Since we had to go from our district to the city center 3 times a week in the first diagnosis period, the additional jobs I planned before were canceled. Our transportation costs have increased because we are constantly commuting (Participant 1).
- I used to work in Istanbul. However, since my father became bed-ridden, I had to quit my job and settle in Diyarbakır. I do not have a job right now, my brothers and sisters are trying to support my expenses (Participant 6).
- I experienced bad situations financially because I left my job (Participant 15).

Theme 4: Social Problems

All of the family members who participated in the research stated that they did not have any social life because they were always in the hospital, that the people they had social relations with were only relatives who came to visit the hospital, that they had social isolation, and that they could not chat with their friends and do sports right now.

Sub-themes 4.1. Isolation

The participant family members underlined that they had to restrict visits to relatives and friends, could not go to coffee houses, gyms and shopping-malls due to those to whom they cared; they used to be sociable in the past but now their social relations have weakened or been terminated completely.

- Since my father was bed-ridden, we had to reduce the number of guests so that no infection could develop (Participant 1).

- I used to go to the coffeehouse and play games with my friends. Now, even when I am with my friends, my mind is always with my father. Therefore, my social relations have decreased considerably (Participant 6).
- Since I spend most of my time in the hospital, I cannot go to the gym and chat with my friends as I used to. I could not continue my social life as I used to... (Participant 16).

Theme 5: Family Relationships

The vast majority of the family members who participated in the study stated that their family relations deteriorated during the caregiving process, that married people could not spend time with their spouses and children, that sometimes tensions occurred in the family relations and they cannot fulfill their responsibilities regarding their families.

Sub-themes 5.1. Change in roles

The participant family members emphasized that they could not see their family members and their spouses or children took over the responsibilities that they were supposed to because they stayed together with those to whom they provided care.

- I see my family less because I am always caring for my father. My wife has to deal with children and household chores (Participant 6).
- Since I take care of my father, I cannot spend much time with my wife and children. I cannot organize things (Participant 9).
- My responsibilities have increased. Everyone is constantly asking me about my wife. In addition, I get up early every morning and open the windows for fresh air, clean her room, change the sheets, help her eat her dinner, and give the medicines. I do everything. I am dealing with these routines every day; our family relationships are only about them! (Participant 10).

Sub-themes 5.2. Communication disruption

The participant family members stated that they sometimes had conflicts and difficulty getting in contact with those to whom they provided care and could not express themselves very well.

- Because my father was bedridden, he sometimes showed aggressive behaviors while I was giving him care; which was sometimes causing me to shout at him and to get angry (Participant 1).
- Since it affects all family members, there is constant tension and stress among the family members (Participant 7).

4. Discussion

With the prolonged life span, the population over 65 years of age is increasing and as a result, an increase is observed in patients who require care [4]. Today, care services for such patients have started to shift from healthcare professionals to family members who provide care. In this context, 5 themes were identified as physical problems, psychological problems, economic problems, social problems, and problems in family relations in this study, which was carried out in order to determine the adversities experienced by the family members who are primarily responsible for the care of the individuals who are treated in the palliative care unit.

Theme 1: Physical Problems

Family members who are responsible for the care of a patient who is in the terminal period or who need long-term care are physically faced with fatigue, headache, indigestion, dizziness, sleep problems, joint pain, and an unhealthy lifestyle [10-11]. Studies have reported that people who care for patients in need of serious attention experience 'primary caregiver syndrome' [6], [10]. This syndrome

indicates that caregivers experience fatigue, energy loss, lethargy, and exhaustion in this process [6]. In a study conducted with family members who care for cancer patients with glioblastoma brain metastasis lying in the palliative care unit, it was found that more than 50% of the caregivers had lower well-being, fatigue, and drowsiness [18]. Schreiber-Katz et al. (2014) reported that 88% of those who provided care developed back pain and 16% of them developed hip pain [22]. In a study done recently, it was identified that 87.7% of those who cared for Alzheimer patients suffered from sleeplessness and nearly 80% of them had difficulty falling asleep [23]. When the studies on the burden of family members who provided care to cancer patients in Turkiye were examined, it was reported that 42.5% of the caregivers in the study of Yıldız et al. (2016) and 54.5% of the caregivers in the study of Özdemir et al. (2017) had fatigue [7], [24]. The vast majority of the family members participating in the study stated that while they cared for their patients, various diseases occurred or their existing diseases worsened, and they particularly experienced pain, sleep problems, and fatigue. It is thought that the most important reasons for family members in the palliative care unit experiencing physical problems are due to the lack of support systems in the family, lack of adequate social services, lack of information, and delaying their own health needs due to increased care burdens.

Theme 2: Psychological Problems

Findings are indicating that family members who continue the caregiving process have difficulties in providing care and experience many problems [5], [9], [14], [16]. These problems affect family members' lifestyle and cause adjustment issues and mental disorders [15]. In a recent study investigating the psychological burden of family members who care for palliative care patients, almost all of the caregivers were reported to experience psychological problems, and the five most frequent psychological problems they experienced were reported to be grief, sadness, anxiety, exhaustion and sleep disturbance [19]. In their study, Ullrich et al. (2017) found that 96% of family members who cared for palliative care patients experienced psychological distress and the most common emotions were sadness, grief, and burnout [9]. In the study done by Oechsle et al. (2019), it was found that 95% of the family members who provided care to advanced cancer patients who received palliative care suffered from stress [19]. To cope with feelings of loss affects family members emotionally. Besides, most family members who give care feel fear of the future because they think that the current condition of the patients will be worsened more and they will have more difficulties with their care needs that may increase [25]. It was determined that all of the caregivers who participated in our study were psychologically affected and generally experienced stress, depression, sadness, and fear. Our research result is similar to the ones found in the literature. It is thought that the most important reasons for primary caregivers to experience psychological problems are due to the fact that the individuals they care for are their mothers or fathers, they lack familial support systems, and they experience social isolation because they cannot fulfill their daily routines.

Theme 3: Economic Problems

Family members experience economic difficulties as a result of increased personal care, transportation, medication, and other care needs of the patient with a life-threatening disease [7]. Since the caregiver must spend most of the time with the patient, he/she may lose their job or change the way they work. Also, family members face economic difficulties as a result of high treatment costs and increased need for care [4-5]. In a qualitative study that investigated the problems and needs of the family of cancer patients receiving palliative care, a family member providing care stated that he did not have enough money and felt financially worse than ever despite receiving caregiver allowance and

income support [26]. Özdemir et al. reported that many of those who provided care to cancer patients underwent changes in professional lives and more than 70% of them experienced economic problems [24]. Similarly, Nayak et al. reported that family members who provided care to cancer patients were unable to make time for their professional occupations and lost jobs during this process [27]. It was determined in this study that there are economic problems in line with the results in the literature, and the reason is thought to be the limited scope of the financial support provided to primary caregivers, job losses, and lack of information about the institutions they can get support from.

Theme 4: Social Problems

Because the risk of death and serious physical and cognitive disorders can be seen in patients admitted to the palliative care unit, health professionals rely on family members to provide 80% of the care given to patients to manage the adverse effects resulting from illness and treatment [3]. Giving care to a patient in the advanced stage is a full-time job, which takes all the energy and time of the caregiver [28]. The process of caring also affects family members' leisure activities, social relationships, friendship, and freedom [6]. In the study of Kalınkara and Kara (2017), it was determined that family members who cared for elderly patients did not have a social life, they lacked freedom, they gradually withdrew from social life and were isolated [29]. In the study of Harding et al. (2012), the majority of the caregivers stated that they had no personal time because they had to focus on the needs of the patient and they felt that they were in isolation and they did not have a life [26].

It was determined that all of the caregivers who participated in this study had problems with their social lives. It is believed that the most important reason for this is the absence of another person to provide care in the family and the lack of assistant personnel due to financial difficulties.

Theme 5: Family Relationships

Caregiving is generally accepted as a natural action imposed by the community and family members who take care of their relatives, with the belief that they fulfill a moral obligation [6]. In a study examining the effect of providing care to a patient in the terminal period on family members, caregiving activities caused an overall deterioration in the lives of 75% of the caregivers and this experience harmed their integrity [31]. Yıldız et al. (2017) stated in their work that although many family members received support from other family members in this process, they still experienced financial difficulties due to care, and their family interactions were affected [7]. In another study that investigated the care burden of family members who provided care to cancer patients receiving chemotherapy, it was identified that 31.3% of the family members experienced negative changes in domestic relations [24]. Our study is also similar to the literature, and it was determined that the majority of caregivers had deteriorated family relationships during the caregiving process, and it is thought that these issues developed due to certain changes in family roles, psychological and financial difficulties brought about by the long-term care and the lack of social support systems.

5. Conclusion

It was determined in our study that family members who care for palliative care patients experience physical, mental, and financial problems; their home lives change because of arranging the home environment to suit the patient, their family relationships deteriorate, and their social interactions change because of the increase in their burden and responsibilities. The following strategies are recommended: providing treatment and care to such patients with an understanding of multidisciplinary teamwork, creating environments where the patient and family members can be with their loved ones

while the patient receives this care, wholly assessing the needs of the family members who provide care at home while evaluating palliative care patients, providing information in detail about the care process, helping the patient create a plan in a way that does not prevent family members to go about their daily routines, getting help from home economists and ergonomists about changes in the home environment, directing family members to social support systems on financial matters, making sure that they receive psychological counseling services, therefore reducing their care burden, conducting large-scale studies that reveal the problems experienced by family members, and developing standard criteria and evidence-based guidelines to identify the problems and needs of family members.

Acknowledgment

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Ethical Consideration: Before data collection, Ethics committee approval was gained from the Ethics Committee of Non-Interventional Clinical Studies of Burdur Mehmet Akif Ersoy University (Decision Number: GO 2020/106; Date: 15.4.2020); written permission was obtained from the hospital administration where the research was conducted, and oral and written consent was also obtained from the family members, and information was given about the use of the voice recorder, and an assurance was provided about the confidentiality of the voice recording. Participant numbers were used instead of the names in the research report. This research was carried out by considering the Good Clinical Practices of the Helsinki Declaration.

The compliance to Research and Publication Ethics: This work was carried out by obeying research and ethics rules.

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Research Article

APPLICATION AND BELIEF OF BREAST SELF-EXAMINATION (BSE) IN BREAST CANCER IN FEMALE STUDENTS IN SCIENCE AND SOCIAL SCIENCES: THE CASE OF TURKEY

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Abstract: *In Turkey, breast cancer is the most common type of cancer among women with a rate of 25%. Early diagnosis of breast cancer facilitates treatment and prolongs patient life. BSE, which is performed at regular intervals, is a simple and economic method that protects the privacy of women in the early diagnosis of breast cancer. The objective of this study was to investigate the application and belief of BSE in breast cancer in women studying outside the health field. Descriptive research was used to investigate the application and belief of BSE in breast cancer in 600 women studying in the fields of science and social sciences of a university. Descriptive characteristics, breast cancer, and breast self-examination were used to collect data, and the Champion Health Belief Model Scale (CHBMS) was also used. The difference between the mean CSIMS scores of the students with and without BSE was evaluated statistically. It was found that 15.2% (n = 91) of the students applied BSE regularly every month. 17.5% of the participants indicated that breast cancer may not have a symptom. In the early diagnosis of breast cancer, 54% of the participants indicated that they performed BSE. Moreover, 49.8% of the participants noted that they did not get any information about BSE before. The total scale means difference (P=0.007) between the participants who applied and did not apply BSE was statistically significant. It was concluded that the female students studying in science and social sciences had insufficient knowledge about breast cancer and BSE, early diagnosis, symptoms, and physician examination. Peer education programs are recommended.*

Keywords: *Student, breast cancer, breast self-examination (BSE), health, beliefs.*

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1. Introduction

Cancer is one of the leading causes of death for women. Cancer ranks second among the causes of death in our country and in the world. Breast cancer is a major global problem [1]. It affects 2.1 million women each year, causing the highest number of cancer-related deaths among women. According to the World Health Organisation (WHO), 627,000 women are estimated to have died of breast cancer in 2018 [2]. Approximately one in 6 deaths globally and one in every 5 deaths in our country are caused by cancer. In the last year, 17,531 women were diagnosed with breast cancer. It can

be seen that one in every four women has breast cancer [3]. In this context, breast cancer rates show a global increase. However, breast cancer is a widespread type of cancer that usually shows a slow development rate, and it is possible to achieve successful treatment results in early diagnosis. Early diagnosis and treatment of breast cancer in women may be effective in the protection and promotion of health and in terms of decreasing mortality, improving quality of life, and preventing physical pain and psychosocial problems [4,5,6].

"Breast Self-Examination" (BSE), "Clinical Breast Examination" (CBE), and "Mammography" (MG) are the three recommended and complementary methods for early diagnosis of breast cancer. BSE should be performed once a month from the age of 20 on the fifth and seventh day of menstruation, and the same day of every month after menopause. The American Cancer Society (ACS) recommends annual BSE for women from the age of 20, CBE every three years between the ages of 20 and 40, and CBE and MG from the age of 40 without seeking clinical findings.

BSE is simple to apply, does not require special tools, and does not cost much. It is suggested that BSE should be made for the early recognition and awareness of possible changes by recognizing breast tissue. In previous studies, health beliefs are reported to be the most important factor affecting breast cancer screenings [10,11,12,13]. In order for BSE to be implemented for the early diagnosis of cancer, effective education programs that will increase awareness in the target audience should be spread and healthy behaviours should be promoted. BSE ensures that women participate in health care by taking responsibility for their own health and increase their awareness and awareness of their own body.

The Health Belief Model is the most commonly used model to increase the early diagnosis behaviours of breast cancer. The key concepts of the model suggest that health behaviour will occur if individuals believe in the results about the severity of the disease, are aware of the benefits of screening, perceive the disease as a vulnerability for themselves, and are aware of the obstacles to behaviour. If the individual's perception of sensitivity to the disease is high and the perception of disability is low, the probability of carrying out the proposed health-related activities will increase [14].

Health personnel has important roles and responsibilities in terms of acquiring the habit with BSE and in the process of preventing breast cancer. Students are expected to develop their knowledge and skills on BSE from the time they start undergraduate education. Studies on beliefs and application regarding breast cancer and breast self-examination in women show that it is not sufficient for early diagnosis [12,15,16].

Early diagnosis and screening programs are unlikely to be successful unless the importance of early diagnosis is recognized by society. In particular, the awareness and consciousness of women who are studying outside the health field are important in terms of decreasing mortality and protecting and improving health. In light of this information, this study was conducted to investigate the application and belief of BSE in breast cancer in women studying outside the health field.

2. Material and Methods

2.1. Study design and setting

This research is of descriptive type.

2.2. Population and Sample of the Study

The population of the study was composed of 750 students studying in the science and social departments of a University. Without sample selection from the population, the study was completed with 600 students who were voluntary to participate in the study. The participation rate for the study was determined as 80%.

2.3. Data Collection Tools

The data of the study was collected through the "Question form" and "Champion Health Belief Model Scale" (CHBMS) prepared by scanning the literature.

Question form: The form developed by the researchers is a 19-item form designed to determine age, educational status, income status, health insurance, presence of breast cancer in families and friends, and BSE application status and frequency.

Champion's Health Belief Model Scale: It is based on the Health Belief Model in Nursing. In 1984, Victoria Champion developed the Health Belief Model Scale for breast cancer screening [17]. In Turkey, it was adapted by Gözüm & Aydin (2004) and Karayurt & Dramalı (2007). In this study, the form adapted to Turkish by Karayurt & Dramali (2007) was used [18,19]. The scale is a 42-item, 5-likert type, and six-dimension form that includes the six concepts of the Health Belief Model. The sub-dimension of sensitivity perception related to breast cancer consists of three items and expresses the perceived personal risks of breast cancer. The sub-dimension of the perception of seriousness related to breast cancer is composed of seven items and defines the degree of the individual threat perceived from breast cancer. The sub-dimension of benefit perception related to BSE implementation consists of four items and expresses the perceived advantages of BSE. The sub-dimension of obstacle perception related to BSE implementation consists of 11 items and defines the perceived barriers related to BSE. The confidence sub-dimension of BSE application consists of 10 items and expresses the perceived individual competence in BSE application skills in order to detect abnormal breast masses. The sub-dimension of health motivation consists of seven items and expresses interests and concerns about the health status of individuals.

2.4. Application of the Study

Data collection tools were applied to the students included in the study through face to face interview method for 20-25 minutes.

2.5. Inclusion Criteria

- Being a student studying in science and social departments of a university
- Volunteering to participate in the research

2.6. The Exclusion Criteria of the Study

- Declining to participate in the study.

2.7. Ethical Approval

Permission was obtained from the Ethics Committee of Uşak University (Code of Ethics: 97627247-050.99-8887) on March 10, 2016, to conduct the study. Necessary permissions were obtained from the institutions. Before starting the data collection process, the students were informed about the

purpose and scope of the research and their verbal and written consents about the fact that they agreed to participate in the research were obtained.

2.8. Data Assessment

The statistical analysis of the study was performed using the SPSS 23.0 (SPSS Inc. Chicago, IL) program. Number (n), percentage, mean, and standard deviation were used to evaluate the descriptive characteristics. In the comparison of the scores of the sub-dimensions of the scale and the scale between the two groups, the Independent Sample T-test (Independent T-test) was used for parametric sub-dimensions, whereas Mann Whitney U test was used for non-parametric sub-dimensions. Chi-square test was used to compare categorical variables. Statistical significance was accepted as $P < 0.05$.

3. Results

The study was conducted with 600 young women. The mean age of the participants was 21.54 ± 1.37 (n = 600). It was determined that 18.17% of the participants were studying in science-related departments and 81.83% were studying in social-related departments. When the participants were evaluated in terms of income and expenses, it was found that 24.0% of the income was less than the expenses, that 66.2% of the income and expenses were equal, and that 9.8% of the income was less than the expenses. 87.7% had health insurance. It was determined that the rate of those who made BSE was 15.17% and that those with breast cancer in their relatives were 14.8%. It was determined that there was a statistically significant relationship between BSE and those who had breast cancer in their relatives (P = 0.001). Smoking and alcohol use rates were determined as 25% and 10%, respectively. There was a statistically significant relationship between alcohol and smoking (P = 0.000). There was no statistically significant difference between BSE and smoking and alcohol use (P = 0.324 and P = 0.122, respectively) (Table 1).

Table 1. Distribution of socio-demographic characteristics of participants

Characteristics	N	%
Age		
20-24	579	96.5
25-28	21	3.5
University Departments		
Science	109	18.17
Social	491	81.83
Income level		
Low	144	24.0
Middle	397	66.2
High	59	9.8
Health assurance		
Yes	526	87.7
No	74	12.3

Table 1 continued

Breast Self-Examination		
Yes	**91**	**15.17**
No	**509**	**84.83**
Family History of breast cancer?		
Yes	89	14.8
No	511	85.2
Do you use to smoke?		
Yes	150	25.0
No	450	75.0
Do you use alcohol?		
Yes	60	10.0
No	540	90.0

The participants were asked for various information about breast cancer. It was determined that 96.7% of the participants had no problem with breast before and that 6.3% made breast examination in the last year. It was also determined that there was a statistically significant difference between those who had a previous breast problem and those who had breast examinations in the last year (P = 0.000). While 17.5% of the participants stated that there would be no symptoms in breast cancer, 79.0% of the participants stated that there may be swelling in the breast. 66.8% of the participants said that there might be a pain in the breast, while 58.5% said that there may be swelling in the armpit and 34.5% said that there may be bloody discharge in the breast. 31.5% reported that there may be a deformity in the breast, whereas 29.5% stated that there may be a wound in the breast and 28.0% reported that there may be yellow-white discharge in the breast. 26.8% of the participants stated that there may be breast withdrawal. While 54% of the participants stated that breast cancer could be determined by BSE, 47.7% stated that breast cancer could be detected by mammography and 44.2% stated that breast cancer could be determined by gynecologist evaluation. While 21.3% of the participants stated that breast cancer could be determined by the evaluation made by the general surgeon, 9% stated that they did not know about this issue and 2% stated that it could not be determined. 61.2% of the participants stated that regular controls should be conducted from the age of 20, whereas 15.8% reported that they should be done from the age of 30. 38.0% of the participants stated that the frequency of mammography should be at least once every six months, while 34.0% stated that the frequency of mammography should be once a year. 44.8% of the participants who had a cancer history stated that they would not want surgical treatment whereas 39.2% stated that only one part of the breast should be removed. 50.2% of the participants stated that they received information about BSE. The participants reported that they received information about BSE in different ways such as health personnel (16.7%,) TV/radio/newspaper, etc. (9.0%,) internet (7.3%), and other places (7.2%.) 13.3% of the participants reported that they received information about mammography from a doctor/nurse. It was found that there was a statistically significant difference between the participants' information about BSE and the obtained information about mammography (P = 0.000) (Table 2).

Table 2. Information of participants about breast cancer

	N	%
Have you ever had a health problem with your breast (such as breast cancer)?		
Yes	20	3.3
No	580	96.7
Did you have a doctor's checkup for a breast exam in the last year?		
Yes	38	6.3
No	562	93.7
What do you think are the symptoms of breast cancer?		
Pain in the breast	401	66.8
Swelling from the breast	474	79.0
Swelling from hand under the armpit	351	58.5
Retraction of breast	161	26.8
Bloody discharge from the nipple	207	34.5
Yellow-white flow from the nipple	168	28.0
Deformity of a single breast	189	31.5
Scare on breast	177	29.5
Which of the following should be done to detect breast cancer early?		
Self-examination	324	54.0
Mammography	286	47.7
Gynecologist breast examination	265	44.2
General surgery specialist should examine	128	21.3
I do not know		
Breast cancer cannot be detected early	54	9.0
	12	2.0
At what age do you think regular breast checks should start?		
20	367	61.2
30	95	15.8
35	59	9.8
40 and over	79	13.2
How often do you think mammography should be performed?		
Every 3 months	64	10.7
Every 6 months	228	38.0
Once a year	204	34.0
Every 2-5 years	104	17.3

Table 2 Continued

If you had breast cancer, which of the following methods would you choose?		
I would like to have my entire sick breast removed	73	12.2
I would like to have both breasts removed.	23	3.8
I wish only the part of the breast with cancer was removed.	235	39.2
I would not want surgical treatment. I just wanted medication.	269	44.8
Have you ever received information about breast self-examination?		
Yes	301	50.2
No	299	49.8
Where did you learn about breast self-examination before?		
From health personnel	100	16.7
From the Internet	44	7.3
TV / radio / newspaper / magazine and so on.	54	9.0
Other	103	17.2
No answers	299	49.8
Have you received any information about mammography from a doctor or nurse?		
Yes	80	13.3
No	520	86.7

According to the independent sample test and Mann Whitney U test conducted to determine whether there was a difference between performing BSE and not performing BSE, there was a statistically significant difference between the scale total (P = 0.007), confidence (P = 0.000), health motivation (P = 0.000) and sensitivity (P = 0.001) and disability (P = 0.000) sub-dimensions. No statistically significant difference was found for the severity (P = 0.339) and benefit (P = 0.132) sub-dimensions compared to the independent sample test. While there was a positive correlation between the scale total and severity (r = 0.601), benefit (r = 0.450), disability (r = 0.335), confidence (r = 0.602) and health motivation (r = 0.462), sensitivity (r = 0,274) sub-dimension was found to be positively correlated with weak strength (Table 3).

Table 3. Statistical evaluation of total scale score and sub-dimensions of participants with and without BSE

Dimension and Sub-dimension	Group	N	$\bar{X}$	SD	t*/u**	*P*
Scale total	BSE -Yes	91	132.98	14.83	2.715*	0.007
	BSE-No	509	127.98	16.39		
Sensitivity	BSE -Yes	91	8.34	2.63	18184.5**	0.001
	BSE-No	509	7.51	2.25		
Seriousness	BSE -Yes	91	22.19	5.28	-0.956*	0.339
	BSE-No	509	22.77	5.35		
Benefit	BSE -Yes	91	15.43	3.56	1.509*	0.132
	BSE-No	509	14.79	3.72		
Obstacle	BSE -Yes	91	25.32	8.65	16376.5**	0.000
	BSE-No	509	28.74	6.80		
Confidence	BSE -Yes	91	35.00	6.33	6.336*	0.000
	BSE-No	509	29.51	7.81		
Health Motivation	BSE -Yes	91	26.70	4.28	3.858*	0.000
	BSE-No	509	24.65	4.73		

*Independent Sample T-Test, **Mann Whitney U Test

4. Discussion

In Turkey, the most common type of cancer in women is breast cancer with a rate of 25%. In the early diagnosis of breast cancer, mammography, clinical breast examination, and breast self-examination (BSE) is recommended. BSE performed regularly and accurately is a simple and economic method that protects the privacy of women [20].

In the prevention of cancer, it is very important to determine the beliefs and application status of women about breast cancer and BSE. It is estimated that the incidence of breast cancer will increase in the coming years due to predisposing factors such as prolonged life expectancy, increased stressors and obesity, and progression of the first gestational age [21]. In particular, informing young adults studying outside the health field about stressors and prevention will facilitate early diagnosis. The aim of this study was to determine the application and belief of BSE in breast cancer in women studying outside the health field.

It was determined that 18.17% of the participants were studying in science-related departments, while 81.83% were studying in social-related departments, 66.2% were equal in income and expenses and 87.7% had health insurance. It was determined that 96.7% of the participants had no problem with breast before and that 6.3% had breast examination in the last year. It was also determined that there was a statistically significant difference between those who had a problem with breast before and those who had breast examination in the last year. Aker et al. (2015) reported that 9.4% of women had a history of breast mass detection. Ilhan et al. (2014) reported that students who had breast cancer in their families had more BSE than those who did not have breast cancer in their families. The studies are consistent with our results [4,10].

In the study, it was found out that 15.17% applied BSE and that 14.8% had breast cancer in their relatives. It was determined that there was a statistically significant relationship between BSE and those who had breast cancer. In Sri-Lanka, 98.6% of women health workers heard about BSE, but 47.9% of them applied it every month. In a study conducted in Singapore, it was reported that 93% of nurses applied BSE [22,23]. In two different studies conducted in Nigeria, it was found that 62.2% to 95.8% of

women health professionals working in a health care institution performed BSE once a month [24,25]. According to the findings of this study, the rate of performing BSE in the studies carried out in female health workers abroad is high.

Kartal et al., (2017) reported that 11.1% regularly performed breast self-examination every month, and in the study of Sohbet & Karasu (2017), 26.2% had a history of breast cancer in their families and 21.5% had BSE once a month [12,26]. Studies conducted on women who are outside the health sector in Turkey are in line with the study findings. The situation of women performing BSE applications is not at the desired level. However, it was found that 53.3% of university students studying in health-related departments regularly performed BSE and that those who had a family history of breast cancer applied it more [4]. According to the results of this study, the rate of performing BSE is very high. It is thought that awareness should be increased for students outside the health field.

In this study, the most common findings in breast cancer are among the answers given in breast pain, breast swelling, armpit swelling, and bloody discharge in the breast. While the study of Alan, Karadağlı, Şıpkın, & Kocadaş (2016) stated the mass in the breast, swelling in the auxiliary lymph nodes of the same side, abnormal growth of the breast and asymmetric growth of the breast are specified, Şen and Başar (2012)'s study stated in the breast pain, swelling and breast under the arm and nipple discharge [27,28]. The findings of this study are consistent with our results. Common symptoms in breast cancer are very important in early diagnosis.

It was determined that half of the participants received information about BSE. Alan et al. (2016) and Sen and Basar (2012) reported that approximately 62% of women received information about BSE, while Aker et al. (2015) reported that approximately 80.5% of women [10,27,28] received information about BSE. In this study, the frequency of having information about BSE was close to the results obtained in other studies in our country, but it is not too high. These findings show that education programs related to BSE should practically be explained especially from the age of 20.

It was determined that 16.7% of the women who had information about BSE learned this information from health personnel, 9.0% from TV/radio/newspaper, and 7.3% from the internet. This finding is consistent with the results of various studies in our country [26,27,28]. It makes us think that it would be beneficial for women to be provided with the right information regularly through mass media and social media.

The difference between the mean scores of sensitivity, obstacle, and health motivation and the confidence subscale scores of the students with and without BSE was statistically significant. There was no statistically significant difference between the benefit and seriousness of subscale mean scores. In the study of Karayurt, Coşkun, and Cerit (2008), the difference between the mean scores of sensitivity, benefit, obstacle, health motivation, and the confidence subscale scores of nurses with and without BSE was statistically significant [29]. There was no statistically significant difference between the mean scores of the seriousness subscale. Aker et al. (2015) stated that there was a statistical difference between the mean scores in the severity/care, barriers, and self-efficacy sub-dimensions [10]. The studies show that health belief is effective in women's BSE practice.

5. **Conclusion and Recommendations**

Early diagnosis methods continue to be important in preventing breast cancer and reducing morbidity and mortality. In order to disseminate early diagnosis behaviours, it is important to first

determine the factors that are effective for women to perform these behaviours, then to organize training programs and to support these training with reminders. In this study, it was concluded that women who were not in the field of health had insufficient knowledge about breast cancer, BSE, early diagnosis, symptoms, and physician examination. For this reason, awareness about breast cancer and BSE attitudes and beliefs should be raised and sustained for students in science and social departments. Training should be given in a practical and peer education manner. Mass media and social media, especially for women, can be used to deliver the right messages and raise awareness. In collaboration with health professionals and universities, training should be delivered to a wider audience.

Limitations of the Study

Inability to reach all of the students in the study, incomplete filling of the survey questionnaires, and those who did not volunteer to participate in the study constituted the limitation of the study. The results of the research can be generalized to the universe where the study is conducted.

Acknowledgments: The authors are grateful for the support of all the students who participated in the study.

Ethical Approval

Permission was obtained from the Ethics Committee of Uşak University (Code of Ethics: 97627247-050.99-8887) on March 10, 2016, to conduct the study. Necessary permissions were obtained from the institutions. Before starting the data collection process, the students were informed about the purpose and scope of the research and their verbal and written consents about the fact that they agreed to participate in the research were obtained.

Conflict of interest

The authors declare that they have no conflict of interest.

The compliance to the Research and Publication Ethics: This study was carried out in accordance with the rules of research and publication ethics.

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Research Article

READING ROUTINES OF COMMUNITY HEALTH EXECUTIVES UPON MANAGERIAL TOPICS, WITHIN THE CONTEXT OF HEALTH TRANSFORMATION PROGRAM (HTP) IN THE TURKEY; DIYARBAKIR CASE

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Abstract*:* *Due to the ever-changing, developing, and complex structures of health institutions, the need to manage their administrations via professional managers arised by the end of the 1800s in the world, mainly in the USA and Europe, and such a need has been continuously emerging in our country since the 1950s. Concerning those current professional health managers, who serve in a rapidly evolving and changing health sector, following periodicals, books, and articles on general or health management should be among the sine qua non for the development and change of such professional health management. Together with the Health Transformation Program (HTP) that has been implemented in Turkey since 2003, despite the adoption of the understanding that predominantly professional healthcare managers should be assigned in the management of health institutions, there are still many managers operating in the sector, who are not adequately educated. The aim of this study is to determine the prevalence of those managers of the public health administrators in Diyarbakır, reading articles, books, and periodicals on general-health management for their development. The study is a descriptive study, involving 165 healthcare managers, which mainly have been serving in 3 public health institutions (Provincial General Secretariat to Association of Public Hospitals, Provincial Directorate of Community Healthcare, Provincial Directorate of Health and its affiliated units) in Diyarbakır province prior to November 25th, 2017. 80.7% of the managers did not have a master's degree in health-general management education. It was determined that health administrators have a low reading habit of reading books, articles, and periodicals and reading habits do not differ significantly according to their basic professions (p> 0.05. In the case of Diyarbakır, it is obviously seen that health-care administrators are urgently required to undertake bachelor, masters, Ph.D. programs on general health management.*

Keywords*: Health Management, Health Transformation Program (HTP), Periodical Reading, Internet Use, Reading on Health Topics.*

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1. Introduction

It is defined in many studies that, the most meaningful issue from the viewpoint of Community Health is, to make scientific information provided in order to give medical information and to produce the desired behaviors for the patient, meaningful to the patient in order to ensure it to be understood and interpreted by the patient. Because individuals encounter too much complex information and treatment processes while receiving service in the health sector. This situation is perceived as a deep, complex, and rapidly changing area that requires patients to be able to define their own health situation, to have information regarding their diseases, to make appropriate decisions about their health, and to know how to benefit from the existing healthcare system. The limited level of health literacy adversely affects the diagnosis and treatment of the disease, on the other hand, it increases the prevalence of hospitalization and prolongs the hospitalization period [1].

The HTP (Health Transformation Program), introduced regarding our country's health system refers to the radical changes that have been made in our country's health system from 2003 to the present. It is the name of reform, which was first verbalised and discussed between 1991 and 1993, but so-called as after 2003, together with Justice and Development Party (AK Parti) governments. The components that make up HTP so important is the privatization of health institutions and service providers through the entire system, by providing centralized management and control at the first stage of transformation [2].

The reason why the HTP was preferred to be implemented throughout the country was because of the ongoing failures in the previous system. Some of the reasons that force the Government for a HTP can be listed as, physicians who demand illegal money to their own accounts for the surgical operation, while they benefit from public facilities, doctors referring their patients to their private practice, patients with insufficient economical conditions who are held in pledge at the hospital, until their medical bills are paid in full by themselves or their relatives, prolonged referral and bureaucratic paper processing of patients, long queues at hospitals due to excessive accumulation in hospital ambulatory care services, problems in procurement of patients' drugs, problems in hospitals providing drugs for their inpatients, the inability of the patients with different social security institutions to access the health services adequately, the inability of citizens to provide access to health services in a manner that is equitable and fair to justice, and the chronic and subsequent patient's dissatisfaction [3].

HTP consists of a total of eight components that try to shape the health sector with all dimensions. Among these 8 components, we can mention; the reorganization of the central and provincial administrative structure of the Ministry of Health, strengthening its planning, leadership and supervisory role, a general health insurance system covering everyone, structuring healthcare service provision in a way that will provide access to the whole country, high level of knowledge and skill throughout the sector, e-health system coordinated with adequate technological information systems; quality and accreditation of educational and scientific institutions to support the system, and institutional restructuring regarding the management of medicine and medical suppliers [4].

The most important elements within the scope of HTP are; Family Practices, General Health Insurance, and Self-Governing Hospitals. These three elements form an integral whole, complementing each other. One of the most important goals of the HTP is to enable citizens to benefit from healthcare services more efficiently and equally. Regarding the successful process of HTP; acting within a quality management model, restructuring and gathering the budget of various health institutions with different

structures under a single roof, "General Health Insurance" (GSS) and the means by which the health service is delivered to the citizens (access to health services) are the issues of great importance.

In order to achieve the success of HTP, it is essential to keep the employee motivation high and that to provide services via a well-trained and skilled workforce. It will be inevitable to increase the quality and efficiency in the provision of healthcare services by creating an appropriate environment for personnel planning and having them participated in health management [5].

It is essential for the sustainability of HTP, to meet the need for people who have a comprehensive knowledge of health-related subjects, and who have received the necessary training. It will be ensured to provide high-quality healthcare services thanks to people who have received health education at national standards in addition to the graduates of the departments of medicine, nursing, and health services vocational high schools. In order for the HTP to be successful, it is necessary to create a very different managerial approach rather than the previous ones. While a physician-based managerial approach has been adopted in health care institutions up to present, a new approach via educated, disciplined, competent, experienced, knowledgeable managers well trained on health policies and health-related economics will be preferred, and this will bring success [6].

As stated above, the necessity of the managers having the right practicum in the field of health management has been expressed by the Health Minister of the time that, in order to achieve the success of the HTP. This requires health managers to have Literacy on Health Information on health and managerial subjects throughout their professional life. The complex structure of the health sector, like any other developing and changing dynamic structure, demonstrates that a healthcare manager needs to constantly improve him/herself.

If we consider the matter from a different point of view, it is important that health managers should be professionalized in their field of management; because in almost all countries of the world, administration regarding not only the health sector but all other institutions and organizations, are handled by professionals specialized in the related field. Particularly in western countries, the health sector is managed by professional managers. In our age, it is a known fact that knowledge is produced instantly, information is respectively easier to reach and the only way to achieve success in all sectors is professional management.

The health care manager is an organizer who ensures that health services are presented and delivered in an effective manner by employees with different expertise in accordance with the presentation objectives. It is a targeted situation that the manager, based on his/her ability to offer solutions to the problems that may be encountered, social characteristics and the intellectual knowledge level, is aware of his/her individual characteristics, possible deficiencies and self analyse him/herself within this direction [7].

If we are to define health managers within the scope of their theoretical knowledge and their professionalization in accordance with educational criteria, and in terms of managerial concepts; the manager can be described as "the person responsible for the implementation and performance of the information" [8].

Despite the HTP in our country, the role of hospital management is carried out by physicians or nurses who have not received adequate professional health or managerial education, as an additional role besides their main occupations. However, in the report published in Copenhagen in 1996 by the World Health Organization, it is emphasized that, especially an increase in the number of people who have undergone in-depth training and the placement of the health information system in accordance with

the reform to be made, would bring this success within the scope of implementation of Health Reforms [9].

Hospital management is a complex task and it is difficult to carry out this without obtaining vocational training on this subject. Health institutions have characteristics that make them different from other structures and enterprises. Health services should be provided to everyone, anytime, anywhere, efficiently, economically, quality, effective, equal, continuous, and accessible. For these reasons, the health sector should be managed by professional managers. Regardless of his/her position, it is an obligation for managers to be equipped with modern management and business knowledge and skills. Moreover, the management of health institutions is much more complex than the management of any other economic enterprise. It is not a business that can be accomplished solely with medical education or nursing to manage a business where on the one hand floors are constantly cleaned, and procurement of food services is carried out by tender, and open heart operations are performed on the other. Hospital management covers human resources, planning, and management of a wide range of services such as hotel services, operating room services, filing, and archive services, hotel services, catering and cleaning services, pharmacy services, as well as hotel services, health services It is not possible to say that physicians or nurses who have not been trained in medical schools or nursing schools will be successful in these fields [8].

In our country, especially following the implementation of HTP, the fact that family physicians have not yet been perceived as the first step in health care by the patients (the problem of lacking adequate health literacy or the fact that this information has not been expressed enough to the citizens by the subject of the issue), and that the referral system has not been introduced yet, causes inappropriate use of public hospitals and in particular emergency services of privately owned health institutions (Crowding) and imposes additional burdens (financial sustainability) to the health system.

The question that comes to mind is that; while the importance of health literacy for those who demand healthcare service, is emphasized as the most important issue within the context of providing better quality healthcare services in many academic studies, the extent to which people in charge of the management of the health sector pay attention to their own health literacy, despite the complexity and diversity of the service they offer, the situation and requirements that we can define as Literacy on Health Information, still stand out as an overlooked concept.

In the interest of the success of health systems as a product of countries' health policies, or if we want to define the matter specifically for our own country, in order to achieve a successful result regarding HTP, which has been implemented for the last 16 years, determining the amount of time spent by existing healthcare providers on their Literacy on Health Information, should be considered as one of the important parameters that will increase the likelihood of success of the transformation.

Prior to November 25th, 2017, there were 3 headed, 3 official health institutions operating in the provinces, namely the Provincial General Secretariat to Association of Public Hospitals and its affiliated units, Provincial Directorate of Community Healthcare and its affiliated units, Provincial Directorate of Health and its affiliated units. This managerial practice has been amended as of the date mentioned. This situation tells us that the former managers of the health sector should inevitably be analyzed regarding their reading habits of articles, books, and periodicals on general-health management, and this concept is quite mandatory in order to develop the management skills and to achieve success throughout the new process.

In a study, it was found out that the managers of provincial health structures formed after HTP have been the former administrators in the public health sector, that is, the professional health manager requirement for SDP is met via the people of managerial experience regardless of their health management profession. It is an important concept to emphasize that this situation could create obstacles to the dynamism, innovation, development, creative ideas, actions, and excitement, in short, the success of the system [10].

Health Sector Management includes different types of information to be manifested in a constant dynamism. Human resources management, quality, and accreditation, occupational health and safety, tender process, circulating capital, procurement, emergency management, and management of different service areas in the hospital, etc. Each of them requires very different levels of knowledge. It is expected for a health manager to continuously improve himself on different types of information in the health sector, through Literacy on Health Information, the fact that this requirement is not sufficiently fulfilled will make it difficult to succeed the sector and even the current HTP process in our country.

While it is a separate research topic whether the number of health managers with an MSc or doctorate degree in health or general management is at the desired level, revealing the necessary studies for Literacy on Health Information, together with HTP would evolve the process more quickly and successfully for our country. We argue that the introduction of this situation will contribute to the determination of whether the expected efficiency from the professional health administrators before November 2017 has been met. It should not be forgotten that the need for Literacy on Health Information, is a constant dynamism regarding successful health management. Because in the health sector, which is one of the constantly developing and transforming sectors of the age, follow-up information will contribute to the managerial skills of the manager.

Taking into consideration all these reasons mentioned above, the possibility of existing managers not having received adequate training on business, accounting, law, employee health and safety, human resources management, total quality management subjects, will lay the groundwork for emerging problems in the ongoing managerial processes. In this study, we will try to determine the effects of Literacy on Health Information on the managerial skills of existing public health managers, within the scope of the Diyarbakır case.

2. Material and Method

The study is a descriptive study, involving 165 healthcare managers, which mainly have been serving in 3 public health institutions (Provincial General Secretariat to Association of Public Hospitals and its affiliated units, Provincial Directorate of Community Healthcare and its affiliated units, Provincial Directorate of Health and its affiliated units) in Diyarbakır province prior to November 25th, 2017. The reason why that date has been selected is that by November 2017 Ministry of Health has amended the former provincial structure in a way to attribute the above-mentioned 3 provincial public health structure to the administration of the Provincial Directorate of Health, similar to the system before the HTP. However, this time, the provincial structures which had existed before November 2017, have been attributed to the Provincial Directorate of Health on a presidential basis. And after 2017, while the health management structure of the province was structured as a provincial health directorate, it was determined that the health managers before 2017 were also assigned as managers in the restructuring. Therefore, health information literacy needs to be examined separately in the new structure.

It is aimed to reach all the healthcare managers of the city, a total of 135 (81.8%) managers accepted to participate in the study. In order to collect data, a questionnaire of 11 questions was used which included questions on descriptive information of the healthcare managers, development of their managerial skills, and the determination of the effect of their literacy on their managerial skills. Data were collected through face-to-face interviews after obtaining their informed consent. The study has been approved by the Ethics Committee of Dicle University Medical Faculty. The data were evaluated in SPSS 21 (statistical package for social sciences) program, the frequency distributions were used in defining the descriptive characteristics of the health managers and Pearson Chi-Square was applied in the nominal variables where more than two groups were applied. Results were considered statistically significant in the case of a 95% confidence interval and where $p < 0.05$.

2.1. Ethical Considerations

Ethics committee approval was obtained from Dicle University Non-Interventional ethics committee for the study. (Certificate authorization number, 385 dated 23/10/15)

3. Findings

Descriptive information on the healthcare managers of Diyarbakir province participating in the study is given in Table 1.

Table 1. Descriptive Information on the Healthcare Managers of Diyarbakir Province Participating in the Study

Institutions and Affiliated Units Participating in the Study	**n**	**%**
General Secreteriatand Affiliated Hospitals	96	64.4
Community Health Institutions and Affiliated Units	19	12.8
Provincial Directorate of Health and Affiliated Units	20	13,4
Roles of the Managers	**n**	**%**
Provincial Health Deputy Manager	5	3.7
Chief Physician/Deputy Chief Physician	28	20.8
Hospital Administrator(Health Care-Administrative-Financial-Health HospitalityManagersand Assistant Managers)	61	45.2
Assistant Manager of Provincial Community Health	3	2.2
Chief, Other	10	7.4
Manager of Sub-Provincial Health	3	2.2
Health Group Manager	3	2.2
Branch Manager	16	11.9
Financial, Administrative, Medical Managers	3	2.1
Hospital Manager	3	2.2
Age	**n**	**%**
35 years old and below	43	31.9
36 years old and above	92	68.1
Maritial Status	n	%
Married	117	86.7
Single	18	13.3
Gender	**n**	**%**
Female	34	25.2
Male	101	74.8
Total	**135**	**100.0**

Evaluating the descriptive information of the healthcare managers of Diyarbakır province; in the context of the institution in which the participating managers operate, 64.4% is from the General

Secretariat of the Public Hospitals Association of Diyarbakır Province, 12.8% from the Provincial Directorate of the Community Health and 13.4% from the Provincial Health Directorate and its affiliated units. When the managers who participated in our study were evaluated in terms of their duties; it is seen that 20.8% of the participants are chief physicians or their assistants, 45.2% of them have consisted of the Hospital Administrators (Health Care-Administrative-Financial-Health Hospitality Managers and Assistant Managers). 68.1% of the managers were 36 years of age and above where 86.7% of the participants were married and 74,8% were male (Table 1).

Table 2. Professional and Managerial Education Information on the Healthcare Managers of Diyarbakir Province Participating in the Study

Profession	**n**	**%**
Practitioner, Specialist	49	36.3
Nurse-Health Officer	47	34.8
Other	39	28.9
Graduate Education on Health or General Management	**n**	**%**
None	109	80.7
Graduate Level	26	19.3
PhD	0	0.0
Computer Literacy	**n**	**%**
Yes	89	65.9
No	46	34.1
I Read "Books" on Health or General Management	**n**	**%**
Yes	46	34.1
No	89	65.9
I Read "Articles" on Health or General Management	**n**	**%**
Yes	47	34.8
No	88	65.2
I Read "Periodicals" on Health or General Management	**n**	**%**
Yes	24	17.8
No	111	82.2
Total	135	100.0

Evaluating according to the professions of healthcare managers in Diyarbakır province, it was found out that 36.3% were physician managers, 80.7% of managers had not received bachelor's or Ph.D. degrees in general or health management. It was determined that only 19.3% of them had received a master's degree and only 65.9% of them were computer literate. Only 34.1% of the managers stated that they had been reading books on health or general management, 34.8% of them had been reading articles on health or general management and only 17.8% of them had been reading periodicals (Table 2).

Table 3. Computer Literacy Range of Healthcare Managers of Diyarbakir Province Participating in the Study

Computer Literacy	Practitioner, Specialist		Nurse, Health Officer		Others		Total		χ^2	p
	n	%	n	%	n	%	n	%		
Yes	31	63.3	32	68.1	26	66.7	89	65.9	0.261	0,877
No	18	36.7	15	31.9	13	33.3	46	34.1		
Total	49	100	47	100	39	100	135	100		

Evaluating the computer literacy of Healthcare Managers of Diyarbakir Province Participating in the Study; 34.1% of healthcare managers were found out not to use computers. According to Pearson chi-square analysis, no statistical significance was found in the comparison between groups of managers (χ^2 =0.261; p>0.05) (Table 3).

Table 4. "Book" Reading habits on Health or General Management of Healthcare Managers of Diyarbakir Province Participating in the Study

Reading "Books" on health or general management	Practitioner, Specialist		Nurse, Health Officer		Others		Total		χ^2	p
	n	%	n	%	n	%	n	%		
Yes	17	34.7	17	36.2	12	30.8	46	4.1	0.290	0.865
No	32	65.3	30	63.8	27	69.2	89	5.9		
Total	49	100	47	100	39	100	135	100		

Evaluating the "Book" Reading habits of Healthcare Managers of Diyarbakir Province Participating in the Study on Health or General Management; only 34.1% of the health care managers were found to read the book. According to Pearson chi-square analysis, no statistical significance was found in the comparison between groups of managers (χ^2 =0.290; p>0.05) (Table 4).

Table 5. "Article" Reading habits on Health or General Management of Healthcare Managers of Diyarbakir Province Participating in the Study

Reading articles on health or general management	Practitioner, Specialist		Nurse, Health Officer		Others		Total		χ^2	p
	n	%	n	%	n	%	n	%		
Yes	18	36.7	17	36.2	12	30.8	47	34.8	0.399	0.819
No	31	63.3	30	63.8	27	69.2	88	65.2		
Total	49	100	47	100	39	100	135	100		

Evaluating the "Article" Reading habits of Healthcare Managers of Diyarbakir Province Participating in the Study on Health or General Management; only 34.1% of the health care managers were found to read articles. According to Pearson chi-square analysis, no statistical significance was found in the comparison between groups of managers (χ^2 =0.399; p>0.05) (Table 5).

Table 6. "Periodicals" Reading habits on Health or General Management of Healthcare Managers of Diyarbakir Province Participating in the Study

Reading "Periodicals" on health or general management	Practitioner, Specialist		Nurse, Health Officer		Others		Total		χ^2	p
	n	%	n	%	n	%	n	%		
Yes	7	14.3	7	14.9	10	25.6	24	17.8	2,326	0.313
No	42	85.7	40	85.1	29	74.4	111	82.2		
Total	49	100	47	100	39	100	135	100		

Evaluating the "Periodicals" Reading habits of Healthcare Managers of Diyarbakir Province Participating in the Study on Health or General Management; only 17,8% of the health care managers were found to read periodicals. According to Pearson chi-square analysis, no statistical significance was found in the comparison between groups of managers (χ^2 =2,326; p>0.05) **(Table 6).**

Table7. Post Graduate Education of Healthcare Managers of Diyarbakir Province Participating in the Study

Having a post-graduate degree?	Practitioner, Specialist		Nurse, Health Officer		Others		Total		χ^2	p
	n	%	n	%	n	%	n	%		
None	39	79.6	40	85.1	30	76.9	109	80.7	0.938	0.612
Have Post Graduate degree	10	20.4	7	14.9	9	23.1	26	19.3		
Total	49	100	47	100	39	100	135	100		

Evaluating whether Healthcare Managers of Diyarbakir Province participating in the study have any postgraduate degree; it has been found out that only 19.3% of health managers received a postgraduate degree, but none of them had a Ph.D. degree. According to Pearson chi-square analysis, no statistical significance was found in the comparison between groups of managers (χ^2 =0.983; p>0.05) (Table 7).

4. Discussion

Considering the public health sector, following the implementation of HTP, in the last 15 years when professional health management has been considered a sine qua non, Literacy on Health Information has always been discussed in accordance with those who demand health care service but Literacy on Health Information regarding health care providers has always been neglected.

In a study conducted by Öztürk et al. [11], 42% of health managers were in the group above 40 years of age, 69.7% of them were male and 89.1% of them were married.

In our study, however, 68.1% of our healthcare managers were over 36 years of age, 74.8% of them were male and 86.7% of them were married.

In our study, while the presence of young managers was low, the presence of male managers was found to be high. This situation made us think that despite the high number of women working in the health sector compared to other sectors of our country, women managers are still at a minimum.

Literacy on Health Information is important for healthcare researchers, academic education institutions, and organizations, healthcare professionals. Literacy on Health Information, ensures healthcare professionals to obtain continuously accurate, reliable, scientific, and up-to-date information on healthcare subjects. Literacy on Health Information also provides a more efficient, effective, and economic way of delivering clinical and community healthcare service. Also, Literacy on Health Information, allows health professionals, health educators, and health managers to improve themselves on how to better offer their services [12].

HTP implemented in our country has brought many adaptations regarding the sector. These adaptations affect both service providers and service recipients. Especially when the service providers are evaluated from the viewpoint of Literacy on Health Information, some important topics are considered as:

1. Service Providers-Service Recipients' Communication-Security,
2. Quality of Service Provided,
3. Easy Access to Services,
4. Time Constraints Regarding Health Sector Professionals,
5. Health Expenditures-Circulating Capital-Trust,
6. Healthcare Information Systems Technology,
7. Medical Information,
8. Security, Catering, Cleaning Services.

In a study, with the main theme of "Mobbing", conducted by Karsavuran S. [13], by the managers of all the hospitals of Ministry of Health in Ankara Province, It was stated that 28.4% of the managers had a master's degree without expressing whether the managers had a postgraduate degree on health or general management.

In our study, however, it was determined that 19.3% of the healthcare managers received a master's degree in general or health management. This ratio shows that the two provinces require the same levels of postgraduate education in management. Moreover, the fact that postgraduate education is so low reveals that professional health management should be emphasized in our country, especially in our province, in accordance with our health sector.

It is stated that only 34.1% of our health executives read "books" on health or general management and that the books read are limited to:

1- Health Services Marketing, Social Determinants of Health, Health Tourism,
2- İletişimce (Ministry of Health Publications),
3- Management of Healthcare Institutions,
4- Inpatient Institutions Treatment regulation (YKTY),
5- Ministry of Health Publications,
6- Administrations and Organizations,
7- Occupational Health and Safety,
8- Guidance for Business Managers,
9- Management of Healthcare Institutions,
10- Quality Standards in Health.

It is stated that only 34.8% of our health executives read "articles" on health or general management where only 17,8% of them read "periodicals**.** However, the "periodicals" followed by executives were limited to those corporate publications of their institutions, magazines, brochures, in other words, no sign of academic periodicals have been detected. Therefore, it is thought-provoking that the executive group does not have Literacy on Health Information, on health or general management.

In a study conducted by Balcı et al. [14], on the general characteristics of health professionals in Kayseri; nearly 60% of the managers expressed their wishes about using computers, and their deficiencies in computer literacy were determined.

In our study, however, it was found out that only 65.9% of the community health managers in Diyarbakır used computers.

Considering the health information systems in the rapidly changing health sector, such alow rate of computer literacy, as 65.9% throughout the managers, while it is the most ideal means of accessing information, has revealed that it should be among the issues that should be emphasized for professional health managers. Therefore, in our study, the deficiencies of our managers about computer literacy were determined.

Moreover, no statistical significance was found out in the comparisons among different level managerial groups, or different managerial professions in terms of their; computer literacy (Table 3), book reading habits on health or general management (Table 4), reading articles on health or general management (Table 5); following publications on health or general management (Table 6), whether or not they did have a post-graduate degree on health or general management (Table 7). It is thought-provoking in terms of professional health management and hence the future of HTP that Literacy on Health Information, which should be a sine qua non of professional health management, has not been identified in favor of a different group among managerial groups.

Parallel to the results obtained from our post-study field impressions and the comparisons that have been tried to be demonstrated above, Non-Literacy of health managers on Health Information, prior to the restructuring of provincial healthcare services (November 27, 2017), and the fact that the former executives who gave rise to this situation also are in charge in the new provincial health structure, will negatively affect the success of the province's healthcare services. In other words, not having Literacy on Health Information will have a negative impact on corporate governance.

Despite the 16-year experience of the Health Transformation Program (HTP) implemented by the Ministry of Health throughout the province, this study reveals that even though Literacy on Health Information is considered as a sine qua non in professional health management, the level of Literacy on Health Information among current professionals is still insufficient. This should be immediately addressed by the Ministry of Health and its related units.

With a few items, results and recommendations may be summed up as;

1- Only a quarter of the managers in the health sector are women. Managerial roles of females should be increased.

2- It is essential that the Ministry of Health should encourage receiving postgraduate education on both general management and health services management. Protocols can be signed with health management departments at the existing universities and the Ministry of Health to encourage postgraduate or Ph.D. education.

3- In order to encourage the follow up of current periodicals on general and/or Health Care Management among provincial health managers, hence supporting Literacy on Health Information, these

publications should be increased in terms of quality and quantity, and they should be delivered regularly monthly or every 2 months, to be read by the Ministry of Health.

4- Recognition that professional health management is mandatory for the achievement of HTP, and providing employment opportunities for graduates of health management departments of universities will pave the way for professionalism in the health sector.

5- In service training on the Principles of Management, Management of Health Care Sector should be organized by the Provincial Directorates of Health for existing managers of health via signing protocols with the health or general management departments of universities, and these trainings should be continued periodically during the month.

6- It is thought-provoking that the level of computer literacy among healthcare managers is quite low despite the fact that the most important tool that will enable the managers to reach Literacy on Health Information is the computer.

7- In order to increase the level of academic literacy on health or general management, current articles can be delivered to the corporate e-mail addresses of the healthcare managers by the Ministry of Health, current managerial books can be listed by the Ministry, with the purpose to encourage the managers towards buying and reading them, or it should be exercised on whether it is possible to read these books as pdf on the Ministry website.

8- The importance of Literacy on Health Information has frequently been reviewed in academic studies within the scope of health care service recipients and the nurse-physician who provides the service, etc. But this situation has always been ignored by executive health personnel. The main problem should be to eliminate the theoretical knowledge deficiency of the people involved in the current managerial positions.

Ethical considerations

Ethics committee approval was obtained from Dicle University Non-Interventional ethics committee for the study (Certificate authorization number, 385 dated 23/10/15).

Acknowledgment

Informed consent was obtained from all individual participants included in the study. The authors declare that they have no conflict of interest.

The compliance to the Research and Publication Ethics: This study was conducted in accordance with the rules of research and publication ethics.

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Research Article

DOES DISABILITY STATUS AFFECT MATERNAL CARE AROUND PREGNANCY? EVIDENCE FROM NATIONAL SURVEY OF FAMILY GROWTH (NSFG) 2013-2015 DATA IN UNITED STATES

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Abstract: *It is estimated that approximately 12% of reproductive age women have some kind of disability; which is measured as self-reported difficulty in performing basic functions concerning movement, vision, hearing, or cognition. Little research has been conducted on the reproductive health of women with disabilities using nationally representative survey data; thus the body of scientific knowledge on this subject is limited. The purpose of this study was to examine the effect of disability status (both mental and physical) among women on prenatal care and post-pregnancy care in the U.S. using nationally representative National Survey of Family Growth (NSFG) data. It's a retrospective, quantitative, observational study that uses nationally representative NSFG data for the United States. The NSFG survey data is made available for research by the National Center for Health Statistics at the Centers for Disease Control and Prevention (CDC). The 2013-2015 NSFG's female respondent file contains 5699 records one for each woman interviewed whereas the pregnancy respondent file contains 9358 records each related to pregnancy. The data about disabilities-related variables were part of the female respondent file therefore using unique respondent ID files were merged and logistic regression models were built using prenatal and postnatal care as dependent and disability status as the main independent variable. Women with Medicaid were significantly less likely as compared to those with private insurance to have received prenatal care in the last 12 months. Women with less than 12 years of education were less likely to have received post pregnancy care as compared to those with college education. Although this study did not find significant effects of disability on the utilization of prenatal and post-pregnancy care, further research is needed on this subject with datasets that include comprehensive information about the broader spectrum of disability status of women.*

Keywords: *United States, health disparities, maternal health, disabilities, Access*

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1. Introduction

It is estimated that approximately 12% of reproductive age women have some kind of disability; which is measured as self-reported difficulty in performing basic functions concerning movement, vision, hearing, or cognition [1]. Little research has been conducted on the reproductive health of women with disabilities thus the body of scientific knowledge on this subject is limited [1].

Some regional studies have documented disparities in sociodemographic, prenatal, and pregnancy-related complications between women with and without disabilities [2, 3]. A regional study in Rhode Island, for instance, found that women with disabilities tend to be younger, poorer, less educated, and more likely to be on public assistance as compared to women without disabilities. Furthermore, the study also found that prior to pregnancy women with disability were more likely to have ever been diagnosed with diabetes and asthma and were less likely to take daily prenatal vitamins. The same study also reported that women with disabilities were more likely to report a pregnancy complication as compared to women without disabilities [2, 3].

A study conducted at a multidisciplinary outpatient reproductive health clinic for women with physical disabilities in Michigan reported that women with disabilities were more likely to have pregnancy-related complications, deliver preterm and have low birthweight infants as compared to women without disabilities [3].

A study in California found that women with intellectual and developmental disabilities (IDD) and hearing disabilities were worse off in terms of prenatal care utilization as compared to not only women without disabilities but also women with other types of disabilities [4].

The purpose of this study was to examine the effect of disability status (both mental and physical) among women on prenatal care and post-pregnancy care.

2. Methods

2.1. Overview

The study used a life course approach; this approach to health and disease etiology focuses on the study of long-term effects of exposures (physical and social) that occur in gestation, childhood, adolescence, young adulthood, and later life [5]. According to the life course model health of an organ system depends not only on influences later in life but also on peak functional capacity that is attained early in life. Thus both developmental processes and contextual factors in early life play a key role. Low income settings play a dual role by affecting inherited health capital in early life and increased environmental challenges in later life [6, 7].

Biological embedding, which means experiences in early life affect the course of human development through their interaction with immunologic, endocrine, and neural systems as well as gene expression, is a fundamental concept in Life Course Health Development (LCHD) [8]. Similarly, LCHD emphasizes the importance of events across the lifespan as well as across generations for health development trajectories [8]. Therefore, access to prenatal and post-pregnancy care (outcome variables of this study) for women with disabilities are important not only for them but could impact the health trajectories of their children in the long term [8].

2.2. Data

This research used the National Survey of Family Growth (NSFG) data, the utilization of prenatal, and post-pregnancy care was used as main out-come variables [9]. For the analysis disability status was used as one of the key independent variables and other important independent variables were identified by looking at previous research. The analysis plan consisted of conducting a bivariate analysis to assess for significant differences based on selected independent variables. Subsequently, separate logistic regression analysis was built for each outcome of interest (prenatal and post-pregnancy care utilization). The prenatal care question in the NSFG questionnaire applied only to respondents who had a pregnancy in the last 12 months (N=1623) and post-pregnancy care question was applicable to survey respondents whose most recent live birth was within the last 12 months (N= 1121) and the number of overall positive responses to the disability-related question was 1942.

The National Center for Health Statistics (NCHS) at the Centers for Disease Control and Prevention is the agency responsible for planning and administration of national surveys for family growth (NSFG). The NSFG is a part of the national federal statistical system and aims to provide national estimates of factors affecting pregnancy, utilization of medical care for maternal, child, and reproductive health, and factors associated with family life. The 2013-2015 NSFG's female respondent file contains 5699 records one for each woman interviewed during 2013-2015 whereas the pregnancy respondent file contains 9358 records each related to pregnancy. The data about disabilities-related variables were part of the female respondent file therefore the files were merged to add disabilities-related information to the pregnancy record file using unique respondent ID. This resulted in the addition of disability related variable columns to previous records in the pregnancy record file, matched by unique respondent ID. The dataset included 606 women who were currently pregnant and 8746 that were not pregnant at the time of the interview; the overall number of observations under study was 9352.

NSFG is a well-reputed data source for information on marriage, divorce, family life, and reproductive health in the United States. The NSFG employs a stratified, multi-stage survey design that pools participants between 15-44 years of age (women and men) from all over the United States [10,11]. The overall number of observations in the sample under study was 9352.

2.3. Measures

The outcome and independent variables for this study were selected using the Life Course Model that emphasizes the importance of genetic and sociodemographic factors from conception and developmental periods to health trajectories of individuals and populations in later life. The outcome variables prenatal care and post-pregnancy care are important for life long health of individuals and populations. The independent variables included in this study represent key sociodemographic factors that affect long term health trajectory. The outcome variables recorded in the survey datasets were assessed categorically using the following question;

In the past 12 months, have you received post-pregnancy care? (N= 1121) yes/no

In the past 12 months, have you received prenatal care? (N=1623) yes/no

The main disability-related independent variable was created merging the variables in the NSFG survey dataset about the difficulty in seeing, difficulty with memory and decision making, difficulty with walking or climbing stairs, difficulty with doing errands, and difficulty in dressing or bathing. The disability-related variable (N= 1942) consisted of two categories (Yes/No). Other independent

variables included maternal age (24 and under, 25-34, >34), parity (1, 2-3, >4), payment method for delivery (private insurance, Medicaid), marital status (married to a person of the opposite sex, never married, divorced/widowed), education (more than 12 years, 12 years, less than 12 years), race and ethnicity (non-Hispanic white, Hispanic, non-Hispanic black, non-Hispanic other). Similarly, being on public assistance (yes, no), place of residence (city, suburban, rural), and federal poverty level income (0%-199 – 200% and above) were also included in the study as key independent variables [12, 13].

2.4. Statistical approach

The statistical approach focused on descriptive statistics with raw counts and weighted means, chi-square analysis to explore significant differences in access to prenatal and post-pregnancy care among sub-groups (categories) of independent variable; for instance does access to prenatal care and post-pregnancy care differ significantly among maternal age groups. Subsequently, logistic regression models for each outcome of interest were created using disability status as one of the key independent variables. The survey data were weighted using the final post-stratified fully adjusted case weight variable, stratum variable, and cluster/panel variable provided in the 2013-2015 user guide [14, 15].

3. Results

Among respondents, 70.33% of the women received prenatal care in the last 12 months whereas 29.27% did not. Similarly, among survey respondents, 87.37% of women received post-pregnancy care in the last 12 months whereas 12.63% did not. Among 18.87% of the survey respondents reported having at least one of the listed disabilities, whereas 81.13% did not report a disability; the listed disabilities included, has any serious difficulty seeing (yes = 4.84%, no=95.16%), has any serious difficulty with memory or decision making (yes = 13.3%, no= 86.7%), has serious difficulty walking or climbing stairs (yes= 5.13%, no = 94.87%), has any serious difficulty dressing or bathing (yes = 1%, no = 99%), and has any difficulty doing errands alone due to physical /mental/and emotional condition (yes = 4.48%, no = 95.52%).

Among survey respondents 51.39% of the survey respondents were non-Hispanic Whites, 23.69% were Hispanics, 15.57% were non-Hispanic Blacks and 9.4% were non-Hispanic Others. In terms of age, 5.87% of respondents were 24 and under, 41.22% were in the 25-34 age group and 52.91% were above 34 years of age. Among survey respondents 55.22% had education beyond high school, 22.93% had completed high school and 21.85% did not finish high school. Private insurance was the method of payment for delivery among 55.35% of survey respondents whereas 44.65% paid through Medicaid. The sociodemographic characteristics of the survey population are presented in Table 1 (titled sociodemographic characteristics)

There were significant differences (based on the chi-square test of independence) in prenatal care utilization based on maternal age and parity. Women in the 25-34 years age group and those with parity of 2 or 3 were more likely to receive prenatal care. However, when assessed through a Chi-square test, the differences in prenatal care utilization by disability status, race and ethnicity, marital status, education, and payment method were not significant.

In terms of post-pregnancy care utilization, there were significant differences based on the payment method for delivery (private insurance or Medicaid) and maternal education. Women with

high school education were more likely to receive post-pregnancy care similarly women with private insurance were also more likely to receive post-pregnancy care. However, differences in post-pregnancy care utilization by other sociodemographic characteristics such as disability status, maternal age, being on public assistance, and geographic location of residence were not statistically significant when assessed with a Chi-square test. The distribution of sociodemographic characteristics by utilization of prenatal and post-pregnancy are presented in table 2 (titled bivariate analysis)

Table 1. Sociodemographic characteristics of respondents

Characteristics	Unweighted count (weighted %)
Prenatal care	
Yes	1109 (70.73%)
No	514 (29.27%)
Post-pregnancy care	
Yes	945 (87.37%)
No	176 (12.63%)
Disability	
Yes	1942 (18.87%)
No	7410 (81.13%)
Race	
Non-Hispanic White	3836 (51.39%)
Hispanic	2531 (23.69%)
Non- Hispanic Black	2128 (15.57%)
Non-Hispanic Other	857 (9.4)
Age	
24 and under	663 (5.87%)
25-34	4359 (41.22%)
>34	4330 (52.91%)
Marital Status	
Married to the person of the opposite sex	4074 (55.08%)
Never married	3294 (26.21%)
Divorced, Widowed, annulled, separated	1987 (18.71%)
Maternal education	
Beyond high school	4618 (55.22%)
High school	2315 (22.93%)
Less than high school	2419 (21.85%)
Payment for delivery	
Private insurance	932 (55.35%)
Medicaid	1176 (44.65%)
Been on Public assistance last year	
Yes	52.51 (45.9%)
No	(54.91%)
Federal poverty level	
0% – 199%	6030 (54.72%)
200% and above	3322 (45.28%)
Geographical location	
City	3579 (32.01%)
Sub-urban	4086 (51.09%)
Rural	1687 (16.89%)
Parity	
1 pregnancy	3474 (37.37%
2 or 3 pregnancies	4178 (45.38%)
4 or more pregnancies	1700 (17.25%)

Table 2. Comparing sociodemographic characteristics of respondents in terms of pregnancy care

	Prenatal Care			Post Pregnancy Care		
Characteristics	**Yes(%weight)**	**No(%weight)**	**P**	**Yes(%weight)**	**No(%weight)**	**P**
Disability			0.19			0.26
Yes	178 (9.93)	152 (6.5)		131 (10.46)	43 (2.48)	
No	938 (60.8)	362 (22.86)		814 (76.91)	133 (10.15)	
Maternal age			0.02*			0.48
24 or less	172 (11.79)	69 (3.41)		143 (16.41)	43 (2.47)	
25 to 34	746 (46.42)	278 (14.33)		627(53.16%)	82 (6.2)	
>34	191 (12.53)	167 (11.52)		175(17.81%)	51 (3.95)	
Race and ethnicity			0.41			0.32
Non- Hispanic White	417(35.82)	178 (14.44)		359 (41.36)	42 (3.90)	
Hispanic	335 (17.27)	115 (5.2)		290 (23.01)	65 (4.94)	
Non-Hispanic Black	237 (9.95)	158 (6.70)		181 (12)	46 (2.54)	
Non-Hispanic Other	120 (7.69)	63 (2.93)		115 (11)	23 (1.25)	
Marital status			0.61			0.35
Married to the person of the opposite sex	494 (38.97)	135 (14.47)		441 (47.39)	58 (5.62)	
Never married	431 (22.45)	246 (9.30)		368 (30.21)	72 (4.21)	
Divorced, widowed, annulled, or separated	184 (9.32)	133 (5.49)		136 (9.77)	46 (2.8)	
Education			0.37			0.00*
>12 Years	553 (37.93)	219 (17.13)		460 (42.2)	50 (3.50)	
12 Years (high school)	318 (20.14)	137 (5.45)		282 (29.12)	53 (3.13)	
<12 years	238 (12.67)	158 (6.68)		203 (16.05)	73 (6.0)	
Payment method			0.29			0.04*
Private insurance	254 (47.6)	38 (6.91)		241 (48.99)	19 (3.45)	
Medicaid	290 (37.25)	83 (8.24)		265 (40.43)	61 (7.13)	
Public assistance in the last 12 months			0.60			0.13
Yes	735 (39.36)	344 (14.9)		636 (50.14)	145 (9.53)	
No	374 (31.37)	170 (14.37)		309 (37.23)	31 (3.1)	
Federal Poverty level			0.25			0.24
0% - 199%	778 (46.62)	368 (15.9)		668 (60.42)	153 (10.42)	
200% and above	331 (24.11)	146 (13.37)		277 (26.94)	23 (2.21)	
Geographical location			0.35			0.58
City	470 (24.3)	232 (9.79)		373 (30.24)	77 (5.38)	
Sub-Urban	467 (35.31)	205 (16.67)		418 (42.0)	63 (4.8)	
Rural	172 (11.13)	77 (2.8)		154 (15.13)	36 (2.45)	
Parity			0.00 *			0.5
1 pregnancy	408 (26.19)	152 (8.37)		354 (33.26)	55 (3.84)	
2 or 3 pregnancies	501 (32.13)	209 (10.89)		438 (40.61)	74 (5.22)	
4 or more pregnancies	200 (12.42%)	153 (10.0)		153 (13.5)	47 (3.57)	

* Chi-Square results; $p < 0.05$

3.1. Prenatal Care

Logistic regression analysis shows that women with disabilities (OR 0.65, 95% CI: 0.23 – 1.78) were less likely to have received prenatal care as compared to women without disabilities but this was not significant. Women whose delivery costs were paid through Medicaid as compared to private insurance were significantly less likely to have received prenatal care in the last 12 months (OR 0.55, 95% CI: 0.31- 0.99), likewise, women with Parity of 4 and above were significantly less likely to have received prenatal care in last 12 months as compared to those who had Parity of 1, (OR 0.31, 95% CI: 0.11 - 0.82). Women with income at 0%-199% of the federal poverty level (FPL) were significantly more likely (OR 2.44, 95% CI: 1.13 – 5.24) to have received prenatal care as compared to women with income at 200% and above FPL. These findings are listed in table 3 (titled results of logistic regression analysis for prenatal care).

Table 3. Results of logistic regression analysis for prenatal care

Prenatal care in the last 12 months		
Characteristics	**Adjusted Odds Ratios**	**95% Confidence Interval**
Disability		
Yes	0.65	(0.23 -1.78)
No	Reference	
Race		
Non – Hispanic White	Reference	
Hispanic	1.85	(0.64 - 5.32)
Non- Hispanic Black	0.79	(0.32 – 1.96)
Non – Hispanic Other	0.97	(0.28 – 3.39
Age		
24 and under	1.24	(0.48 -3.18)
25-34	Reference	
>34	0.36	(0.12 – 1.06)
Marital status		
Married to the person of the opposite sex	Reference	
Never married	0.93	(0.34 – 2.52)
Divorced, widowed, separated	0.57	(0.18, 1.75)
Maternal education		
Beyond high school	Reference	
High school	1.16	(0.46 – 2.94)
Less than high school	0.89	(0.29 – 2.71)
Payment for the delivery		
Private insurer	Reference	
Medicaid	0.55*	(0.31 – 0.99)
Been on public assistance last year		
Yes	0.55	(0.27 – 1.12)
No	Reference	
Federal poverty level		
0-199%	2.44*	(1.13 – 5.24)
200% and above	Reference	
Geographic location		
City	Reference	
Sub-urban	0.66	(0.33 – 1.33)
Rural	1.44	(0.48 – 4.34)
Parity		
1 pregnancy	Reference	
2 or 3 pregnancies	1.03	(0.50 – 2.15)
4 or more pregnancies	0.31*	(0.12 – 0.82)

* Results of logistic regression analysis; p <0.05

Women that have been on public assistance in the last 12 months (themselves or a family member) were less likely (OR 0.55, 95% CI: 0.27 – 1.12) to have received prenatal care as compared to those, not on public assistance, but this was not significant.

Never married women (OR 0.93, 95% CI 0.38-2.7) and women whose response to the marital status question included divorced, widowed, annulled, or separated (OR 0.57, 95% CI: 0.18 – 1.75) were less likely to have received prenatal care as compared to women married to a person of the opposite sex. As compared to those with college education, women with 12 years education (OR 1.16, 95% CI: 0.46- 2.94) were more and those with less than 12 years education (OR 0.89, 95% CI: 0.29 – 2.71) were less, likely to have received prenatal care respectively; but this was not significant.

3.2. Post-pregnancy care

Women with disabilities were less likely (OR 0.75, 95% CI: 0.28 – 1.95) to have received post-pregnancy care as compared to those without disabilities, though this was not statistically significant. Women with less than 12 years of education were significantly less likely (OR 0.20, 95% CI: 0.05 – 0.72) to have received post pregnancy care as compared to those with college level education. Hispanics (OR 0.62, 95% CI: 0.25 – 1.55), non-Hispanic Black (OR 0.71, 95% CI: 0.16 – 3.12), and non-Hispanic Other women (OR 0.53, 95% CI: 0.11 – 2.49) were all less likely to have received post-pregnancy care as compared to non-Hispanic White Women, but this was not significant. These findings are listed in table 4 (titled results of logistic regression for post-pregnancy care).

Table 4. Results of logistic regression for post-pregnancy care

	Prenatal care in the last 12 months	
Characteristics	**Adjusted Odds Ratios**	**95% Confidence Interval**
Disability		
Yes	0.75	(0.28 – 1.95)
No	Reference	
Race		
Non – Hispanic White	Reference	
Hispanic	0.62	(0.25 – 1.550
Non- Hispanic Black	0.71	(0.16 – 3.12)
Non – Hispanic Other	0.53	(0.11 – 2.49)
Age		
24 and under	0.52	(0.20 – 1.31)
25-34	Reference	
>34	1.02	(0.33 – 3.08)
Marital status		
Married to the person of the opposite sex	Reference	
Never married	1.57	(0.63 – 3.92)
Divorced, widowed, separated	0.40	(0.08 – 1.90)
Maternal education		
Beyond high school	Reference	
High school	0.57	(0.13 – 2.44)
Less than high school	0.20*	(0.05 – 0.72)
Payment for the delivery		
Private insurer	Reference	
Medicaid	0.97	(0.43 – 2.18)
Been on public assistance last year		
Yes	0.97	(0.43 – 2.18)

No	Reference	
Federal poverty level		
0-199%	0.94	(0.11 – 7.48)
200% and above	Reference	
Geographic location		
City	Reference	
Sub-urban	0.59	(0.25 – 1.37)
Rural	0.89	(0.35 – 2.2)

Table 4. continued

Parity		
1 pregnancy	Reference	
2 or 3 pregnancies	0.78	(0.38 – 1.60)
4 or more pregnancies	0.84	(0.44 – 2.57)

* Results of logistic regression ; $p < 0.05$

Women on Medicaid (OR 0.97, 95% CI: 0.43 – 2.18), public assistance (OR 0.76, 95% CI: 0.19 – 2.99) and those with income at 0%-199% FPL (OR 0.94, 95% CI: 0.11 – 7.48), were less likely to have received post-pregnancy care as compared to those with private insurance, not on public assistance, and income level at 200% and above FPL respectively. But this was not significant.

4. Discussion

This study did not find significant effects of disability on the utilization of either prenatal or post-pregnancy care. Effects of disability on access to other areas of care have been documented in previous research, a possible explanation could be the limited number of disability that was included in NSFG surveys. The disabilities included in the survey do not cover the entire spectrum of disabilities. This study, however, found that women with less than high school education were less likely to receive post-pregnancy care. Women with four or more pregnancies were less likely to receive prenatal care. Women on Medicaid (a government program that provides healthcare insurance to low-income families and individuals) were less likely to receive prenatal care as compared to those with private insurance. These findings are consistent with previous research and highlight the importance of underlying determinants of health such as education and poverty. Viewed from a biological embedding and life course health development (LCHD) standpoint these findings indicate that inadequate access to healthcare around pregnancy for low income and less educated mothers not only have immediate consequences in term of their pregnancy outcomes but may affect the long term health trajectories of the newborns and their mothers.

4.1. Limitations

A limitation of the study was the measurement of disability status which was restricted and did not include the overall spectrum of disabilities hence the small pool of women with disabilities (N=1942), moreover, questions related to prenatal and post pregnancy-related care were again restricted to last 12 months. Collection of disability data as self-reported was another limitation the actual number of people with disability may have been higher than those who chose to self-report. Moreover, the disability questions were limited and did not include the whole spectrum of mental and physical disabilities.

5. Conclusion

Using nationally representative National Family Growth data (2013-2015) this study looked at how disabilities (mental and physical) affected utilization of prenatal and post-pregnancy care. Although this study did not find a statistically significant effect of disability on the utilization of prenatal and post-pregnancy care further research needs to be conducted on these subjects with larger datasets that include comprehensive information about the disability status of women during pregnancy.

Ethical Statement

This research has been conducted using secondary data from the National Survey of Family Growth (NSFG) made available by the National Center of Health Statistics at the Centers for Disease Control and Prevention (CDC) in the United States. These national survey datasets are made available to researchers after all the personally identifiable information has been removed by the United States National Center of Health Statistics. Thus, the data used for this analysis did not contain any personally identifiable information from participants as required by law in the United States. These surveys are conducted by United States federal government agencies and data collection and dissemination to researchers is made in strict compliance with laws and ethical standards. Therefore, this secondary analysis did not require IRB approval, as no interaction with human and or animal subjects or their personally identifiable information was made.

Compliance to the Research and Publication Ethics:

This study was carried out in compliance with responsible conduct in research and adheres to rules of research and publication.

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Research Article

EVALUATION OF RDW, MPV, PLATELET LABORATORY PARAMETERS IN PROSTATE CANCER PATIENTS ADMITTING TO EMERGENCY DEPARTMENT WITH HEMATURIA

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Abstract: *Prostate Cancer (PCA) is the most common among urological malignant tumors. Prostate cancer patients may be unable to urinate and may have hospital admissions with symptoms like erectile dysfunction or hematuria. Although hematuria is a highly common clinical manifestation in society, the frequency of it is not known in prostate cancer patients, which is one of the urological malignancies. The purpose of this study was to investigate the relation of RDW (distribution width of the red blood cells), MPV (mean platelet volüme), and Platelet Blood Parameters with hematuria in prostate cancer patients admitting to the emergency clinic with hematuria. The present study was conducted retrospectively by examining the hospital automation system and patient files of prostate cancer patients admitting with hematuria between 01.01.2018-01.01.2020 to Yozgat Bozok University Emergency Medical Clinic. A total of 60 patients with full files and that matched study criteria were included in the study. For the purpose of comparing blood parameters, 45 patients with prostate cancer, nonspecific complaints, and non-additional diseases were evaluated as the control group. MPV (mean platelet volume), RDW-CV (red blood cells distribution width) blood parameters of patients with prostate cancer hematuria were found to be significantly higher in the control group. The platelet value of the patient group was found to be significantly lower than the control group. However, the platelet blood parameter values were significantly lower in patients with major hematuria than in patients with minor hematuria (<0.05). According to the results of the present study, we believe that all the three parameters (RDW, MPV, and Platelet levels), which can be measured in full blood count in the prostate cancer patient group, in particular, can guide clinicians that the finding of hematuria can develop, and will be beneficial in follow-up and treatment. However, unlike RDW and MPV laboratory parameters, we think the Platelet parameter is an important parameter in predicting the type of hematuria that can develop.*

Keywords*: Prostate Cancer, Hematuria, RDW, MPV, Platelet*

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1. Introduction

Prostate Cancer (PCA) is the most common among urological malignant tumors. [1.2] However, it is the second cause after lung cancer in cancer-related deaths in the male gender [3]. Prostate cancer patients may be unable to urinate and may have hospital admissions with symptoms like erectile dysfunction or hematuria [4]. Hematuria is a rare finding in normal physiology that raises concerns in people [5]. It is also a clinical manifestation common in society and can reach up to 20% in terms of prevalence [6, 7]. Many factors, which include exercise, inflammation, structural deterioration, malignancy, and trauma can cause hematuria [8]. Although hematuria is a highly common clinical manifestation in society, the frequency of it is not known in prostate cancer patients, which is one of the urological malignancies [9].

Hematuria appears before us in two ways. Macroscopic hematuria can be seen in the patient's urine, which allows the patient to come to the physician more quickly [10]. More than 50% of patients who have macroscopic hematuria have an important urogenital system disease [11]. Macroscopic hematuria is known as a high-risk symptom for prostate cancer [12]. Another form is microscopic hematuria [7, 13], defined as the presence of more than 3 red blood cells in each large magnification area in 2 of 3 microscopic examinations of urine analyses at 2-3-week intervals. Microscopic hematuria varies clinically. The appearance of at least 3 erythrocytes in a single urine sample in a high-risk patient group in terms of cancer requires general urological evaluation [13].

In the literature, it is reported that hematuria might stem from bleeding, petechial rash, nose bleeding, gastrointestinal bleeding, retinal bleeding, and brain bleeding may be because of platelet miscarriage [14]. The numerical change in platelet blood cells playing direct roles in clotting and inflammatory regulation can cause bleeding [15]. It was reported in a study in the literature that platelet increase was a predictor in hidden malignancies [16]. However, the Mean Platelet Volume (MPV), which is also part of this study, reflects the platelet size that is associated with platelet production and activation [17, 18]. In a healthy population, there is an inverse relation between MPV and platelet count [13]. Some studies emphasize that the MPV and platelet values vary with the changes in blood parameters in patients with malignancies [19, 20].

Another parameter included in our study, the RDW (distribution width of the red blood cells) has a linear relation with recurrent or massive bleeding of the laboratory parameter [21, 22]. RDW is a variation coefficient of the red blood cell volume, which can be routinely tested in full blood count. It usually increases because of erythropoiesis deficiencies or accelerated red blood cell destruction [23]. The increase in the diameter variability of the erythrocytes causes increases in the erythrocyte distribution volume (RDW) [24]. It is reported in the literature that the RDW laboratory parameter increases especially in studies related to anemia, chronic renal failure, and heart failure [23, 25]. Some studies reported that RDW value is a predictor of mortality in coronary artery disease and cancer cases [26]. However, in the literature, it was also reported that the RDW parameter is an indicator of inflammation [27]. In a previous study, it was emphasized that the RDW Laboratory Parameter might be used in the evaluation of progression in prostate cancer patients [53].

The purpose of this study was to investigate the relation of RDW, MPV, and Platelet Blood Parameters with hematuria in prostate cancer patients admitting to the emergency clinic with hematuria.

2. Method

2.1. Study Design

The present study was conducted retrospectively by examining the hospital automation system and patient files of prostate cancer patients admitting with hematuria between 01.01.2018-01.01.2020 to Yozgat Bozok University Emergency Medical Clinic. Patients who were over the age of 18 were included in the study. Approval was obtained from the Local Ethics Committee for the study. A total of 60 patients with full files and that matched study criteria were included in the study. For the purpose of comparing blood parameters, 45 patients with prostate cancer, nonspecific complaints, and non-additional diseases were evaluated as the control group. The full blood count values were recorded for the PCA and hematology patients in the first 24 hours of hospital admissions analyzed from the venous blood kept at EDTA tubes and analyzed with Sysmex XN-1000, Japanese hematological analyzer. In the blood analysis, MPV, RDW, Platelet (Plt) blood parameters were recorded in files of each patient, and for the control group. Patients with hematuria and other diseases (i.e. renal failure, renal stone, urinary tract infection), because of prostate cancer, which could lead to similar clinical findings, patients with hematuria and patients with urea and creatinine values outside normal limits were excluded from the study.

Ethical statements: Before the commencement of the study, the approval of the necessary ethics committee was obtained from the Yozgat Bozok University Ethics Committee of Clinical Researches (Date: 11/12/2019 Number: 2019-11-280).

2.2. Statistical analysis

All statistical data were analyzed with SPSS 20.0 version program for Windows. Demographic examination of patients was made with descriptive statistic data. The Chi-Square test was used in the study if the data were qualitative. When the study data were evaluated, the numerical values were expressed as mean ± standard deviation. The study that was conducted in the scope of clinical research used the Mann-Whitney U-test in statistical evaluations that depended on statistically parametric and statistical changes between two independent groups, the student ***t***-test, the nonparametric relationship variables, categorical (nominal or ordinal), the numerical independent group were used. Spearman Correlation Method was used in non-parametric data for the correlations between the study data. Laboratory parameters, which were significant in hematuria according to clinical results, were evaluated with ROC curve (Receiver-Operating Characteristics Curve). The level of significance was considered $p< 0.05$ in all comparisons.

3. Results

A total of 70.2% (n=42) of the total of 60 patients included in the study were minor hematuria patients (MHH), and 29.8% (n=18) were major hematuria patients. A total of 45 control groups (CG) were included in the study. The mean age of the patients with hematuria was 69.4± 9.3, and the mean age of the Control Group was 67.2±7.4. No statistically significant differences were detected in the inter-group age factor (t:1.344; p=0.182). Although 63.8% (n=38%) were discharged as a result of the final clinical result of the patients, 36.2% (n=22) patients were hospitalized. The PSA value of the patient group was 10.9 ±8.6 ng/ml. The PSA value of the control group was 11.6±7.8.(t:234, p=0.816).

When the prostate patient group and control groups admitted with hematuria are evaluated, RDW-CV blood parameter values are shown in Table 1. The RDW blood parameter was found to be significantly high in the control group as shown in Table 1 ($p<0.05$). When the relation between RDW-CV laboratory parameter level and hematuria was evaluated, a weak and positive relationship was detected ($p<0.05$) (Table 2). RDW-CV blood parameter was not statistically significant in minor and major hematuria patients ($p>0.05$).

The MPV blood parameter values are summarized in Table 1. When the prostate patient groups admitting with hematuria were evaluated, the difference between the patient group and control groups in terms of MPV average was statistically significant ($p<0.05$). When the relation between the MPV laboratory parameter and hematuria was evaluated, a weak and positive relation was found ($p<0.05$) (Table 2). However, when MPV laboratory parameters were evaluated in major hematuria and minor hematuria, no statistically significant differences were detected ($p>0.05$).

Table 1. Analysis of Laboratory Parameters of Patient and Control Group

Laboratory Parameters	**Control groups(Mean± Sd)**	**Patient groups (Mean±Sd)**	**p value**	**Minor hematuria (Mean±Sd)**	**Major Hematuria(Mean±Sd)**	**p value**
RDW-CV%	12.8±0.7	13.6±1.5	0.028*	13.2±1.7	13.8±1.3	0.379
MPV fl	10.3±0.9	11.2±1.3	0.031*	10.9±0.9	11±1.4	0.815
Platelet x 10^9/L	209.08±61.5	293±55.2	0.000*	219.9±57.7	175.4±32.7	0.041*
It was analyzed by Mann-Whitney U test as statistical analysis.* = p <0.05 was considered significant. Sd: Standart deviation. RDW-CV: Distribution width of the red blood cells, MPV: m-Mean platelet volume.						

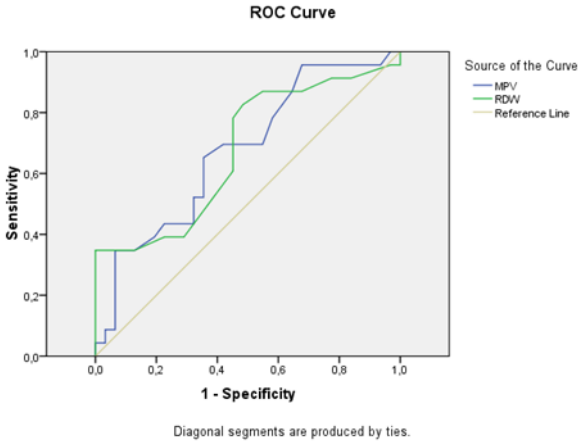
Platelet blood parameter values are given in Table 1. According to this table, platelet values differed at statistically significant levels in patient groups and control groups ($p<0.05$). When the relations between platelet levels and hematuria formation was evaluated, a high level of negative relation was detected ($p<0.05$) (Table 2). Also, Plt blood parameter values were significantly lower in patients with minor hematuria compared to major hematuria patients as shown in Table 1 ($p<0.05$). When the relation between hematuria and platelet and hematuria type was evaluated in patients with prostate cancer admitting with hematuria, a moderate and negative relation was found ($r:-0.403, p\leq0.001$).

Table 2. Correlation analysis of hematuria with RDW, MPV and Platelet laboratory parameters

Laboratory Parameters	***r***	***P***
RDW-CV	0.302	0.026
MPV	0.397	0.029
Platelet	-0.609	0.000

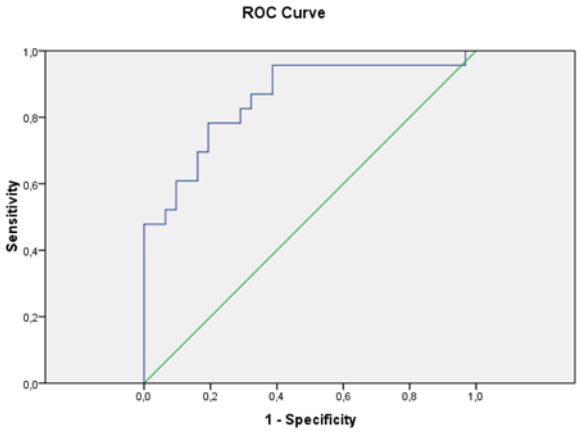
Spearman Correlation Method was used. The level of significance was considered $p< 0.05$ in all comparisons. RDW-CV: Distribution width of the red blood cells, MPV: m-Mean platelet volume.

According to the results obtained in evaluating the development of hematuria of prostate cancer patients, EAA, cut-off, sensitivity, and specificity were analyzed with the ROC curve in differentiating the MPV, RDW-CV, and Platelet laboratory parameters to guide clinicians in patient monitoring. For the MPV laboratory parameter, EAA was 0.673%, 10.4 fl, 65.2% and 65%, respectively. For EAA, RDW-CV parameter, cut-off, sensitivity and specificity were 0.676%, 12.65%, 82.6% and 52%, respectively (Figure 1). For platelet parameters, EAA, cut-off, sensitivity and specificity were 0.856%, 272.0%, 87% and 68%, respectively (Figure 2).



ROC Analysis of MPV, RDW laboratory parameter in patients with Hematuria; For the MPV laboratory parameter, EAA was 0.673%, 10.4 fl, 65.2%, and 65%, respectively. For EAA, RDW-CV parameter, cut-off, sensitivity and specificity were 0.676%, 12.65%, 82.6% and 52%.

Figure 1. ROC Analysis of MPV, RDW laboratory parameter in patients with Hematuria

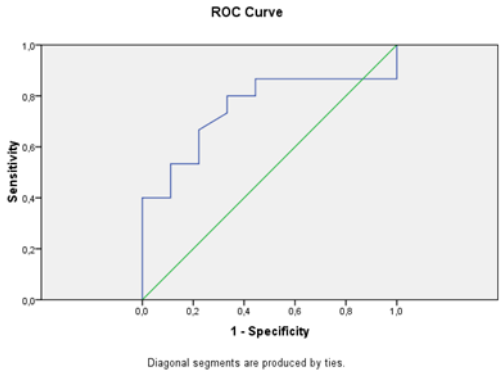


ROC Analysis of Platelet Laboratory parameter in patients with Hematuria AUC: 0.856, Cut-off point 272.0, lower limit: 0.749, upper limit: 0.962.

Figure 2. ROC Analysis of Platelet Laboratory Parameter in Patients with Hematuria

According to the results obtained in the evaluation of the hematuria type of the prostate cancer patients, EAA, cut-off, sensitivity, and specificity were analyzed with the ROC curve in differentiating it for the clinician in patient follow-up with the significance of platelet laboratory parameter. For platelet

parameters, EAA, cut-off, sensitivity and specificity were 0.752%, 218.0,53% and 88%, respectively (Figure 3).



ROC Analysis of Platelet Laboratory parameter in hematuria type of patients with prostate cancer, For platelet parameters, EAA, cut-off, sensitivity, and specificity were 0.752%, 218.0,53%, and 88%.

Figure 3. ROC Analysis of Platelet Laboratory parameter in hematuria type of patients with prostate cancer

4. Discussion

Prostate Cancer is one of the most important health problems that affect the male gender. Hematuria is one of the acute symptoms faced by patients in urological malignity (28). The development of hematuria is a finding to be considered especially in prostate cancer patients (29). In 60% of the patients with major hematuria, prostate cancer exists in the etiology (30).

In the present study, we evaluated the effects of the difference in the Mean Platelet Volume (MPV), RDW-CV, and platelet values in the development of hematuria in prostate cancer patients admitting with hematuria. When literature was reviewed, studies on the effects of blood parameters in hematuria patients was limited. Hematuria develops because of many causes like kidney stone, urinary system infections in prostate cancer patients (9). According to the results of our study, RDW-CV blood parameter and MPV values were high when compared to the control group, and platelet values were low compared to the control group in prostate patients who developed hematuria. We also observed that platelet values affected major and minor hematuria.

The systemic inflammatory response is affected by tumor cells in the body. During the inflammatory process, many mediator platelets are activated and released [31, 32]. Platelets are observed in many cancer types [33, 34]. Studies in the literature report that platelets especially in cancer patients affect survival [35, 36]. In addition to the effects on inflammation and cancer, platelets are at the forefront in diseases characterized by bleeding. In the literature, low platelet levels are emphasized in some studies related to bleeding like uterine bleeding, GIS bleeding [37, 38, 39, 40]. According to the results of this study, low platelet levels were found in the group of patients with major hematuria. In their study conducted with patients with ITP, Piel-Julian et al. reported that the number of platelets affected macroscopic hematuria [41]. According to the results of our study, we believe that low platelet levels may be a predictive parameter in the formation of hematuria, which is supported by previous studies. However, the variability in the number of platelets can also affect major or minor hematuria.

Mean Platelet Volume (MPV) is another parameter evaluated in full blood count showing the function and activation of MPV platelets from platelet parameters [42]. It was reported that MPV laboratory parameter has an inflammation parameter in some studies [43, 44]. In a study in the literature, hematuria and MPV parameters were associated with urinary system diseases [45]. Similarly, MPV value was significantly high in hematuria patients than in the control group in our study. In some studies, it was reported that the MPV value was effective in evaluating the clinic of patients in some patients with GIS bleeding [39, 46]. Unlike our study, in another study conducted on menstrual bleeding, which has a different bleeding focus, the MPV value was found to be lower than the controls [47]. We believe that this difference is because of the bleeding focus and mechanisms.

It was found that the RDW-CV parameters were high in the patient group when compared to the control group. In a study conducted with cancer patients, RDW value was found to be higher than the healthy control group. It was stated that there are different RDW values, especially in cancer types, and according to the localization [48]. The RDW blood parameter has a strong relation with inflammatory factors like C-reactive protein, erythrocyte sedimentation rate, and similar inflammatory factors. It was reported in the literature that the RDW was also an effective indicator in determining mortality [49, 50, 51]. In a study conducted in the literature, the prognostic value of RDW-CV was reported especially in prostate cancer patients [52]. The fact that the patient group of our study had prostate cancer explains the elevated RDW levels. We believe that elevation of the RDW parameter in prostate cancer patients with hematuria compared to PCA patients who do not develop hematuria can predict the development of hematuria, which is a clinical characteristic in prostate cancer patients.

In the patient group evaluated in the scope of the study, it was found that the RDW laboratory parameter did not affect the hematuria type. However, we believe that there is no parameter that can be used to predict the type of hematuria.

The study had several limitations the first of which is was a relatively small sampling size and the second of which was the single-centered design of the study.

5. Conclusion and Recommendations

In conclusion, hematuria can develop in many diseases besides normal human physiology. According to the results of the present study, we believe that all the three parameters (RDW, MPV, and Platelet levels), which can be measured in full blood count in the prostate cancer patient group, in particular, can guide clinicians that the finding of hematuria can develop, and will be beneficial in follow-up and treatment. However, unlike RDW and MPV laboratory parameters, we think the Platelet parameter is an important parameter in predicting the type of hematuria that can develop.

Ethical statements: Before the commencement of the study, the approval of the necessary ethics committee was obtained from the Yozgat Bozok University Ethics Committee of Clinical Researches (Date: 11/12/2019 Number: 2019-11-280). The study was conducted in line with the principles of the Helsinki Declaration.

The compliance to Research and Publication Ethics: This work was carried out by obeying research and ethics rules.

Conflict of Interest Statement: The authors reported that there was no conflict of interest.

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Research Article

A QUALITATIVE STUDY ON NEEDS AND BARRIERS TO MENTAL HEALTHCARE SERVICE ACCESS BY REFUGEE WOMEN IN WINNIPEG, MANITOBA, CANADA

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Abstract: *The world refugee crisis is currently at a record level. Refugees have an increased risk of developing a mental illness like post-traumatic stress disorder (PTSD), depression, and somatic symptoms because of their exposure to violence. Despite increased healthcare needs, refugees face considerable barriers in accessing services. Women refugees may have unique mental healthcare needs due to their vulnerability to gender-based violence and abuse during flight from war. This study explores the mental healthcare needs and barriers in accessing services among Syrian refugee women in Winnipeg. Semi-structured interviews were conducted with nine refugee women and six service providers/decision-makers. The data were analyzed using a qualitative thematic approach aided by NVivo 12 qualitative software. The most cited barriers in accessing mental healthcare services were language, weather, unemployment, stigma, system navigation, different understandings of mental health and illness, and lack of culturally competent care. Results from this study can inform decision-makers of issues requiring policy responses to improve mental healthcare for refugee women in Manitoba.*
Keywords*: Refugee women, mental healthcare, access barriers, qualitative research*

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1. Introduction

The civil war in Syria has created a humanitarian crisis, probably the worst in our lifetime. Over 6.7 million Syrians have fled their country to seek safety, mostly in the neighbouring countries - Lebanon, Turkey, Jordan, Iraq, as the United Nations High Commissioner for Refugees (UNHCR) reports [1]. The Government of Canada responded to the humanitarian crisis in Syria by welcoming 25,000 refugees within 100 days between November 4, 2015, and February 29, 2016, under the project named 'Operation Syrian Refugees' [2]. Canada worked with UNHCR to identify vulnerable refugees in Jordan and Lebanon, who were also a low-security risk, such as women at-risk and complete families. The commitment to resettling Syrian refugees continued in 2017, and 40,081 refugees were resettled in Canada as of January 29, 2017 [3].

The UNHCR reported the most prevalent mental health problems among Syrian refugees as depression, prolonged grief disorder, post-traumatic stress disorder (PTSD), and various forms of anxiety disorders [4]. Lack of access to healthcare prior to migration, prolonged and poor living conditions in camps, a journey during migration, and overcrowded reception centers contribute to the poor health conditions of refugees [5]. As refugees arrive in safety and protection in Canada, the struggles do not end there since new challenges begin during their settlement and integration process [6], further compromising mental wellbeing. Social causes of mental illness often referred to as social determinants of health, such as gender roles and identities, age, unemployment, and income insecurity, substandard living conditions, intergenerational struggles, isolation, racism, and discrimination, can make the integration process very difficult and exacerbate the mental health condition of refugees [7]–[9]. Not speaking English, cultural differences, lower socio-economic status, reluctance to disclose mental illness, religious beliefs, and many other barriers may further limit access to healthcare [10]. Women refugees may have unique mental healthcare needs due to their vulnerability to gender-based violence and abuse during flight from war [11]–[13]. The effects of war, family separation, displacement, and long travel may pose additional stresses on women, particularly when coinciding with pregnancy, childbirth, and caring for children [7], [12], [14]. Moreover, women refugees may be disproportionately challenged by social exclusion and isolation as compared to men as they are less likely to speak the language of the new country and be employed outside the home [9], [14]. Refugee women may not actively seek help, therefore potentially increasing their risk of developing long-term mental health issues or illness.

The Canadian province of Manitoba resettled a record 3,730 refugees in 2016 [15]. Winnipeg is the largest city in the province and the vast majority of its population live there. Considering the recent influx of refugees, it is important to understand how Manitoba is addressing the mental health needs of refugee women. In recent years, the healthcare services in Manitoba are experiencing major funding decreases and policy reforms, which may bring changes to how the mental healthcare services are offered in the province [16]–[18]. While the mental healthcare needs of refugees, especially refugee women, are significant, there is a lack of detailed research into access to mental healthcare services for refugee women in Manitoba and Canada. Most studies focus on immigrants, which includes refugees. However, there is a clear distinction between the two groups – immigrants are people who choose to come to live permanently in a foreign country whereas refugees are forced to flee their country of origin to seek safety in another country. Therefore, mental healthcare needs can not be generalized for all immigrants and refugees, especially when considering the past lived experience. No study is available on the mental healthcare needs of refugee women in Winnipeg or Manitoba. Although studies conducted in Winnipeg found evidence of mental health issues in many refugees and the challenges they face while accessing mental healthcare services [7], [19], [20], service providers and decision-makers were not included to examine their perspectives on refugee mental healthcare issues. This study, by exploring refugee women's mental healthcare needs and barriers to accessing services in Winnipeg, will bring the voices of refugee women to the attention of policymakers, as to the kinds of services they need, the services available to them, and the ways they now access services. Results from this study may be used to identify existing gaps in services and inform the ongoing development of services and support for refugees

2. Background

2.1. Refugee Settlement Statistics in Manitoba

Manitoba has welcomed an average of 1,250 refugees per year between 2006 to 2017 [15], [21]. The province accepted a record 3,730 refugees in 2016 and a 5-year average of over 1,900 refugees. In 2012, the number of refugees' arrival to the province decreased mainly due to the federal cap imposed on the Manitoba Provincial Nominee Program (MPNP) [21]. The increased processing times at Immigration Refugees and Citizenship Canada (IRCC) was also a contributing factor. However, after 2012 the number of refugees in the province continued increasing. In fact, the 2013 – 2017 data from IRCC shows that Manitoba is accepting the highest number of refugees per capita than any Canadian province or territory (Figure 1). According to the last statistical report on immigration facts published by the Ministry of Labour and Immigration [22], Manitoba settled nearly 6% of Canada's government-assisted refugees and 22% of privately sponsored refugees in 2014. In 2016, the majority of refugees to Manitoba came from Syria. Most refugees to Manitoba settled in Winnipeg, therefore the city is facing major challenges in meeting the complex physical and emotional issues and needs of refugees [21].

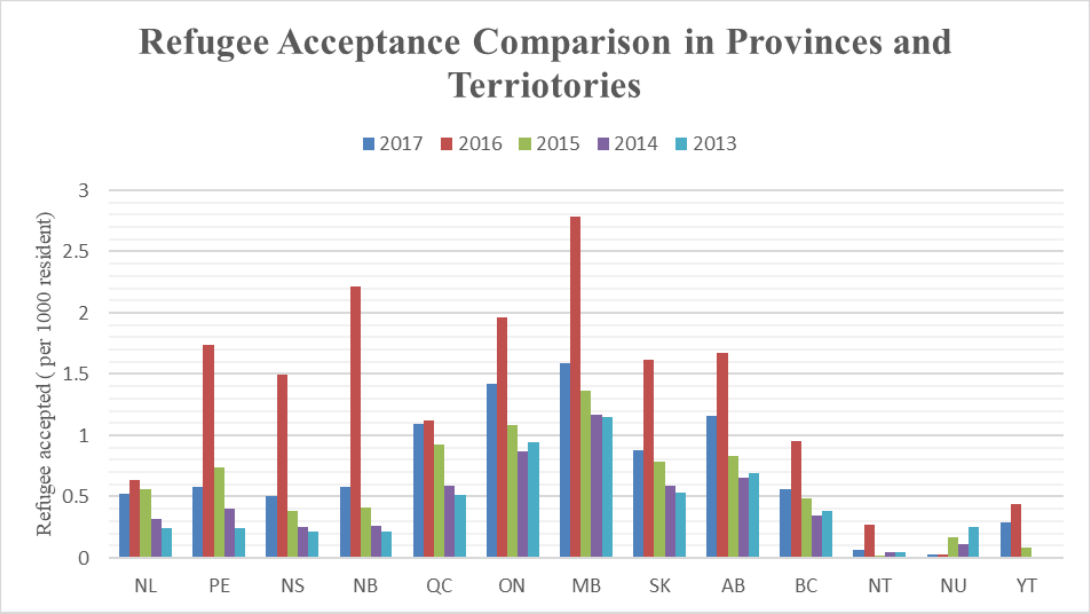

Figure 1. Refugee Acceptance Comparisons among Canadian Provinces and Territories [15]
*NL = Newfoundland and Labrador, PE = Prince Edwards Island, NS = Nova Scotia, NB = New Brunswick, QC = Quebec, ON = Ontario, MB = Manitoba, SK = Saskatchewan, AB = Alberta, BC = British Columbia, NT = Northwest Territories, NU = Nunavut, YT = Yukon

2.2. Available Mental Healthcare Resources in Manitoba

In Manitoba, mental healthcare services are provided through the local Regional Health Authorities' (RHA) mental health program. The Bridge Care Primary Clinic in Winnipeg provides a single point of access for the initial health assessment and primary care services for newly arrived government-sponsored refugees [23], [24]. The clinic also makes referrals for mental health services of which there are several mental healthcare service providers in Winnipeg, including mental healthcare services offered specifically to refugees. Mental healthcare services are also available at Winnipeg's major hospitals and urgent care facilities. Some hospitals have psychiatric nurses on duty in emergency.

While there are many programs and services available in Winnipeg, the effectiveness of these initiatives remains unclear. The supporting services may have been stretched to their limits and facing staffing shortages due to the recent record number of refugee influx in the province. Literature suggests that how refugees perceive the available mental healthcare services and how healthcare providers offer such services should be examined to understand refugee mental health needs and services [19], [25], [26]. In this study important information regarding the knowledge and accessibility of mental health services among refugee women in Winnipeg was obtained by interviewing refugee women, service providers, and decision-makers in Winnipeg.

3. Materials and Methods

3.1. Research Design

A qualitative research design was employed to explore the mental healthcare service accessibility issues of Syrian refugee women living in Winnipeg. Semi-structured interviews were conducted with refugee women and service providers/decision-makers living/working in Winnipeg. Interviews with the refugee women provided their perspective on mental wellbeing, healthcare needs, and barriers to accessing mental health services. Interviews with the service providers/decision-makers provided useful information on the need for culturally competent healthcare, collaboration among providers, funding, and provincial healthcare strategies. Organizations such as, settlement agencies and clinics that welcome and serve refugees in Winnipeg, were contacted to collaborate in recruitment and provide input in preparing the interview guides. The individual interviews were planned such that both the providers and refugee women's interviews were conducted concurrently. The interview guides were piloted first and then were updated, as necessary. Initial analyses and interviews also informed subsequent interviews so that it was possible to build on and further explore emerging themes.

Ethics approvals were obtained from (1) Health Research Ethics Board (HREB), University of Manitoba and (2) Research Access and Approval Committee, Winnipeg Regional Health Authority (WRHA). (Approval date: November 15,2018; Approval Number: H2018:406)

3.2. Sample and Recruitment

Nine Syrian refugee women were recruited for interviews. Eligibility criteria included refugee women who have settled in Winnipeg within the last 1 to 5 years and were between 18 – 45 years old. It was believed that women within this age range are more likely to seek employment, participate in EAL classes or other educational programs including colleges and universities, undertake more family responsibilities, and therefore would face challenges in accessing mental healthcare services. Moreover, women of this age group may have more interest in participating in interviews. Consideration was given to recruiting refugee women who spent a considerable amount of time (1 to 5 years) in Winnipeg after resettlement, therefore have accessed or had experience with mental healthcare services. The refugee women were recruited for interviews using a combination of convenience and snowball sampling. First, a list of refugee settlement organizations and specialized refugee primary care clinics in Winnipeg was prepared through an online search. Second, representatives of these organizations were contacted via sending email invitations followed by an in-person visit. Refugee support service organizations were requested to coordinate and facilitate the recruitment of their Syrian clients (convenience sampling).

Third, at the end of each interview, the refugee women were asked to recommend other potential participants for this study (snowball sampling).

Table 1 provides an overview of the participant characteristics. Among nine refugee women, six were married, two were widowed and one was single. All but one refugee woman disclosed their age, which ranged from 19 – 41 years, with family sizes ranging from 1-9. The education level among the refugee women participants varied. One refugee woman had a bachelor's degree from Syria and working part-time or in a temporary position in Winnipeg. One refugee woman was attending a post-secondary institution. The remaining seven participants had education levels in between elementary to Grade 9 and the majority mentioned attending English as an Additional Language (EAL) programs in Winnipeg. One refugee woman was employed, and another engaged in casual work. The majority of the participants had to rely on social assistance for living. Two participants were privately sponsored refugees (PSRs) and the remaining seven were government-sponsored refugees (GSRs). By reaching a sample size of nine, a wide range of participant characteristics was covered – such as PSRs and GSRs, employed and unemployed, single/widowed refugee women, and refugee women having spouses, large and small families, varying education background, etc.

Representatives from organizations who were contacted to help with recruiting refugee women were also requested for interviews as service providers either by themselves or by referring to their coworkers. In addition, personal communication and references were used to recruit potential interview participants. Manitoba Health, Seniors, and Active Living (MHSAL) were contacted to take part as a decision-maker. Five service providers and one decision-maker consented to participate.

Table 1. Interview Participants

Category	Participant Number	Participant Details
Syrian Refugee Women (RW)	9	• 2 Privately sponsored and 7 Government sponsored • 2 were able to communicate in English and 7 participated through interpreters • The duration of the settlement was 16 to 36 months
Service Providers and Decision Makers (SP)	6	Professionals who directly or indirectly serve refugees such as Psychiatrist, Family Physician, Settlement Worker, Decision Maker

3.3. Data Collection

The refugee women were offered one-on-one interviews at a time and a place of their convenience with the first author. Two out of nine Syrian refugee women were able to communicate in English. Two professional interpreters were required for the remaining seven interviews. Both interpreters were women and working at refugee serving organizations, but not from Syria. Service providers and decision-makers were offered options to participate in person, or via teleconference, based on the location and convenience. Informed consent was obtained from all participants before the interviews. Most of the interviews with refugee women were conducted at the refugee serving organizations, which may have further enhanced their comfort since they are familiar with space and environment. Initial analyses and interviews also informed subsequent interviews so that it was possible to build on and further explore emerging themes. The interviews were conducted between February to May 2019 and

lasted for approximately 40 – 90 minutes. All interviews were audio-recorded with permission and transcribed verbatim.

3.4. Analysis

The data were analyzed using qualitative analysis and coded for themes based on recurring issues aided by NVivo 12 qualitative software. Qualitative thematic analysis – which is a method for identifying, analyzing, organizing, describing, and reporting themes found within a data set [27], [28] was best suited for this study. Braun and Clarke (2006) presented thematic analysis as a linear, six-phased method which includes – (a) Familiarizing with Data, (b) Generating Initial Codes (c) Searching for Themes, (d) Reviewing Themes, (e) Defining and Naming Themes and (f) Producing the Report [27]. Additionally, the analysis met Lincoln and Guba's (1985) five criteria for trustworthiness– credibility, transferability, dependability, confirmability, and audit trails [29].

The interviews for both refugee women and service providers were analyzed simultaneously. In summary, the analysis process included reading the transcripts multiple times to familiarize with the data. Then a list of primary codes was developed inductively. The codes were further refined, expanded, and combined to form overarching themes. While reviewing, defining, and naming themes, sub-themes were assigned within themes where similarities among codes were found. In addition to the analysis software NVivo 12, suggestions from Braun and Clarke (2006) such as visual representations (mind-maps), and other techniques (tables, writing down the codes in a separate piece of paper and sorting the piles of developed themes, etc.) were implemented during the analysis [27].

4. Results

4.1. Mental Healthcare Needs of Refugee Women and Sources of Stress

The mental health issues that the Syrian refugee women talked about during the interviews were lack of overall mental wellbeing, anxiety, frustration, stress, and persistent sadness. Additional mental health concerns that the service providers identified among refugee women were trauma, mood issues, sleep problems, PTSD, and grief. The most common sources of stress identified among refugee participants were not speaking the English language, unemployment, health issues of family members, difficulties in terms of relationships with children, fear of negative repercussions (such as losing custody of children to Child and Family Services), struggles of settling in a new country, weather, bullying, the feeling of being unwelcomed, and family members left behind.

4.2. Barriers in Accessing Mental Healthcare Services

The barriers in accessing mental healthcare services were grouped into three themes as illustrated in Figure 2: material; structural and organizational; and social and cultural. Each theme is described in detail below. Importantly, there were also inter-relationships between some themes, which are also highlighted below. Lastly, what were described as barriers to accessing mental health services were, in many cases, simultaneously sources of stress, which potentially contributed to poorer mental health.

4.2.1 Material Aspects

(a) Employment and Income Level

Most of the refugee women interviewed did not work in the labour force and were relying on income assistance. Refugee women who are widowed and/or have children to take care of, face more challenges as their family roles begin to change and the traditional support system they had at home becomes non-existent. With increased family responsibilities, some work multiple jobs and do not have any time for self-care.

"The life is very hard over there, I mean the financial, I had to take care of everything. And, because I'm by myself, the responsibility is too big" (RW 5)

Figure 2. Mind Map of Barriers Faced by Refugee Women in Accessing Mental Healthcare

(b) Housing and Transportation

Immigrant & Refugee Community Organization of Manitoba (IRCOM) helps the refugee women to find affordable housing, usually centrally located in Winnipeg. Being located close to downtown, the participants described having better access to all services while living in these places. However, they need to move out after a certain period (usually 2-3 years). Several refugee women mentioned moving to the south side of the city and facing barriers in accessing services like transportation, distance to the facilities, etc. Both the refugee women and service providers also discussed the challenging weather conditions. The cold weather during winter makes it even more difficult to use public transit if they want to visit a doctor or therapy/counselling service provider.

"Among other barriers the cold, the winter is really bad for mobility. Especially we have a lot of people who have challenges, like physical challenges, wheelchair dependent. Some have a hard time to connect to handi-transit, which always takes time. So, mobility is a big thing" (SP 5)

Since the Health Sciences Center (HSC) (the largest hospital facility in the city of Winnipeg) and the majority of the service-providing organizations are located near the downtown area, participants talked about the lack of service facilities in other parts of the city, such as in the south end. Carrying disabled children to doctor's offices is another major challenge that a participant pointed out.

"For me, it was a challenge to take my children by myself, especially my two children, their physical disability – they can not walk" (RW 2)

For one participant, housing costs kept her so occupied that she was unable to think about her own mental health or to see a doctor. Financial inability limits the refugee women's access to better housing, in terms of both renting and purchasing, and hence was also a source of mental stress.

"The rent is very expensive and compares to our country, everything over there was very cheap, and here it is very expensive. We cannot afford it." (RW 6)

4.2.2 Structural and Organizational

(a) Language, Interpretation, and Communication

The language barrier is one of the major challenges in accessing any healthcare services that was repeatedly mentioned – in the literature, by the service providers, and the refugee women themselves.

"The first issue is language. Somebody is talking to you and you cannot respond to them. You don't understand anything. It is not easy." (RW 6)

The service providers discussed this issue as well. It is not easy for refugee women to learn a new language so that they can communicate with the service providers or in accessing services beyond healthcare. Moreover, as discussed in the literature, gender further complicates one's access to learn English, which the service providers found to be true.

"Language issue is a problem, especially in a lot of cultures women are not educated, they don't speak English, they have a hard time learning English because they are illiterate. Especially if they are single women with children and if there is no male figure around, it's harder for them to learn the language, navigation, as they try to make the appointments or going to the specialist appointment can be very difficult and challenging." (SP 5)

Due to the lack of English language fluency many refugee women need the assistance of an interpreter to communicate with mental health professionals. Needing the help of an interpreter means that someone else must attend appointments with the refugee women to translate, and the availability or wait times for that individual also adds to the wait time to see a psychiatrist or psychologist.

"The bigger issue we have here is language, it's a barrier. We always need somebody to be with us to translate." (RW 7)

Since professional interpretation services are not always available, options like using family members including children, friends, personnel from the same community or culture, telephone interpretation services, etc. have been explored by service-providing organizations. They all have disadvantages, as the service providers have pointed out.

"Sometimes we use telephone interpreters, which then could be from anywhere in North America. It's much more anonymous but it may not be as effective because you don't have the person in the room to read the facial expressions and know what's going on". (SP 2)

The service providers have noticed that many of their clients didn't like using the telephone and felt that therapy was enhanced by having an in-person interpreter in the room. Many refugee women were not comfortable sharing their mental health issues or past experiences in front of an interpreter who is from their same community. This also applies to using friends or family members. Therefore, on many occasions, refugee women have searched for service providers who speak the same language.

(b) System Unfamiliarity and Complicacy

The lack of knowledge about the Canadian healthcare system, in general, is a challenge for refugees. To see a specialist, for example, a Psychiatrist involves many steps like seeing a Family Physician or a Primary Care Physician first, then getting referred, making appointments, etc. The service providers have recognized that the system is complex for the refugee women and very different than what they have been used to.

"But the system is too complex. This one is for everyone, its not only for refugees." (SP 1)

"The system is different here. I think a lot of refugees are kind of lost about how the system works here. We try to tell them and explain to them in their first visit what is the emergency for, when should they go to the family doctor. But I think it's very challenging for them to get used to that, to learn the system. So, we need more communication, collaboration. Healthcare system is for sure a barrier." (SP 5)

(c) Navigation

System navigation is particularly challenging for refugee women, especially those who do not have a male figure around them. The refugee women recognized that there are services available for them, but they do not know how to get there, especially using public transit. Many depend on their husband to take them for appointments as they cannot navigate by themselves.

"I depend on him; because 2 weeks ago I tried to go into my early morning job, I wanted to go by myself. I just crossed the street, I slipped, I lost my bus pass, and the bus went (left). I went back home to wake up my daughter, I told her to give me a bus ticket, then I again went back. At that time, I realized how I'll deal/ work without him (my husband)." (RW 3)

"I can not find my way by using buses or knowing the addresses. The language is a big problem. Even there may be services out there, but I don't know how to reach to those services." (RW 1)

(d) Long Wait Time

Long wait time is a major problem for the overall healthcare system in Canada. Both the refugee women and services providers discussed this particular issue. The long wait time is a significant barrier as it demotivates the refugee women to seek help. There is a long queue in getting a specialist appointment or even at hospitals.

"In Middle East, they don't have appointments. When you are sick, you go, and you wait over there in the reception for example until your turn is coming. So, they don't like a long waiting." (SP 3)

"My son, he needed an operation for his hip, now we are waiting for 2 years. And there is no appointment for me." (RW 2)

4.2.3 Social and Cultural Aspects

(a) Different Understandings of Mental Health

When asked about what mental health and wellbeing means to them, most of the refugee women could not express their knowledge very well. Sensing a lack of overall well-being or being stressed were not viewed as mental health problems. Several refugee women who were interviewed did not use any

word consistently to express mental health issues. For example, they did not know what stress or depression means.

"I don't understand what the mental healthcare issues or mental health issues. I have not fully understood what mental health is. And where is the services." (RW1)

Mental illness is seen as a western concept by many refugees. It is a common practice in their culture to seek help from family, friends, or spiritual leaders first instead of seeing a medical professional. The refugee women mentioned that back home people with mental illness are being labeled as crazy, kept in isolation. At times the illness is described as 'nothing can be done as God has created people like this'. Therefore, many are not even willing to express any kind of mental health issue. The service providers had recognized the differences in understanding and expressing mental illness between Western and Middle Eastern culture.

"I guess, it also has to do with the culture. In western culture, we are more focused on our own mental health. Probably for their culture, if your family is doing well that means you are doing well. They might have an underlying mental health issue, but their mental health would be more focused on their family's mental health. And, I think that's cultural." (SP 5)

"I like to say something, in the back home when people see someone suffer from the mental health issue, they know this is something that we have no control over it. And, God creates those people like that." (RW 6)

Service providers corroborated the differences in understanding mental health as being a barrier to accessing services. Notably, this barrier was also partially attributed to the limited educational background of refugees rather than solely a cultural difference.

"At the beginning when they (clients) come, they don't understand anything about that one (therapy sessions). For example, if I tell them, okay I will refer you to the therapists, they don't understand. Especially when we are dealing with people with no educational background, they understand nothing. So, I have to tell them in a very simple way that, this is something related to mental health illnesses. Then they will go." (SP 3)

(b) Lack of Culturally Competent Care

The lack of culturally competent care is a significant barrier in accessing mental healthcare services for refugee women. The refugee women have a limited understanding of the 'Western' or biomedical approach to treatments for mental illness. Similarly, many service providers may also be unable to recognize or understand the way refugee clients express their mental illness. It could be difficult for a physician to read the body language or the role of culture in diagnosing or treating mental illness when not familiar with that culture.

"So, we got to be also careful how much do we ask about their past and their trauma. We've got to be sensitive to that. I mean not that such a cultural, but that may be in sense of how much we actually ask about, what the base to be able to make a diagnosis right. So how do we engage people in a respectful manner without re-traumatizing them all over again? And that's one of the challenges." (SP 2)

The service providers have talked about the importance of teamwork. The 'One size fits all' type of care may not work for these refugee women and will further limit their access to mental healthcare.

"You can't put them all in one bag, each culture is different, each refugee is different, they have different backgrounds. I think, you just have to tailor to that individual, family or need." (SP 5)

Not being heard or having a feeling of neglect has resulted in trust issues among the refugee women about the healthcare services in general. When asked during the interview about seeking help, several refugee women said they do not think that there is anyone who will listen to them, therefore, they do not feel like sharing their problems.

"If I come here (the settlement organization) they understand me because of the language or the attitude. But for the doctor, he never asks me, I never told him anything. Just that what I complained about. He never asked me about my feeling or how do I feel." (RW 1)

"I need something to get rid of my stress. If I go to a doctor or psychologist will they guide me somehow? Do you think they will help me? I never think there are people to listen." (RW 3)

Preference for a female physician by refugee women is very common, which is related to their religious beliefs and Middle Eastern culture. During the interviews, it was mentioned by both refugee women and service providers that seeking permission from their husband was required to see a male physician. In some instances, the unavailability of a female physician resulted in restrictions or cancellations of appointments.

"…to make a referral for a woman to see a male doctor, with a male psychiatrist/ psychologist this woman, in some instances, has to have permission from their husband. Or they may even decline the appointment because they are scared what the community may say about." (SP 1)

Moreover, the healthcare service providing organizations including clinics and hospitals have many female service providers working there anyway. Therefore, some systematic adjustments in accommodating requests can easily be made in some circumstances and help to a great extent. However, many participants reported that this gender dynamic is changing after spending some time in Canada and the refugee women are more willing to see male physicians without any restrictions from family members. They had recognized the cultural differences with respect to gender in Canada.

(c) Differences in Expectations

The refugee women had talked about their frustrations while receiving services from healthcare providers. In some instances, women perceived that their Family Physician did not document sufficient history or engaged in conversation, which contributed to them feeling neglected. Again, the need for culturally competent care may be related here. Physicians may need to spend more time with refugee patients to build rapport and allow sufficient time for patients to express their issues. In some instances, the refugee women felt that they could not open up to the physician, therefore, a referral to a specialist was not made. During the interview one refugee woman discussed her dissatisfaction with a visit to a clinic; she was given a physical checkup but was not asked any questions about her mental wellbeing or stresses of her life.

"If we go to physio/ family physician and there is anyone to check, they do check up the body. Why they don't check up on our mental health, if we have some mental stress or situation, talk with us to know what we are suffering from?" (RW 2)

"Last time when I was very sick, my blood pressure went up, we went to the doctor. The doctor asked why your blood pressure is high? Then I give him little details about my situation, he was not continue to ask me or refer me to anyone. That's it. He just changed the medication. Because he didn't continue or ask about my situation, that affected me negatively, so I just kept quiet." (RW 3)

(d) Stigma

Stigma is a major barrier to access that was mentioned repeatedly in the interviews. In many instances, although the refugee women had suffered significant mental health issues, they decided to manage their life stresses by themselves, and keep going or deal with it. Much of this stigma came from the negative attitude that the refugee women had faced or observed around mental illness in their country and culture. Although these Syrian refugee women have moved to Canada, the stigma about mental illness that was present at home persisted, therefore many are suffering in silence and unwilling to seek any help. Even among those who visit a Psychiatrist, many are not willing to take any medication.

"Stigma plays a significant role, I think, in individuals. Either one is not wanting to be on medication or what that means seeing a psychiatrist could be very stigmatizing." (SP 2)

"I have clients, they have mental health issues, but they don't want me to refer them to another organization. Especially when they hear about a mental health issue, they don't want to go there. Because they are afraid how society will look at them." (SP 3)

The service providers have identified that it is very difficult for a refugee woman to talk about histories of sexual assault, as a high level of trust is required. Sexual violence carries its own stigma, in addition to mental illness.

(e) Discrimination

Negative attitudes and behavior towards refugees are common in host countries. Such behavior can create isolation, inequality of care, and further limit the refugee women's access to mental healthcare services. Racism and discrimination faced by immigrants and refugees at doctor's offices have already been reported in Canadian studies. This negative attitude or behavior towards refugees can further exacerbate their stigma, as found during the interviews. The service providers talked about discrimination among employers in recruiting refugees.

"And then, not everybody looks out at people who are different as that they belong here. There is a section of the society who feels like why they (refugees) are here. So, they (refugees) face that kind of discrimination as well. And I know one of our client's experience. Somebody on the street was very bad to her and shouted slurs to her and all of that. So that happens a lot, especially because many refugee women wear the hijab (headscarf), they are identifiable, so they do face discrimination." (SP 4)

"But at the same time, there is a lot of work that needs to be done within the mainstream community. You know it's sessions for employers because employers discriminate in hiring them as well, right. Sessions with employers, where we can talk about working with Muslims." (SP 3)

(f) New Life and Unfamiliar Environments

Adjusting to new life, an unfamiliar environment, and the cold weather in Canada turned out to be a significant challenge for the refugee women. The lifestyle in Canada is much different than back home in Syria. Back home most of the refugee women were dependent on their husbands, they did not need to work, and focused on the care of their family. They had the traditional support of the extended family. Here in Canada, many felt the need to work outside the home, as well as be primarily responsible for taking care of the family, without the support of extended family. The situation for single, or widowed, refugee women is even more challenging as they have to do everything by themself (household chores, school appointments, doctor's appointments, etc.) in addition to their full/part-time jobs or attending EAL classes. Burdened with so many responsibilities, many are dropping out of EAL classes, cannot focus on studies, and therefore, are unable to improve their communication skills, which could have improved access to healthcare or better employment.

"I have a stressful life here. Before I was depending on my husband. Back home I didn't need to work. I only need to take care of the family. But here I should work and take care of the family. So, I have stress. My life is very stressful. And my lifestyle is changed." (RW 3)

"We try our best to learn the language, we go to school. But we found that we can not concentrate, how can I concentrate? Because the teacher needs homework from the children. For each child, I have to take care of them, I have to be with them. I have my teacher (EAL classes), I have my own homework, I have house chores, I have other works and a lot of things. How can I concentrate and focus on which one?" (RW 6)

The changed weather conditions, especially the cold winter months, came as a shock to many. Winnipeg is one of the coldest cities in Canada, with average daily high/low temperatures being -13.2°C/-23.6°C in January and -9.7°C/-20.6°C in February [30]. It is very difficult for the refugee women, who are already depressed, to adjust to the weather conditions since their outdoor activities are even more limited during this time. Most of the refugee women do not drive and waiting for buses in the cold for appointments is not always ideal.

"I was shocked with the weather, cold weather. I never saw this winter or snow before. That made me frustrated and think about home and crying. I had the idea of cold, but not this cold." (RW3)

5. Discussion

In this study, we examined Syrian refugee women's experiences in accessing and utilizing mental healthcare services in Winnipeg. Most cited barriers in accessing mental healthcare services by refugee women during the interviews were language, weather, employment, and income level, stigma, and system navigation. The service providers mentioned stigma and lack of resources to provide culturally competent care. The study found similarities in the barriers that refugee women face in Winnipeg when compared to the literature in Canada and elsewhere [5]– [8], [10], [13], [31]. However, specifically for Winnipeg, the cold winter exacerbates the challenges. During the interviews, the refugee women repeatedly mentioned weather challenges, healthcare system unfamiliarity, complexity, and navigation issues. Moreover, most services are located in or near downtown Winnipeg, not in other parts of the

city. Therefore, for the refugee women who do not drive, which is most of them, using public transport can take a long time to access a service location.

Not speaking the English language was cited as the primary barrier in accessing services by almost all interview participants. This finding is supported by similar studies conducted in Canada [7], [10], [14], [20]. The refugee women mentioned their challenges of participating in language classes while taking care of their children or if their husbands are at work. This is even more difficult for single refugee women with children and with children with disabilities in some instances. The reduced number of EAL class offerings (only one time instead of two on select days) further limited accessibility by the refugee women. Participants requested more flexibility in terms of time and locations, and facilities for childcare while attending classes, etc. Since transportation is a major issue for refugee women, offering multiple programs at one facility could be an excellent option. For example, if the refugee women can shop 'halal' food or get any skills training while they attend language classes, this can reduce their number of trips to a great extent.

Lack of cultural diversity among service providers was mentioned by participants. Moreover, the Syrian refugee women are not comfortable discussing their past experiences of physical or sexual abuse in front of a male figure, whether a physician, counsellor, or interpreter. There is stigma, and fear of shame. Service providers who are familiar with the cultural backgrounds of Syrian refugee women may be able to provide better assistance in overcoming this barrier. There is a need for female healthcare professionals and interpreters. Researchers suggested that healthcare providers need to keep in mind the circumstances around pre-and post-migration [32]–[35].

Studies have reported discrimination faced by refugees, even at doctor's office based on race, ethnicity, language, accent, religion, culture, and other characteristics [36], [37]. According to Pollock et al. (2012), the documented discrimination in accessing healthcare services includes incidents of insensitive, unfriendly, or ignorant treatment from providers to racial slurs, stereotyping, and receipt of inferior care [37]. In many cases, the religious or cultural beliefs and needs of refugee women, such as the preference for female providers or for privacy and remaining clothed were not adequately addressed [38]. The Syrian refugee women faced racism, discrimination, and bullying especially due to the fact that they wear 'hijab', and thus are identifiable. Such a negative attitude adds additional mental stress to women who are already traumatized. Every individual in Canadian society has a responsibility to address this. Public education with the use of media may be effective in eliminating such Islamophobic beliefs and behaviors.

Experiencing war-related trauma and the hardships of losing one´s home have profound, diverse, and long-lasting effects on mental health beyond the acute traumatizing phase. While refugees need support with PTSD, depression, anxiety disorders, and prolonged mental illness, stigma is a major factor in preventing refugees from seeking help and accessing services. The recently published Chief Public Health Officer's Report on the State of Public Health in Canada had a focus on stigma and discrimination towards persons with health conditions [39]. The report admits that "many forms of stigma that intersect in complex ways, are very much present in our health system, driving those most in need from getting effective care and accessing services". Unfortunately, there are not many examples of successful approaches to healthcare service delivery that have eliminated stigma, especially when this culturally and linguistically diverse group is considered [35]. Salami et al. (2019) recommend using culturally appropriate terminology to refer to mental health, honoring confidentiality, and building trust with clients to help with overcoming the stigma among refugees and immigrants [31]. Furthermore, the study

authors recommend that meeting other needs (related to social determinants of health) will set the groundwork for addressing more taboo topics like mental health.

The refugee women are also unable to express their concerns due to language and cultural barriers. The use of interpreter services or cultural brokers may mitigate these barriers but would not completely eliminate these challenges as information is still lost in translation. Moreover, there are concerns around confidentiality, misinterpretation, and availability. Additional research is needed to develop and evaluate programs and interventions to address mental health stigma, particularly among refugees. Studies have suggested training for personnel who work as service providers, interpreters, or cultural brokers [13], [31]. Such training would enable them to identify and discuss the unique mental health stressors experienced by their refugee clients as well as guide them through system navigation for mental health and social services supports. A secondary research objective of this larger study included examining refugee women's and service provider's perspectives on improving mental healthcare for refugee women in Winnipeg, Manitoba [40]. In brief, we recommended that service providers use resources developed by UNHCR and Canadian physicians in providing culturally competent care, decision-makers take leadership roles in implementing better collaboration among agencies, employers be open in hiring refugees and everyone in the society ensures that the refugee women feel welcomed and included.

6. Conclusion

Given the increasing number of refugees settling in Manitoba and the potentially challenging mental health issues they may face, it is important that the provincial healthcare system is well-equipped to address this potential challenge. Results from this study will assist the decision-makers in developing policies to improve mental healthcare for refugees in Manitoba. While designing programs for refugee women or providing services to them, it is important to keep in mind their pre-migration literacy level. We recommend that decision-makers and program planners consult with refugee women in program design. It is important to hear directly from those who are receiving the services, not only those who are providing the services. Many Syrian refugee women have lived through war violence, but they showed strength and they survived. This reminds us of women's resilience and spirit, and to celebrate their strength. Manitoba can take pride as a host of these brave women, as well as learn from their spirit of survival.

Ethical statements

Ethics approvals were obtained from (1) Health Research Ethics Board (HREB), University of Manitoba and (2) Research Access and Approval Committee, Winnipeg Regional Health Authority (WRHA). (Approval date: November 15, 2018; Approval Number: H2018:406).

The compliance to the Research and Publication Ethics: This study was carried out in accordance with the rules of research and publication ethics.

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Research Article

FREQUENCY OF DAYTIME SLEEPINESS OF FACTORY WORKERS WORKING IN SHIFTS AND ITS EFFECT ON ANXIETY

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Abstract: *This descriptive and cross-sectional study was conducted to examine the frequency of daytime sleepiness and its effects on anxiety in factory workers working in shifts. The population of the research consisted of 1052 workers working in two factories. The data were collected using the data collection form, the Epworth Sleepiness Scale, and the Beck Anxiety Inventory. Normally distributed data were presented as number, percentage, mean, and standard deviation. Independent samples t-test and ANOVA were used in statistical analysis. The mean Epworth Sleepiness Scale score of shift workers was 10.4 ± 4.2 and 42.8% had excessive daytime sleepiness. When the Epworth Sleepiness Scale scores and Beck Anxiety Inventory scores of the workers participating in the research were compared, it was determined that the daytime sleepiness levels of shift workers increased as anxiety risk increased, and the effect on vital characteristics was statistically significant (P < 0.05). Therefore, interventions, effective coping methods, and training strategies should be developed in order to improve the sleep quality, especially daytime sleep quality, and vital characteristics of shift workers.*

Keywords: *Occupational health, Workers, Working in shifts, Sleep disorder*

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1. Introduction

The work comprising recurring periods where different groups of workers do the same jobs in the relay is called shift work [1]. Shift work accounts for about 20% of the labor force in industrial countries [2], and shift conditions can often cause low sleep quality and excessive sleepiness in workers [3].

Shift times can be fixed or rotating, but are often variable, irregular, and formed according to the needs [4]. Generally, shift work is defined as a non-traditional work type that changes over a 24 hour period and between 6:00 am and 6:00 pm [5]. Previous studies have shown that shift working conditions, especially night shifts, may affect the health of the employees negatively [6]. The health problems in shift working are often closely related to psychological problems, sleep disorders, diabetes mellitus,

metabolic syndrome, obesity, heart disease, and cancer [6-11]. Furthermore, one of the crucial reasons for the differences in health between standard workers and shift workers is sleep problems [11, 12].

Considering that adult individuals need to sleep for an average of 7-8 hours [13], getting enough sleep is critical for an individual's mental and physical health. Also, individuals working under shift conditions may experience conflict and problems in their relations with their families as a result of not being able to spend enough time with their families. However, this could be handled by family support, social support, and a better working environment [14]. Sleep disorders and relationship problems with families due to shifting work is one of the most important problems of modern society and working life. Therefore, this study was conducted to examine the frequency of excessive daytime sleepiness among factory workers working in shifts and its effects on anxiety and to raise awareness among workers on this issue.

Research Questions

1. What is the daytime sleepiness level of shift factory workers?

2. Does daytime sleepiness affect the anxiety of shift factory workers?

2. Material and Methods

2.1. Study Design

This study was a descriptive and cross-sectional study.

2.2. Population and Sample

The population of the research consists of workers working in two factories (a total of 1475 factory workers). However, a simple random sampling method was used to reach 1052 volunteers.

The inclusion criteria set by the researchers:

(1) Aged 18 years or older;

(2) Able to read in the Turkish language;

(3) The workers who in Gaziantep where is the South of Turkey;

(4) Full-time working and at least have 1-year working experience in the factory;

(5) Working in a shift.

2.3. Data Collection Tools

Data were collected between 07-12.2016. In the first part of the data collection form developed by the researchers [3, 8, 9, 11]. There are 25 questions on demographics and some vital characteristics of the participants. In the second part, the Epworth Sleepiness Scale and the Beck Anxiety Inventory were used to determine the sleepiness levels of the participants.

2.3.1 Epworth Sleepiness Scale (ESS)

The scale developed by Johns (1991) is a test used to demonstrate daytime sleepiness [15]. The validity and reliability of the scale were conducted by Agargun et al in Turkish society [16]. The possibility of falling asleep in certain situations on an ordinary day is questioned. It consists of 8 questions and the questions are scored between 0 and 3 points. The total score ranges from 0 to 24. A score of $\geq$10 indicates excessive daytime sleepiness [15]. In our study group, the reliability of the scale was tested and Cronbach's alpha coefficient was found to be 0.74.

2.3.2 Beck Anxiety Inventory (BAI)

It was developed by Beck in 1988 [17]. The validity and reliability of the scale were conducted by Ulusoy et al in Turkish society [18]. The scale aims to determine the frequency and severity of the anxiety symptoms experienced by individuals. It consists of 21 items and is a Likert type scale. Each item is scored between 0 and 3. A score of 0-7 points is considered as no anxiety, 8-15 points are considered as mild anxiety, 16-25 points is considered as moderate anxiety, and 26-63 points is considered as severe anxiety. The scale measures the frequency of anxiety symptoms experienced by the individual. For this study, Cronbach's alpha coefficient was calculated as 0.92.

2.4. Data Analysis

Statistical Package for Social Sciences (SPSS) 22.0 software was used for statistical analyses. Kolmogorov-Smirnov distribution test was used to examine the normal distribution of variables. Descriptive statistical methods (frequency, percentage, mean, and standard deviation) were used to evaluate the research data, and the t-test and ANOVA tests were used for group comparisons in independent groups.

Ethical Considerations

The Clinical Research Ethics Committee approved the study of Gaziantep University (Decision's date and number: 2016/172) and institutional permission was obtained for this study. Before starting the study, the aim of the research was explained to the workers by the researcher and verbal consent was obtained. Questionnaires were filled in 10-15 minutes by face-to-face interviews.

3. Results

The mean age of the participants was 32.3 ± 6.8. Table 1 shows the comparison of socio-demographic characteristics and means the Epworth Sleepiness Scale scores of the participants. When the mean ESS scores of shift workers were compared with respect to age, gender, marital status, and educational status, it was found that the difference was not statistically significant ($P > 0.05$). When the mean ESS scores of the workers were compared in terms of smoking, alcohol use, duration of employment, weekly working hours, shift type, overtime status, presence of occupational disease, and previous occupational accident, the difference was found to be statistically significant ($P < 0.05$) (Table 1).

Table 1. Comparison of Socio-Demographic Characteristics and Mean Epworth Sleepiness Scale Scores of Shift Workers (N=1052)

			Epworth Sleepiness Scale	
	Number	**%**	**X±SD**	**Significance**
Age				
18-30 years	463	44.0	8.9±3.9	*F=1.559 p=0.211
31-40 years	461	43.8	9.0±3.6	
41 ≥ years	128	12.2	9.6±4.8	
Gender				
Male	876	83.3	9.0±3.8	*t=-0.087 p=0.931
Female	176	16.7	9.0±4.3	
Marital Status				
Married	838	79.7	9.1±3.7	t=1.024 p=0.306
Single	214	20.3	8.7±4.5	
Educational Status				
Illiterate	19	1.8	9.4±4.7	F=0.880 p=0.415
Primary School	472	44.9	9.2±4.3	
High School or above	561	53.3	8.8±3.5	
Smoking				
Smoker	540	51.3	9.3±3.7	t=2.801 **p=0.005**
Non-Smoker	512	48.7	8.6±4.1	
Alcohol Use				
Yes	138	13.1	10.1±4.8	t=3.689 **p=0.001**
No	914	86.9	8.8±3.7	
Duration of Employment				
≤ 10 years	674	64.1	8.7±4.0	F=7.745 **p=0.001**
11-20 years	309	29.4	9.4±3.4	
≥ 21 years	69	6.6	10.3±4.0	
Weekly work hours				
48 hours	753	71.6	8.7±3.5	t=-4.361 **p=0.001**
≥ 48 hours	299	28.4	9.8±4.5	
Shift Type				
Day shift only	167	15.9	7.1±3.1	F=5.442 **p=0.028**
Night shift only	76	7.2	9.7±5.1	
Rotational shift	809	76.9	9.1±3.7	
Overtime (Monthly)				
No overtime	170	16.2	7.5±4.4	F=15.436 **p=0.001**
1-16 hours	379	36.0	8.5±3.5	
17-32 hours	306	29.1	8.9±4.2	
≥ 33 hours	197	18.7	9.9±3.5	
Presence of occupational disease				
Yes	111	10.6	10.8±4.5	t=5.144 **p=0.001**
No	941	89.4	8.8±3.8	
Previous occupational accident				
Yes*	474	45.1	9.5±3.5	t=3.950 **p=0.001**
No	578	54.9	8.6±4.1	
Total	1052	100.0		

* 22.2% of the occupational accidents were sharp object injuries (234 workers) and 22.8% fell (240 workers).
*F= ANOVA t-test, *t=Independent-Samples t-test

When mean ESS scores of the workers were compared in terms of working hours affecting regular sleep pattern, insomnia affecting health or psychology, feeling psychological burnout during working hours, having an adequate and balanced diet, thinking of having sufficient social relations, shift work affecting family order, spending enough time with children, paying attention to and helping children with their homework, going on vacation with family, and feeling burnout in communicating with family, it was found that the difference was statistically significant ($P < 0.05$) (Table 2).

Table 2. Comparison of Some Vital Characteristics of Shift Workers and Mean Epworth Sleepiness Scale Scores (N=1052)

			Epworth Sleepiness Scale	
	Number	**%**	**X±SD**	**Significance**
Do your working hours affect your regular sleep pattern?				t=4.673
Yes	710	67.5	9.4±3.8	**p=0.001**
No	342	32.5	8.2±3.9	
Does insomnia affect your health or psychology?				t=4.107
Yes	753	71.6	9.3±3.8	**p=0.001**
No	299	28.4	8.2±4.0	
Do you feel psychological burnout during working hours?				t=4.375
Yes	658	62.5	9.4±3.9	**p=0.001**
No	394	37.5	8.3±3.8	
Do you think you have an adequate and balanced diet?				t=-1.988
Yes	265	25.2	8.6±4.1	**p=0.047**
No	787	74.8	9.1±3.8	
Do you pay enough attention to daily tasks and chores?				t=-0.667
Yes	243	23.1	8.8±3.9	p=0.500
No	809	76.9	9.0±3.9	
Do you think your social relations are sufficient?				t=-3.347
Yes	380	36.1	8.5±3.7	**p=0.001**
No	672	63.9	9.3±4.0	
Does your family want you to work on the night shift?				t=-1.760
Yes	200	19.0	8.6±3.9	p=0.079
No	852	81.0	9.1±3.9	
Does shift work affect your family order?				t=2.681
Yes	726	69.0	9.2±3.7	**p=0.007**
No	326	31.0	8.5±4.2	
Can you spare enough time for your wife?				t=0.309
Yes	313	29.8	9.0±3.7	p=0.751
No	739	70.2	9.3±4.2	
Can you spend enough time with your children?				t=-3.071
Yes	319	30.3	8.4±3.7	**p=0.002**
No	733	69.7	9.2±3.9	
Can you help your children with their school work?				t=-2.331
Yes	242	23.0	8.5±4.0	**p=0.020**
No	810	77.0	9.1±3.8	
Do you go on vacation with your family?				t=-4.153
Yes	291	27.7	8.2±3.5	**p=0.001**
No	761	72.3	9.3±4.0	
Do you feel burnout in communicating with your family?				t=-6.185
Yes	899	85.5	8.7±3.9	**p=0.001**
No	153	14.5	10.8±3.1	

***t=Independent-Samples t-test**

When the mean ESS scores and mean BAI scores of the workers participating in our study were compared, it was found that daytime sleepiness levels of shift workers increased as anxiety risk increased, and the difference was statistically significant (P < 0.05) (Table 3).

Table 3. Comparison of Epworth Sleepiness Scale and Beck Anxiety Inventory Scores of Shift Workers (N=1052)

		Mean Beck Anxiety Inventory Score	
	N, %	**X±SD**	**Significance**
		18.1±7.9	
Epworth Sleepiness Scale (0-24)			
10 < points	602 (57.2)	15.1±6.8	F=146.245
10 ≥ points	450 (42.8)	24.8±9.9	**p=0.001**
		Mean Epworth Sleepiness Scale Score	
		10.4±4.2	
Beck Anxiety Inventory (0-63)			
No anxiety	56 (5.3)	7.1±2.7	F=57.756
Mild anxiety	249 (23.7)	7.6±3.3	**p=0.001**
Moderate anxiety	356 (33.8)	8.2±3.5	
Severe anxiety	391 (37.2)	10.9±4.0	

***F= ANOVA t-test**

There was a positive correlation between the Epworth Sleepiness Scale and the Beck Anxiety Inventory scores. It was found that the risk of anxiety increased as the daytime sleepiness level increased or the risk of anxiety decreased as the daytime sleepiness level decreased (r = 0.631, P < 0.05) (Table 4).

Table 4. The Correlation between the Epworth Sleepiness Scale and Beck Anxiety Inventory Scores of Shift Workers (N=1052)

		Beck Anxiety Inventory (0-63)
Epworth Sleepiness Scale (0-24)	**r**	0.631
	p	**0.001**

***Pearson Correlation Test**

4. Discussion

In recent years with rapid industrial growth and increasing demand for industrial products, businesses have switched to a shift system to make their production and service offerings continuous and efficient. Although the shift work system generally makes positive contributions to the enterprises, it can have negative effects on the employees. Shift workers experience certain problems due to irregular living conditions, which directly affects the workers and their families, and may have an indirect effect on the continuity of production and service offerings of the enterprises [14]. When the mean ESS scores of shift workers were compared in terms of age, gender, marital status, and educational level, the difference was not statistically significant (P > 0.05) (Table 1). Ghods et al. (2017) found that there was no statistically significant difference between the mean ESS scores and age in their study on workers working in a textile factory (P > 0.05) [19]. The results obtained in this study are consistent with the literature.

Mean ESS scores of the participants were found to be higher in participants with a longer duration of employment, those working at night shifts only, those with ≥48 work hours per week, those performing overtime, and those with previous occupational accidents (Table 1). According to a study, it was concluded that working ≥32 hours a week increases the risk of injury and increase the risk of occupational accidents [20]. One of the most common problems encountered in shift work systems is a sleep disorder. It has been suggested that long-term shift work leads to chronic insomnia [21]. As in many other countries, shift hours can be changed depending on the request of the employer. The average weekly working time is 40 to 48 hours, which can be changed by the employer. Working hours may vary between occupational groups, the private sector, and government agencies. Shift work and long working hours cause serious health problems such as insomnia and fatigue as they disrupt the body rhythm [22]. The results of this study support this notion. The usual sleep period of the human body is between 23:00 and 07:00. Shift workers who are forced to work between these hours cannot fully rest during the day due to environmental factors such as daylight, traffic, and domestic noise [1]. Therefore, these people experience daytime sleepiness. Increased overtime, long years of shift work, and continuous night shifts lead to daytime sleepiness, suggesting that it can significantly increase the risk of occupational accidents. As seen in the results of this study, daytime sleepiness was found to be higher in those who had an occupational accident (9.5 ± 3.5) compared to those who did not have an occupational accident (8.6 ± 4.1) (Table 1).

It was found that participants who stated that their working hours and insomnia affected their sleep patterns and health had higher mean ESS scores compared to others (Table 2). Many health problems arise as a result of distorted circadian rhythm, lifestyle change, work tension, and stress factors associated with shift work [23]. These health problems include chronic diseases such as obesity, cancer, cardiovascular disease, metabolic syndrome, and diabetes mellitus. It is thought that sleep disorder caused by the shift system forms the basis of these physical and mental disorders [24]. Irregular sleep has been reported to be a health problem seen in 3/4 of shift workers. Research indicates that shift work increases stress, decreases sleep quality, and causes health deterioration as a result of sleep disorders [25]. Workers stated that daytime sleepiness negatively affected adequate and balanced nutrition and social and family relations (Table 2). Within shift work, the most significant irregularities in nutrition and diet are observed, especially in individuals working at night [26]. Shift work increases carbohydrate consumption by changing the dietary habits of the workers and leads to irregular eating habits and a decrease in vegetable consumption. Decreased sleep due to shifts, increased wakefulness time creates more time for food consumption and leads to more food consumption than total calories that should be consumed daily [27]. In the cohort study of Lin et al., it was shown that the risk of metabolic syndrome increased approximately 3-fold in these individuals [28]. The human body is structured to carry out daily activities during the daytime and basic activities such as sleep and rest at night. When working at night, this structure shows a change in the opposite direction. Therefore, individuals in this working system have to work at night hours. As a result of this, night work causes positive and negative effects on family and social life as well as the physiological and psychological structure of the individual. Kazemi et al. (2018) found that night shifts detached workers from social life, created problems of adaptation to social life, and these workers could not take care of their families sufficiently [29]. In particular, both men and women working in the family lead to problems in family relations [15]. Another problem is that the majority of social activities are organized for daytime workers, making socializing impossible for individuals working at night. This situation is defined as "social death" for individuals working on night

shifts [15]. Working in the period when social life stops and having to rest in the period it starts are the source of the sociological effects of night work. Since night workers cannot spend enough time with their families during the daytime, they try to take part in social life during the daytime hours when they need to rest and end up going back to work without enough rest. This is undoubtedly the most important factor in occupational accidents that occur during night shifts [26]. The mean ESS score of shift workers is 10.4 ± 4.2. ESS score of ≥10 indicates excessive daytime sleepiness. In this study, it was found that 42.8% (450 people) of workers experienced excessive daytime sleepiness (Table 3). In their study, Halvanı, Zare, and Mırmohammadı (2009) found that the mean ESS score of workers with rotational watch duty was 6.9 ± 3.6 [24]. Wu et al. (2012) found that the mean ESS score of Chinese participants was 6.75 and 22.16% had excessive daytime sleepiness [31]. Swanson et al. (2011) found that approximately 18.0% of workers experienced excessive daytime sleepiness [32]. In this study, it is noteworthy that the mean ESS score and the ratio of workers with excessive daytime sleepiness are much higher compared to other studies. Based on these findings, and also taking into account the different requirements of sectors, it can be said that daytime sleepiness rates of the employees are also variable. The development of sleep disorder due to shift work decreases the work efficiency of the person, may cause an increase in occupational and traffic accidents, and thus may present as a serious public health problem.

It was found that anxiety risk increased as daytime sleepiness increased among the workers (Table 3) and a positive correlation was found between BAI and ESS (Table 4). These results indicate that deterioration in sleep quality increases anxiety [33]. Kalmbach et al. (2015) found a significant correlation between daytime sleepiness and anxiety [34]. In another study, a positive correlation was found between sleep quality and anxiety [35]. In the present study, the mean BAI score of the participants was found to be 18.1 ± 7.9, indicating moderate anxiety (Table 3). Teker and Luleci (2018) found that the mean BAI score of the workers was 8.6 ± 9.9 and there was a moderate correlation between daytime sleepiness level and anxiety [36]. Unlike other studies, the mean anxiety score was higher in the present study. The reasons for high anxiety levels are not only daytime sleepiness or stressful working conditions. Difficulties in family and social life, economic conditions of the country, or dismissal can also influence anxiety levels. Individuals with high anxiety levels may have a decrease in their ability to cope with stress. At the same time, there is a loss of resistance to prevent the emergence of psychological problems. It is thought that the mechanism underlying mental problems is the disruption of circadian rhythm synchronization and psychosocial stress [31]. Based on these results, the H_1 hypothesis "Daytime sleepiness affects some vital characteristics in factory workers working in shifts" is accepted.

5. Conclusion

It was found that the deterioration in sleep quality increased anxiety and the increase in anxiety worsened sleep quality. There was a positive correlation between daytime sleepiness and anxiety.

Since shift work is common in Turkey, the majority of the population is at risk for shift work sleep disorder. Irregular working hours induce strong and rapid effects on sleep and wakefulness. The potential consequences of this circadian rhythm sleep-wakefulness disorder cover health, functionality, performance, and occupational safety as well as a social function of life. Symptoms similar to insomnia may be seen and significant health problems and economic costs due to fatigue accidents and low

productivity may be encountered. Shifts should not be changed before five days to minimize the inconsistency between circadian rhythm and working hours is the main problem in SWSD and to facilitate adaptation to working hours. Shift changes before five days lead to insomnia, chronic sleep deprivation, and hypersomnia. For this reason, it is of great importance that workers in the shift system are selected from individuals who can adapt to this system, the shift times and change periods are arranged following the circadian rhythm, and shift-related sleep disorders are recognized early and effectively treated. Also, employees should be provided with a room where they can rest and relax before and after shifts, the rest period should be kept long, and employees suffering from sleep disorders should be identified and treated. Sleep hygiene training should be included in health improvement practices in the workplace, health promotion programs specific for sectors that can be adopted by the participants such as prevention of tobacco-alcohol use, balanced nutrition, and regular sleep pattern should be established, and further studies should be carried out.

Ethical Considerations

The Clinical Research Ethics Committee approved the study of Gaziantep University (Decision's date and number: 2016/172) and institutional permission was obtained for this study. Before starting the study, the aim of the research was explained to the workers by the researcher and verbal consent was obtained. Questionnaires were filled in 10-15 minutes by face-to-face interview**s.**

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The study was carried out conformed to all procedures of tenets of the Declaration of Helsinki.

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Research Article

DETERMINING THE RELATIONSHIP BETWEEN PRESENTEEISM AND ORGANIZATIONAL SUPPORT IN NURSING

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Abstract: *High rates of presenteeism among the nurses decreases their performances, increases the patient safety risks, and causes negative results in healthcare institutions. Presenteeism is affected by individual and organizational factors. The study was carried out to determine the presenteeism situation of nurses and their relationship with perceived organizational support. The research was carried out at a hospital in Kayseri/Turkey. The hospital has 372 nurses work there. Research population and sample the population of the research consisted of all the nurses working in the hospital (N=372). Thus, the research was conducted on 330 nurses. The research was carried out between September 2019 and November 2019. In the study, the data were collected by using the information form which was prepared by the researcher, the presenteeism scale, and the perceived organizational support scale. The total mean score of the participants' presenteeism is 23.64 ± 2.56. The lowest possible score which was obtained from the scale is 11 and the highest is 28. When the average of the perceived organizational support scale is examined; the average of the score was medium and the average score was 122.76 ± 8.53. It was determined that there was a significant relationship between the absence of attention-distraction, which is the sub-dimension of presenteeism scale, and the total score of perceived organizational support ($p<0.05$), there was no significant relationship with completion task and presenteeism total scale scores ($p>0.05$). The high rate of presenteeism in nurses, decrease in work efficiency and job satisfaction, causes absenteeism. These studies suggest that measures should be taken by institutions to prevent and avoid negative situations that are caused by presenteeism.*

Keywords: *Nursing, Preseenteism, Perceived organizational support.*

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1. Introduction

'Presenteeism', which means being absent at work is seen as a frequently used concept especially among healthcare professionals [1]. Being absent at work is defined as "Continuing to work while the person needs to rest despite having health problems and disease complaints" [2]. The nursing profession is directly related to patient and patient care, so it seems that the employee comes to work causes not only financial losses due to decreased productivity but also a decrease in patient care quality [3-5]. Working in case of physical and mental illness affects the relationship between the colleagues, the

quality and quantity of the job, and increases the probability of making mistakes [1]. In the literature, factors such as job insecurity, the influence of co-workers, financial losses, insufficient number of staff, failure to do the job, time pressure, and lack of competent employees are shown as reasons for absence at work [6]. According to a study which was conducted in Singapore, the first five reasons for participants to go to work despite being ill were their commitment to the organization (35%), the disease was not very serious (28%), the need to comply with deadlines (27%), concerns about not completing the studies (23%) and not being allowed to leave without completing their job (15%) [7].

Presenteeism is not only related to the medical dimension, it is necessary to consider the organizational dimension as it is affected by individual and organizational factors [8]. It has been determined that organizational causes have a greater effect than individual causes among the factors affecting presenteeism [9]. Teamwork has a strong effect on the absence of work because employees think that their absence will affect their relationships with their colleagues [10]. Employees can avoid getting reports or permission to avoid negative reactions from their colleagues or managers and not to compromise their current jobs [11]. On the other hand, Gurchiek reports that the fact that managers create a work environment that supports the stay and rest of the sick employee both reduces the risk of disease transmission to other workers and speeds up the recovery process of the sick employee [12].

Perceived organizational support represents the beliefs and thoughts of the employees that their efforts for the organization will be valued and rewarded, and that their health and well-being will be valued [13]. It is stated that the employee, who thinks that there is no organizational support, feels worthless by thinking that their efforts are unrequited and does not expect support such as when he/she does not feel well or is allowed to be sick. Employees who feel fear of the organization continue to work in order not to get the reaction of their managers and teammates and avoid receiving reports and permits [14]. In a study, it was found that poor working conditions, ineffective managers, and work/life imbalance were effective in increasing presenteeism [15]. According to a study which was conducted in Switzerland, presenteeism is less common in workplaces that exhibit democratic management behavior, while presenteeism is more common in companies that adopt autocratic management behavior [16]. Employees' going to work while sick results in decreased organizational support, decreased job satisfaction, and increased absenteeism [6]. In the literature, the number of studies that determine the presenteeism status of nurses is low. The study was carried out to determine the current situation of nurses and their relationship with organizational support.

2. Material and Methods

2.1. Place of Research and Its Properties

The research was performed in a descriptive design. The research was carried out at a hospital in Kayseri/Turkey. The hospital has 372 nurses work there. The population of the research consisted of all the nurses working in the hospital (N=372). In total, 42 nurses were excluded from the study. Among them, 112 rejected participating. Thus, the research was conducted on 330 nurses.

2.2. Data Collection

In the study, the data were collected by using the information form which was prepared by the researcher [5-7], The Presenteeism Scale, and The Perceived Organizational Support Scale.

2.3. Measuring Tools

Information Form: The personal information form is a form consisting of 11 questions characteristics such as age, gender, and profession.

The Presenteeism Scale: The scores from the Presenteeism Scale vary between 6-30. The increase in the score shows that the inability to employ himself increases. Expressions are answered with 5-point likert type and according to "Strongly disagree", "Disagree", "Slightly agree", "Agree" or "Strongly agree" answered as. The responses given to the statements in scoring are based on the statement "Absolutely disagree" It is coded as 1–2–3–4–5 towards the statement "Strongly Agree". Internal consistency reliability Cronbach alpha is 0.91 [10].

The Perceived Organizational Support Scale: Perceived Organizational Support Scale consists of 36 questions and responses are listed as Likert type and 1-totally disagree, 6- completely agree. Perceived Organizational Support Scale scores in the study; a low level of 36-95.99 points was evaluated as a medium level between 96-155.99 points and a high level between 156-216 points. Internal consistency reliability Cronbach alpha is 0.88 [14-15].

2.4. Implementation of the Research

The research was carried out between September 2019 and November 2019. Firstly, the nurse of each clinic was interviewed and information about the objective of the research was given and written permission was obtained from the nurses who agreed to participate in the research by the researcher. Then an appointment was made from each nurse included in the sample and questionnaires were given to the nurses at appointment time. It took about 15-20 minutes to fill in the questionnaires. The questionnaires were then collected by the researcher.

2.5. Data Analysis

The SPSS 22.0 program was used in all the analyses. In the research, frequency and percentage distributions of the nurses' descriptive characteristics were given. The average score was used in the total mean scores of the scales. The normality test was applied to all variables in terms of knowledge level scores by using Kolmogorov-Smirnov and Shapiro-Wilks statistics, Mann Whitney U tests, and Spearman test was used. A p-value of less than 0.05 ($p< 0.05$) was considered statistically significant.

2.6. Ethical Consideration

Care was taken to comply with ethical principles at every stage of the research. Before the study, permission was obtained from the Ethics Committee of Cappadocia University (Accept no: 29533901-770.99-16224, Year: 2019). In addition, the purpose of the research was explained to the participants, and information about the research was given and their written approvals (Informed Volunteer Consent Form) were obtained.

3. Results

The average age of the nurses who were included in the study was 28.06 + 2.1 and 60.6% (n = 200) were between the ages of 20-30. Of the participants,89.4% (n = 295) were women, 36.37% (n = 120) worked between 1-10 years. Of the participants,59.0% (n = 182) stated that they had difficulty in getting permission from their institutions while they were sick (Table 1).

Table 1. Demographic Features of Participants

Age	**n**	**%**
20-30	200	60.6
31-40	100	29.9
41 and older	30	9.1
Sex		
Female	295	89.4
Male	35	10.6
Working years		
1-10	190	57.6
11-20	85	25.8
21-30	45	13.6
31 and older	10	3.6
Getting permission while sick		
I have difficulty	182	59.0
I do not have difficulty	148	41.0

The total mean score of the participants' presenteeism is 23.64 ± 2.56. The lowest possible score which was obtained from the scale is 11 and the highest is 28. Presenteeism scale subscale mean scores were found to be 8.94 ± 1.89 to avoid distraction and 12.69 ± 2.03 in task completion (Table 2).

Table 2. Presenteeism Scale Total Score

Scale total	**X±SD**	**Min.-Max.**
Avoiding distraction	8.94±1.89	4-12
Completing mission	12.69±2.03	6-15
Presenteeism total score	23.64±2.56	11-28

When the presenteeism total score averages are compared according to the permission status of the participants when they are sick; It was determined that the difference between the status of getting permission and avoidance of distraction and the total score of presenteeism was significant and that the subscale avoidance of attention distraction subscale (U = 6955.500) and presenteeism scale total score (U = 9360.000) were higher ($p < 0.05$) (Table 3).

Table 3. Comparison of Participants' Permission Status while such and Presenteeism Total Points and Sub-dimensions

Presenteeism total score			
Getting permission while sick	**Avoiding distraction (X±SD)**	**Completing mission (X±SD)**	**Total scale (X±SD)**
I have difficulty (n=182)	8.77 ±2.06	9.74 ±2.06	21.40 ±2.64
I do not have difficulty (n=148)	6.13 ±1.60	9.62 ±2.00	18.11 ±2.25
	=6955.500 **p=0.000**	=13121.00 p=0.684	=9360.00 **p=0.000**

When the average of the perceived organizational support scale is examined; it was determined that the nurses got the lowest 96 and the highest 139, the average of the score was medium and the total score of the scale ranged between 39 and 206, and the average score was 122.76 ± 8.53 (Table 4).

Table 4. Perceived Organizational Support Scores of Nurses and The Relationship Between Presenteeism and Perceived Organizational Support

Total perceived organizational support score	**X±SD**	**Min.-Max.**
	122.76±8.53	96-139
Presenteeism Scale Dimensions	**Perceived Organizational Support Total Score**	
Avoiding distraction	rho=0.141 ; **p=0.010**	
Completing mission	rho=0.17 ; p=0.753	
Total scale	rho=0.093 ; p=0.092	

It was determined that there was a significant relationship between the absence of attention-distraction, which is the sub-dimension of presenteeism scale, and the total score of perceived organizational support ($p < 0.05$), there was no significant relationship with completion task and presenteeism total scale scores ($p > 0.05$).

4. Discussion

Presenteeism is mostly a situation in which workers' productivity is low because they are not physically or psychologically good [17]. This is a global phenomenon associated with being sick and therefore unable to continue or even remain at work [18]. The concept of presenteeism is influenced by different factors [10]. These factors are the working environment, organizational culture, attitudes of managers, colleagues, and personal differences [19]. Presenteeism affects many professions, but it has been found that presenteeism is more common among nurses than in other professions [2, 20]. Nurses with presenteeism experience reduced work efficiency, discontinuation, dissatisfaction, and job satisfaction. All these causes a decrease in the quality of care which is essential for the nursing profession and puts patients at risk [21, 22].

Employees may request leave due to current health or personal problems [6, 20]. However, sometimes employees continue to work even in the event of illness due to the fear of losing the job and the negative attitude of managers. Such reasons affect employees' leave-taking behaviors while they are ill [23, 24]. Özkan et al. stated that 44.1% of the nurses could not use their sick leave in their studies in which nurses' working conditions were examined [25]. Of the participants, 59.0% (n = 182) stated that they had difficulty in getting permission from their institutions while they were sick (Table 1). These results suggest that nurses may have difficulties in obtaining permits due to reasons such as high working conditions, the low number of working nurses, the high number of patients who are cared for, administrative problems or communication problems with managers, and the tendency to workaholics.

High rates of presenteeism among the nurses decrease their performances, increases the patient safety risks, and cause negative results in healthcare institutions in time [26]. In the study which was conducted by Pei 2020 et al [27]. With healthcare workers, it was found that 86.8% of the participants had high presenteeism scale scores. In the literature, there are many studies conducted with nurses and

where the rates of presenteeism are high [28-30]. In the study, the presenteeism total score averages of the participants which support the literature were found high (23.64 ± 2.56). The high rate of presenteeism in nurses, decrease in work efficiency and job satisfaction, causes absenteeism, and increased intention to quit. The decrease in job satisfaction causes nurses to leave work [31]. These data suggest that measures should be taken by institutions to prevent and avoid negative situations that are caused by presenteeism.

When the presenteeism total score averages are compared according to the permission status of the participants when they are sick; it was determined that the difference between the status of getting permission and avoidance of distraction and the total score of presenteeism was significant and that the subscale avoidance of attention distraction subscale (U = 6955.500) and presenteeism scale total score (U = 9360.00) were higher ($p < 0.05$) (Table 3). This result shows that employees experience presenteeism when they cannot get permission while they are ill. This situation suggests that nurses may be exposed to physical and psychological negative results that are brought by presenteeism.

The negative results of the presenteeism situation cause loss of efficiency and effectiveness both on behalf of the individual and the organization they work for [32]. The organization's ability to provide profitable and quality service depends on the workforce and effort of the employee. This, however, depends on the employee, without any performance and low productivity, which will affect the work of the employee and require him/her to be absent. Organizations that can prevent the presentation of the presenteeism situation will be more successful in this case [33]. If the problems which occur in workflows in organizations arise despite all measures taken, it may be due to employees. Therefore, it is necessary to investigate the physical or mental conditions of the employees and whether they have any discomfort [16]. As a result of the comparison of presenteeism and perceived organizational support in our study; it was found that there was no significant relationship between presenteeism total scale scores of the participants and the perceived organizational support ($p> 0.05$). In this case, it can be said that high or low perceived organizational support levels of employees do not cause presenteeism problems. These results suggest that classifying employees with presenteeism problems as employees with a high or low perception of organizational support is not a correct form of classification.

Perceived organizational support is the perception that is developed based on the level of awareness of the value of the organization and the importance of the person's happiness as a result of the employee's contributions to the organization [34]. In perceived organizational support studies about nurses, scale scores were generally found to be at an average level [35, 36]. In our study, the mean score of the perceived organizational support scale was found to be moderate (122.76 ± 8.53) (Table 4). This result of the study is similar to the literature. The high perceived organizational support score enables nurses to be more optimistic, to trust themselves in their jobs, and to increase their level of hope [37]. Therefore, this moderate scale score shows that nurses perceive that organizational support is not given enough support.

5. Conclusion

Presenteeism affects the nursing profession like many other professions. Presenteeism is affected by individual and organizational factors. Organizational causes have a greater effect than individual causes among the factors affecting presenteeism. In the study, the presenteeism total score averages of the participants were found high. As a result of the comparison of presenteeism and perceived

organizational support in our study; it was found that there was no significant relationship between presenteeism total scale scores of the participants and the perceived organizational support. Nurses with presenteeism experience reduced work efficiency, discontinuation, dissatisfaction, and job satisfaction. Therefore, it is very important to prevent presenteeism. This study suggests that measures should be taken by institutions to prevent and avoid negative situations that are caused by presenteeism.

Conflict of interest

The authors declare that they have no conflict of interest.

Ethical Statement:

Before the study, permission was obtained from the Ethics Committee of Cappadocia University (Accept no: 29533901-770.99-16224, Year: 2019). In addition, the purpose of the research was explained to the participants, and information about the research was given and their written approvals (Informed Volunteer Consent Form) were obtained.

The compliance to the Research and Publication Ethics:

This study was carried out in accordance with the rules of research and publication ethics.

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Research Article

EXAMINATION OF PREGNANT WOMEN'S KNOWLEDGE LEVEL AND ATTITUDES TOWARDS RATIONAL DRUG USE APPLYING TO HEALTHCARE FACILITY IN MARDİN*

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** This study was presented as an oral presentation on 19-21 April 2019 at the Mardin Artuklu International Multidisciplinary Studies Congress held in Mardin.

Abstract: *Inappropriate drug use is a significant challenge both around the globe and in our country. Potential teratogenicity of these drugs, their impact on the fetus and newborn, and finally the long-term effects that may be observed in the child should be taken into consideration especially when planning the use of drugs in pregnant women since the active ingredients in the drug and its metabolites can be transmitted to the fetus through the placenta and cause negative consequences. Therefore, this study was conducted to examine the knowledge levels and attitudes of pregnant women towards rational drug use. Pregnant women (n=414) who agreed to participate in the study and were hospitalized in the Gynecology and Obstetrics Clinics of Mardin State Hospital and Kızıltepe District State Hospital between 01.12.2018-01.02.2019 were included in this descriptive study. The data were collected by face-to-face interview technique through a questionnaire. The total mean scores of the Rational Drug Use (RDU) scale of pregnant women were found to be 32.43 ± 6.37. It was revealed that painkillers were the most frequently used drugs during pregnancy (with a rate of 71.0%) and most prescribed to be spared at home (with a rate of 86.9%). Besides, one of every two pregnant women held the opinion that they used analgesics uncontrollably and 34.5% of the pregnant women used antibiotics in such an uncontrolled way. The rate of pregnant women who were prescribed medication to be spared at home was found to be 33.6%. A significant difference was found between RDU scale scores and the socio-demographic characteristics of pregnant women. Again, a statistically significant difference was found between the rate of drug use in the household where pregnant women live (34.8%) and the residential distance from the health institution ($p < 0.05$). It was determined that pregnant women did not have adequate information about RDU (Scale scores are below 35 points). There is a significant difference between the rational drug use scale and educational level, occupation, income level, family type, place of residence, husband's educational status, social security, and employment status of the spouse. It is thought that more frequent communication and training sessions should be planned especially with special groups on rational drug use.*

Keywords*: Mardin, Rational drug use, Pregnant, Use of analgesics, Use of antibiotics.*

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1. Introduction

Inappropriate drug use is a serious challenge for public health both around the globe and in our country. Drugs are chemical compounds obtained from various sources (including animal, herbal, mineral, and synthetic substances) and prescribed to the person to diagnose, treat, or preventing illness [1].

More than half of all drugs available worldwide are improperly prescribed, distributed, and/or sold according to the estimates by the World Health Organization (WHO). Almost half of the patients do not use these drugs correctly. On the other hand, approximately one-third of the world population devoids from accessing the drugs they urgently needed [2]. The use of unnecessary and excessive amounts of medication prompts an increase in the risk of side effects, developing illness, and even death. From a global perspective, the irrational use of drugs leads to rapid or incorrect consumption of resources and as a result, the availability of even basic drugs may be decreased as well as the economic and social costs of the treatments may be multiplied. Antibiotics are an important drug group that ranks first in irrational drug use. Antibiotics, which are considered as invaluable weapons in terms of human life, may lose their effectiveness due to developing resistance mechanisms unless used rationally. Due to these reasons, various solutions are suggested for the appropriate use of antibiotics all over the world [3]. In this case, the concepts of rational drug use or irrational drug use come to the agenda.

It is a systematic approach that involves rational drug use, defining the problem, ensuring accurate diagnosis for the patient, selecting reliable and proven-effective treatment methodologies, determining the treatment goals, providing a prescription suitable for the treatment procedure, starting the treatment by giving the necessary information and instructions to the patient, monitoring and evaluating the whole treatment procedure [4]. The results obtained from the limited number of studies on inappropriate drug use have shown that physicians may prescribe more drugs than necessary, drugs, and antibiotics being used inappropriately and unnecessarily by the patient thereby leading to problems related to irrational drug use [5].

Turkey also carries out activities to promote rational drug use, ensure required coordination and cooperation in this area between physicians, pharmacists, and health staff to create awareness on the rational use of drugs by the public and pharmaceutical sectors. To build up knowledge and awareness, Rational Drug Use (RDU) National Action Plan (2014-2017) has been prepared and implemented. One of the target audiences in the plan is the general public. The rational drug use is not only a focus of concern for doctors and healthcare professionals but also a subject significantly affected by the attitudes and behaviors of individuals in the community [3]. The teratogenicity of these drugs and their effects on the fetal organs in the new formation and the growth of the fetus, the newborn, and finally the long-term effects during childhood should be taken into consideration especially when planning the use of drugs in pregnant women who are one of the risky groups since the drug and its metabolites can be transmitted to the fetus through the placental tract. Even Nonsteroidal Anti-inflammatory Drugs (NSAIDs) (which are the most innocent drug group) can penetrate the placental barrier and move to the fetal circulation, from there reaching various tissues and organs and resulting in toxic effects. Thus, they can cause significant contraindications and side effects and even malformations in both fetus and the newborn. Since NSAIDs are frequently prescribed by obstetricians, care should be taken during their use [6]. Also, the use of opioids during pregnancy has increased fourfold in the last decade worldwide. Opioid use disorder during pregnancy is a public health problem that can account for approximately

54.000 cases of opioid use disorder annually in the United States [7]. The increasing use of opioids during pregnancy has led to neonatal withdrawal syndrome, and there has been a five-fold increase in neonatal withdrawal syndrome compared to the previous decade. Neonatal withdrawal syndrome refers to the drug withdrawal syndrome that the newborns exposed to opioids experience shortly after birth.

The literature review has shown that few studies are examining the knowledge level and attitudes of pregnant women towards rational drug use in our country. This situation emphasizes the originality of the present study. This study was planned to examine the knowledge levels and attitudes of pregnant women towards rational drug use to shed light on future studies to be conducted with other different sample groups on rational drug use.

2. Materials and Methods

2.1. Study Setting, Time and Sampling

Mardin is a city with a population of 838,778 located in southeastern Turkey [8]. There are 1 State Hospital (with 250 inpatient beds) and 3 private hospitals (with 200 inpatient beds in total) in the province. The population of this descriptive study consisted of pregnant women who had been admitted to obstetrics clinics in Mardin State Hospital, which is the only official inpatient treatment institution in Mardin city center, and Kızıltepe District State Hospital (with 400 inpatient beds), which is the closest and of the busiest district hospital, between 1st January 2018 and 1st February 2019. No sample selection method was chosen in the study, and all pregnant women (n=414) who agreed to participate in the study were included in the procedure.

2.2. Data Collection

A questionnaire form consisting of 3 sections was used to collect the data. The first section included a personal information form including socio-demographic characteristics and obstetric history of the pregnant women. The second section included the "Rational Drug Use Scale" to evaluate the level of knowledge of rational drug use. Finally, the third one included 'Attitude Form Towards Drug Use' to determine the knowledge level and the participants' attitudes.

2.2.1. Personal İnformation Form

The form was created by the researchers by reviewing the relevant literature and consists of several questions about the personal characteristics of pregnant women and their obstetric history [3,9]. In the form prepared by the researcher, there were questions about the socio-demographic characteristics of pregnant women.

2.2.2. Rational Drug Use Scale

The scale was developed by Demirtaş et al. (2018) [9] and proven to be a valid and reliable instrument to evaluate the rational drug use knowledge for adults. In this sense, it boasts of being the first scale in Turkey. Cronbach's alpha coefficient of the scale was calculated as 0.789. There are 21 questions in the scale and the answers are scored as in the following: Yes= 2 points, I don't know= 1 point, No= 0 point. The items 2, 5, 6, 9, 10, 13, 15, 16, 17, 19, 20 are reverse proposition and are scored reversely. As the scores obtained from the scale increase, the level of knowledge of rational drug use

increases. The cut-off value for the scale is 34 points, and the individuals who score above 35 are considered to have rational drug use knowledge.

2.2.3. Attitudes Towards Drug Use Form

It was created by the researchers by reviewing the related literature and consists of several questions about drug use [3,7]. In this form, there are questions about the wrong and unnecessary use of drugs, and unnecessary intake of antibiotics/analgesics, and excessive prescription of drugs.

2.3. Data Analysis

SPSS (Statistical Package for Social Sciences) program was used to analyze the collected data and to create statistical tables. In the study group, the values of kurtosis and skewness (s= -0.575. k= -0.457) were between -1 and +1. The mean (32.44), mode (38), and median (34) values were close to each other. It is suitable for the normal distribution of total scores related to the dependent variable. Independent samples t-test was used to determine if there was a significant difference between the means of two groups. ANOVA was used to determine if there is a significant difference between the means of three or more groups. After the ANOVA test, Scheffe and LSD tests were used for the dual differences. The significance value was determined as ($p < 0.05$).

Ethical Consideration: Before the study, the Ethics Committee Permission (no: 2018 / 1-2) from the Ethics Committee of Mardin Artuklu University and other necessary legal permissions were obtained from the institutions where the study was conducted. The study protocol was conducted according to the Declaration of Helsinki. Verbal consents of pregnant women who agreed to participate in the study were obtained before the study.

3. Results

The socio-demographic characteristics of the pregnant women included in the study are shown in Table 1.

It is seen in Table 1 that 53.4% of pregnant women were in the 20-29 age group and 17.4% were not literate. 90.1% of the pregnant women were housewives and 39.1% had the minimum wage income level. 43.0% of them lived in the district. 41.3% of them did not have any social security. 81.2% of their husbands were employed. According to the reports of pregnant women, 94.2% of them did not suffer from any chronic disease while 5.8% (n = 24) of them had any chronic disease. 33.4% of those with chronic diseases suffered from asthma, 12.5% hypertension, 12.5% thalassemia, 12.5% diabetes, 12.5% migraine, 8.3% goiter, and 8.3% had cardiac rhythm disorder. The rate of continuous drug use in pregnant women was found to be 5.6%, and the rate of drug use in the household was found to be 34.8%. The rate of pregnant women whose residences are more than 1 km away from the health institution was 51.0%.

Table 1. The Socio-Demographic Characteristics of the Pregnant Women Who Agreed to Participate in the Study

Demographic characteristics of the pregnant women (n= 414)		**n**	**%**
Age	Under 19 years	25	6.0
	20-29 years	221	53.4
	30-39 years	124	30.0
	Over 40 years	44	10.6
Educational status	Illiterate	72	17.4
	Literate	72	17.4
	Primary school	170	41.1
	High School	56	13.5
	University	44	10.6
Occupation	Housewife	373	90.1
	Civil servant	25	6.0
	Worker	16	3.9
Income level*	Below minimum wage	155	37.5
	Minimum wage	162	39.1
	Above minimum wage	97	23.4
Family type	Nuclear family	279	67.4
	Extended family	125	30.2
	Broken family	10	2.4
Residence	City	147	35.5
	District	178	43.0
	Village	89	21.5
Social security	Yes	243	58.7
	No	171	41.3
Husband's Educational status	Illiterate	23	5.6
	Literate	51	12.3
	Primary school	154	37.2
	High School	103	24.9
	University	83	20.0
Husband's employment status	Yes	336	81.2
	No	78	18.8
Continuous Drug use	Yes	23	5.6
	No	391	94.4
Household drug use	Yes	144	34.8
	No	270	65.2
The distance of the health institutions from residence	≤1 km	203	49.0
	>1 km	211	51.0

*The minimum wage for the year 2018 is 1603 Turkish Liras.

The obstetric history of pregnant women included in the study are presented in Table 2 and Table 3.

Table 2. Obstetric History of the Pregnant Women Included in the Study

Obstetric history	n	Min	Max	X̄± SD
Total number of pregnancy	414	1.00	15.00	3.34 ± 2.21
The number of live birth	397	1.00	13.00	2.86 ±1.75
The number of stillbirths	43	1.00	3.00	1.30± 0.63
The number of miscarriage	104	1.00	8.00	1.68±1.15
The number of deliberate miscarriage	10	1.00	2.00	1.10±0.31
The period between the last two births	318	1.00	6.00	3.22± 1.73
The number of living children	414	1.00	5.00	2.59±0.84

The average number of pregnancies among pregnant women included in the study was 3.34. The average number of live births was 2.86, and the average number of living children was 2.59.

Table 3. Obstetric History of the Pregnant Women İncluded in the Study

Obstetric history of the pregnant women		n	%
The period between the last two births (N=318)	7-17 months	68	21.4
	18-23 months	58	18.3
	24-35 months	63	19.8
	36-47 months	43	13.5
	48-59 months	36	11.3
	60 months and over	50	15.7
The number of living children (N=393)	1-2	198	50.4
	3-4	124	31.6
	5 and over	71	18.0
The place where the birth took place (N=393)	Hospital	371	94.5
	At home (With the help of health staff)	2	0.5
	At home (With the help of a midwife)	20	5.0

The first pregnancies of 25.4% of the pregnant women included in the study took place when they were 18 years old and younger. 74.6% of them took place when they were older than 18 years. The period between the two pregnancies of 19.8% of the pregnant women was 24-35 months, and 31.6% of them had 3-4 children.

The distribution of the responses of pregnant women on the scale of rational drug use is presented in Table 4.

According to Table 4, 89.9% of the pregnant women included in the study stated that only physicians could suggest medication and 70.8% of them reported that not using the drug during the treatment period specified by the doctor may prevent recovery. 44.0% of the pregnant women stated that herbal products can be used instead of drugs, and 49.8% held the idea that consuming herbal products as much as desired did not cause any harm to health. Besides, 85.3% of pregnant women thought that any drug can be used safely during pregnancy.

Table 4. The Distribution Of The Responses of the Pregnant Women İncluded in the Study on the Scale of Rational Drug Use

Rational Drug Use Scale Items	Yes		No		I don't know	
	n	%	n	%	n	%
1. Only physicians can recommend medication.	372	89.9	26	6.3	16	3.9
2. There is no harm in recommending medication to our relatives who suffer from similar complaints.	305	73.7	88	21.3	21	5.1
3. The doctor decides whether we need to take medication when we get sick.	393	94.9	18	4.3	3	0.7
4. Drugs can have negative effects as well as positive effects.	366	88.4	33	8.0	15	3.6
5. All drugs yield the same side effects.	315	76.1	62	15.0	37	8.9
6. It is not harmful to take the medication more often than the time intervals indicated by the doctor.	237	57.2	133	32.1	44	10.6
7. It can be learned from the instructions for use that medicines should be taken on an empty or full stomach.	316	76.3	66	15.9	32	7.7
8. Giving up taking the medication during the treatment prescribed by the doctor may hinder healing.	293	70.8	84	20.3	37	8.9
9. Herbal products can be used instead of drugs.	182	44.0	156	37.7	76	18.4
10. Consuming herbal products as much as desired is not detrimental to health.	206	49.8	125	30.2	83	20.0
11. When we see any undesirable effects while taking medication, we should consult our doctor immediately.	384	92.8	20	4.8	10	2.4
12. While our physician arranges our treatment, we must inform him of the drugs we are currently using.	376	90.8	25	6.0	13	3.1
13. When we feel well during treatment, we can stop using medication.	176	42.5	206	49.8	32	7.7
14. We can ask our pharmacists were to keep our medicines at home.	313	75.6	78	18.8	23	5.6
15. The treatment time for each drug is equally the same.	302	72.9	66	15.9	46	11.1
16. Herbal products are completely harmless.	200	48,3	118	28.5	96	23.2
17. The drugs can be used at the same amounts for all age groups.	321	77.5	58	14.0	35	8.5
18. Rather than using a large number of drugs using a sufficient number of drugs ensures our recovery.	325	78.5	61	14.7	28	6.8
19. More expensive drugs are often more effective.	286	69.1	78	18.8	50	12.1
20. Any drug can be used safely during pregnancy.	353	85.3	27	6.5	34	8.2
21. Some drugs are addictive	293	70.8	51	12.3	70	16.9

The differences between the rational drug use scale scores of the pregnant women and demographic variables are shown in Table 5.

Table 5. The results of the ANOVA test regarding the rational drug use scale scores of the pregnant women and demographic variables

Demographic variables		Sum of squares	sd	Mean of squares	F	p	LSD and Scheffe tests results (means)
Educational status	Between groups	2026.81	4	506.70	14.04	0.01	Illiterate (28.86) Primary school (32.91) Illiterate (28.86) High school (34,30) Illiterate (28.86) University and higher (36.47) Illiterate (30.97) University and higher (36.47) Primary school (32.91) University and higher (36.47)
	Within-group	14751.04	409	36.06			
	Total	16777.86	413				
Occupation	Between groups	533.43	2	266.71	6.74	0.01	Housewife (32.20) Civil servant (36.84) Civil servant (36.84) Worker (31.13)
	Within-group	16244.42	411	39.52			
	Total	16777.86	413				
Income level	Between groups	772.77	2	386.38	9.92	0.01	Below min. wage (30.76) Min. Wage. (33.01) Below min. wage (30.76) above min. wage (34.14)
	Within-group	16005.09	411	38.94			
	Total	16777.86	413				
Family type	Between groups	582.77	2	291.38	7.39	0.01	Nuclear (32.84) broken (25.20) Extended (32.11) broken (25.20)
	Within-group	16195.09	411	39.40			
	Total	16777.86	413				
Place of Residence	Between groups	411.21	3	137.07	3.43	0.02	city(33.52) village(30.91)
	Within-group	16366.64	410	39.91			
	Total	16777.86	413				
Husband's educational status	Between groups	2425.81	4	606.45	17.28	0.01	Illiterate (26.34) Primary school (32.83) Illiterate (26.34)-High school (32.34) Illiterate (26.34) University and higher (35.71) Illiterate (28.84) Primary school 32.83) Illiterate (28.84) high school (32.34) Illiterate (28.84) University and higher (35.71) Primary school (32.83) University and higher (35.71)
	Within-group	14352.05	409	35.09			
	Total	16777.86	413				

A statistically significant correlation was found between the RDU scale scores of the pregnant women included in the study and demographic variables such as educational status, occupation, income level, family type, place of residence, and husband's educational level

There was a significant difference between the RDU scale mean scores and the educational status of the pregnant women included in the study (F = 14.04, p=0.01). It was revealed that the mean scores of the illiterate pregnant women on the RDU scale ($\overline{X}$ = 28.86) were lower than those who had primary ($\overline{X}$ = 32.91), high school ($\overline{X}$ = 34.30), university, and higher education ($\overline{X}$ = 36.47). As the educational level of pregnant women increases, the mean scores of the RDU scale increases.

The RDU scale scores of the pregnant women included in the study exhibit a significant difference in terms of occupation (F = 6.74, p=0.01). In this context, it was found that the RDU scale mean scores ($\overline{X}$ = 36.84) of the pregnant women who were civil servants were higher than those of the housewives ($\overline{X}$ = 32.20). It was also revealed that the RDU scale scores of the pregnant women who were civil servants (x = 36.84) were higher than those who were workers ($\overline{X}$ = 31.13).

As the income level of pregnant women increases, the mean scores of the RDU scale increases. The difference between RDU scale means scores and income level was found to be significant (F = 9.92, p =0.01). The RDU mean scores of the pregnant women whose monthly income was below the minimum wage ($\overline{X}$ = 30.76) were lower than those whose monthly income was above the minimum wage ($\overline{X}$ = 33.01) and equal to the minimum wage ($\overline{X}$ = 34.14).

The RDU scale mean scores of the pregnant women included in the study were found to be significant in terms of family type (F = 7.39, p =0.01). The mean scores of the pregnant women living in the nuclear family ($\overline{X}$ = 32.84) and extended family ($\overline{X}$ = 32.11) were higher than those living in the broken family ($\overline{X}$ = 25.20).

The RDU scale mean scores of the pregnant women living in the city center ($\overline{X}$ = 33.52) were higher than those living in the village ($\overline{X}$ = 30.91). There was a significant difference found between the RDU scale mean scores of the pregnant women and the place of residence (F = 3.43, p =0.02).

The RDU scale mean scores of the pregnant women included in the study differ significantly because of the educational level of their husbands (F = 17.28, p =0.01). As the educational level of the husbands of pregnant women increases, the mean scores of the RDU scale increases.

The results of the t-test conducted to determine whether there is a difference in the rational drug use scale scores of the pregnant women according to demographic variables are given in Table 6.

Table 6. The Results of the t-test for Rational Drug Use Scale Scores According to Demographic Variables

	n	$\overline{X}$	S_x	**sd**	**t**	**p**
Social security						
No	171	31.11	6.51	397	-3.74	**0.001**
Yes	228	33.50	6.14			
Husband's employment status						
No	78	30.43	6.07	412	-3.11	**0.002**
Yes	336	32.90	6.36			

There was a significant difference between the rational drug use scale scores of the pregnant women who accepted to participate in the study and whether they have social security (t = -3.747; p=0.001). The mean scores of those with Social Security ($\overline{X}$ = 33.5088, Sx = 6.14831) were higher than those without social security ($\overline{X}$ = 31.1170, Sx = 6.51860). There was also a significant difference in whether the husband is working or not (t = -3.110; p=0.002). The RDU mean scores of those whose

husbands were working ($\overline{X}$ = 32.9018, Sx = 6.36027) were higher than those with not working ($\overline{X}$ = 30.4359, Sx = 6.07441).

The distribution of the attitudes of the pregnant women included in the study towards drug use is shown in Table 7.

Table 7. The Distribution of the Attitudes of Pregnant Women Towards Drug Use

The number of unused or half-used boxes of medicine (n=414)				
	n	**%**		
None	92	22.2		
1-5 boxes	**187**	**45.2**		
>5 boxes	135	32.6		
	Yes		**No**	
	n	**%**	**n**	**%**
The place to keep the medication (n=414) *				
Refrigerator	**198**	**47.8**	216	52.2
Medicine cabinet	94	22.7	320	77.3
Cool place	**121**	**29.2**	293	70.8
High place	15	3.6	399	96.4
What circumstances they pay attention to while re-using the drugs at home (n=414) *				
Suitability for the illness	**203**	**49.0**	211	51.0
Usage instructions on the boxes of the medication	139	33.6	275	66.4
Whether the packaging is broken or not	100	24.2	314	75.8
Whether the expiry date elapsed or not	320	77.3	94	22.7
No attention to above all	9	2.2	405	97.8
People to whom they ask about the users when they want to take drugs at home (n=414) *				
Physician	**232**	**56.0**	182	44.0
Pharmacist	**129**	**31.2**	285	68.8
Nurse. Healthcare staff	37	8.9	377	91.1
Acquaintance/ Neighbour/ Relative	44	10.6	370	89.4
I don't need anyone since I used the drug before	93	22.5	321	77.5
Spare medications at home (n=414) *				
Analgesics	**233**	**86.9**	35	13.1
Antibiotics	53	19.8	215	80.2
Anti-cold	68	25.4	200	74.6
Gastric medication	42	15.7	226	84.3
Vitamins	19	7.1	249	92.9
Allergy medication	2	0.7	266	99.3
Ointments	25	9.3	243	90.7
The most frequently used medication (n=414) *				
Analgesics	**294**	**71.0**	120	29.0
Antibiotics	51	12.3	363	87.7
Anti-cold	59	14.3	355	85.7
Gastric medication	38	9.2	376	90.8
Vitamins	35	8.5	379	91.5
Allergy medication	3	0.7	411	99.3
Ointments	8	1.9	406	98.1
Do you see the doctor to prescribe you medication to spare at home? (n=414)				
Yes	139	33.6		
No	**150**	**36.2**		
Occasionally	125	30.2		

*More than one response was given.

187 people (45.2%) stated that they had 1-5 half or unused medicine boxes in their houses. While 47.8% of the participants in the study kept their medication in the refrigerator, 3.2% of them stated that they hid them in a high place. Considering re-using medication at home, 49.0% of the participants stated that they paid attention to the suitability of the illness, 77.3% stated that they checked the expiration

date. Before using medication at home, 56.0% of the participants stated that they received information from the physician, and 31.2% of them from the pharmacist. 86.9% of them stated that they got their doctors to prescribe pain killers to spare at home (Table 7).

Table 8. The Distribution of the Attitudes of Pregnant Women Towards Drug Use

	n	**%**		
Thinking that they use antibiotics without control (n=414)				
Yes	54	13.0		
No	**271**	**65.5**		
Occasionally	89	21.5		
Thinking that they use analgesics without control (n=414)				
Yes	95	22.9		
No	**207**	**50.0**		
Occasionally	112	27.1		
	Yes		**No**	
	n	**%**	**n**	**%**
People to seek help while using antibiotics/ analgesics (n=414) *				
Physician	**341**	**82.4**	73	17.6
Pharmacist	43	10.4	371	89.6
Nurse. Healthcare staff	38	9.2	376	90.8
Acquaintance/ Neighbour/ Relative	18	4.3	396	95.7
Using herbal remedies	19	4.6	395	95.4
Healing oneself using the medication at home	13	3.1	401	96.9
Asking others who had similar illnesses	4	1.0	410	99.0
Not consulting anyone	17	4.1	397	95.9
People to seek help whenever any illness breaks out (n=414) *				
Physician	**352**	**85.0**	62	15.0
Pharmacist	25	6.0	389	94.0
Nurse. Healthcare staff	34	8.2	380	91.8
Acquaintance/ Neighbour/ Relative	12	2.9	402	97.1
Using herbal remedies	20	4.8	394	95.2
Healing oneself using the medication at home	19	4.6	395	95.4
Asking others who had similar illnesses	4	1.0	410	99.0
Not consulting anyone	13	3.1	401	96.9
Seeking information about the medication, its usage, and side effects (n=414) *				
Physician	**186**	**44.9**	228	55.1
Pharmacist	125	30.2	289	69.8
Nurse. Healthcare staff	26	6.3	388	93.7
Prospectus	140	33.8	274	66.2
Acquaintance/ Neighbour/ Relative	39	9.4	375	90.6
Using Any Medication Recommended by Your Elders, Neighbors, and Your social Environment During Your Current Pregnancy (n=414)				
	29	7.0	**385**	**93.0**
Using Any Medication Recommended by Your Elders, Neighbors, and Your Environment During Your previous Pregnancy (n=414)				
	27	8.2	**304**	**91.8**

* More than one response was given.

65.5% of pregnant women did not think that they used antibiotics in an uncontrolled way. 50.0% of pregnant women did not think that they used analgesics in an uncontrolled way. However, 44.9% of the pregnant women stated that they consulted a physician whereas 30.2% of them referred to a pharmacist when using antibiotics/analgesics. 44.9% of the pregnant women stated that they asked for

help from the physician while 30.2% of them sought assistance from the pharmacist about the use of drugs and their side effects. Only 8.2% of the pregnant women who stated that they used any medication recommended by their elders, neighbors, and social environment for themselves in their previous pregnancies (Table 8).

4. Discussion

The most important reasons for the emergence of the concept of *rational drug use* include misleading information about drug use, providing insufficient or incomplete information on the use of drugs, the prescription of drugs by some physicians for making a profit, pressure on some physicians to specify unnecessary prescriptions, profitable promotional activities and related industry not well regulated by the competent authorities [10]. Considering the prevalence of drug use by patients without consulting physicians and the challenges imposed by this situation for public health, there is an urgent need for interventions that encourage rational drug use among the public and raise awareness. Therefore, it is necessary to determine the irrational drug use practices of the people and the factors that may affect this [9].

The RDU scale total mean scores of the pregnant women in our study was 32.43 ± 6.37. Since the predictive value of the scale was calculated as 34 points, those who scored 35 and above on the scale were deemed to have rational drug use knowledge, and the pregnant women participating in our study had a low level of RDU knowledge. This situation may be associated with the low educational level of pregnant women and their husbands. Due to the lack of studies conducted with pregnant women on this subject, it could not be discussed with the literature. When the RDUs scale score is evaluated according to socio-demographic characteristics in our study, Several significant differences were found between educational level, occupation, income level, place of residence, and educational level of husband. Therefore, it was revealed that there was a statistically significant difference between the means scores of rational use of drugs and the educational level, occupation, income level, place of residence, and educational level of husband. Similar to our results, in a similar study by Demirtaş et al. (2018) and Bian et al. (2015), a significant difference was found between the RDU scale scores and educational levels and income [9, 11]. In the study conducted by Costa et al in 2017 in Brazil, it was found that 84.7% of the women used drugs during pregnancy. In this study, a positive correlation was found between the educational level of pregnant women, receiving antenatal care, and drug use during pregnancy [12]. In this context, rational drug use of individuals can be associated with the socioeconomic level.

Similarly, in another study conducted by Adhikari et al. (2011) among 656 women in India, it was revealed that 97.7% of women used drugs during their pregnancy. Also, it was found that only 52.8% of the women applied to health institutions when they suffered from a disorder during pregnancy [14]. In the study of Martin et al. (2015), 28.0% of pregnant women stated that they were addicted to opioid drugs prescribed by their physicians [15]. Another study by Liew et al. (2014) suggested that 38.0% of pregnant women used acetaminophen frequently without a prescription [16]. Golding et al. (2019) found that 44.0% of pregnant women between the ages of 18-32 took paracetamol without a prescription [17]. In our study, analgesics were the most frequently used drug group during pregnancy (71.0%) and prescribed to spare at home (86.9%). Also, one in every two pregnant women think that they use analgesics in an uncontrolled way (They responded" Occasionally "). It was also found that 82.4% of the pregnant women in the present study applied to the physician when they had a disorder.

Paracetamol is a highly preferred drug among pregnant women. It is the most reliable pain killer and antipyretic that can be used in this period [18].

Antibiotics are one of the drug groups that should be used carefully, especially by pregnant women. One of three pregnant women (34.5%) included in our study thinks that they use antibiotics in an uncontrolled way. Antibiotics are among the most commonly used drugs during pregnancy. Since it is known that some antibiotics (tetracyclines) are teratogenic in humans, some are teratogenic in animal experiments (gentamicin), a few may have postnatal toxic effects (streptomycin), physicians refrain from prescribing antibiotics to pregnant women. However, it is known that delay in the treatment of maternal infections may lead to intrauterine infections, premature rupture of membranes, and preterm action risk [19]. For this reason, it is very important to raise the awareness of pregnant women, especially about RDU.

33.6% of the pregnant women answered "Yes " to the question "do you get your doctor to prescribe medicine to spare at home?" and 30.2% of them answered “Occasionally” (63.8% in total) (see Table 7). According to a study conducted in Isparta in 2018 in which the rational drug use levels of the general public were evaluated, when the participants were asked whether or not they prescribed drugs to spare at home, the majority of them (54.7%) stated that they did not do so. On the other hand, in the interview data showed that individuals stated that the refrigerators in their homes were like a small pharmacy, medicines were bought and replaced for every drug that expired, and that medicines at home were treated like candies [20].

When the pregnant women who agreed to participate in the study wanted to use medication at home, they consulted to physicians (56.0%), pharmacists (31.2%), their own experiences (22.5%), and acquaintances/neighbors/relatives (10.6%), respectively (see Table 7). The results of a survey conducted in Turkey showed that 66.0% of the individuals consulted relatives/friends/neighbors regarding the recommended drug use, which is a serious case [20]. In the study by Yousef et al. (2008), it is seen that the advice of friends/neighbors plays an effective role in drug use, though not as high as in this study [21]. Although it is not as high as in the literature, getting advice from the immediate environment other than physicians in drug use is also significant in this study. This phenomenon shows that people strongly influence each other in drug use and seeking counseling from the close environment is a help-seeking behavior in case of illness. However, this contradicts rational drug use.

In the present study, a statistically significant difference was found between drug use in the household where pregnant women live (34.8%) and the distance from the health institution. It is an expected result that the distance from the health institution will affect drug use. However, the special nature of the research group reminds us of the importance of pregnancy follow-up in primary health care services in terms of this result.

Another remarkable finding in the study is adolescent pregnancy. The first pregnancies of 25.4% of the pregnant women included in the study were 18 years and younger, and 74.6% were over 18 years old. Almost 4% of women in the 15-19 age group in our country have children or are pregnant with their first child [22]. The adolescent pregnancy rate is significantly higher than the average in Turkey. Early pregnancies are at higher risk than adult pregnancies in terms of complications such as preterm birth, perinatal mortality, postpartum infection, anemia, a baby with low birth weight, and anemia [23]. Despite all these risks, considering the risks related to our research topic, the severity of the issue is obvious. Although our country makes some improvements in terms of adolescent pregnancies, it is thought that the situation lingers [22, 24].

5. Conclusion

Although rational drug use is important for each group, it is more important in pregnant women who are special groups. There are not many articles in the literature on rational drug use during pregnancy. This shows the originality of our study. It was determined that pregnant women did not have enough information about RDU (Scale scores below 35 points). The difference between the rational drug use scale and education level, occupation, income level, family type, place of residence, husband's educational status, social security, and husband's employment status is significant. The low rational drug use rates among pregnant women have been associated with low levels of education and income. It is important to make plans to provide education and information for women living in the region and their spouses to popularize the use of cheap, harmless, and reliable medications during pregnancy and to prevent unnecessary medication use. To promote safe medication use in the first and second trimesters of pregnancy, healthcare providers should provide counseling easy to access and understand. This suggests that health professionals should communicate with special groups rational about medication use more, plan training on this issue, and pay home visits if necessary. Therefore, health professionals should help all segments of the society so that they can access accurate and adequate information about rational medication practices.

Acknowledgments

The authors would like to thank all the participants

Ethical Consideration

Before the study, the Ethics Committee Permission (no: 2018 / 1-2) from the Ethics Committee of Mardin Artuklu University and other necessary legal permissions were obtained from the institutions where the study was conducted. The study protocol was conducted according to the Declaration of Helsinki. Verbal consents of pregnant women who agreed to participate in the study were obtained before the study.

The compliance to the Research and Publication Ethics: This study was carried out by the rules of research and publication ethics.

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Research Article

DETERMINATION OF THE CORRELATION BETWEEN NURSES' ORGANIZATIONAL COMMITMENT AND JOB-RELATED STRESS LEVELS: AN EXAMPLE OF A PUBLIC HOSPITAL

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Abstract: *This research was conducted in order to determine the correlation between the loyalty of nurses in Haydarpaşa Sultan Abdulhamit Han Education and Research Hospital and their job-related stress levels, which is one of the important elements of health service delivery. The sample of this research consisted of military nurses who were transferred from the Turkish Armed Forces to the Ministry of Health in 2016 and 170 nurses who agreed to participate in the research at Haydarpaşa Sultan Abdulhamit Han Education and Research Hospital after the transfer and the full count method was used when calculating the sample. In the research, which was planned to be definitive, the required data was collected using the Job-related Tension Scale and the Organizational Commitment Scale. In the research, the data was collected with the face-to-face interviewing method after the participants were informed of the purpose of the research, and after their consent was obtained and the participants were interviewed at their convenience. The data obtained were evaluated by establishing a database in SPSS (Statistical Package for Social Sciences) 22.0 software. In the evaluation of the data, number, percentage, standard deviation, and mean were used as descriptive statistical methods. According to the groups, 82 (48.2%) of the employees were previously employed at the Gülhane Military Medical Academy (GATA) and 88 (51.8%) were employees of the Ministry of Health. According to regression analysis, the total change in job-related stress level is explained by 14.9% organizational commitment total. In correlation analyses, a negative correlation was found between job-related stress and emotional commitment, continuance commitment, and normative commitment. Employees who previously worked at GATA reported a significant decrease in the total value of organizational commitment relative to the total GATA value of organizational commitment. Job-related stress levels, on the other hand, showed a significant increase in employees who previously worked at GATA. According to the research findings, it is observed that organizational commitment tends to decrease in employees who previously worked at GATA, that there is a significant increase in job-related stress levels, and that the job-related stress of employees in GATA is high and significant.*

Keywords*: Job-related stress, organization, organizational commitment.*

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1. Introduction

Organization as a concept can be defined as a system in which the efforts of the employees are coordinated in order to achieve the determined common goals and where the dimensions of human, purpose, and technology are intertwined at the point of accomplishing this goal and as a structure that shows the correlation between authority and communication within the system [1,2]. The concept of loyalty, which is one of the feelings felt by the employees, refers to the loyalty and obligation displayed to the idea, the person, and the institution.

In the conducted research, the issue of organizational loyalty has become increasingly important as employees with high organizational loyalty demonstrate higher performance, have a lower intention to quit, and show more loyalty within the organization. Since the concept of organizational commitment is both a precursor and a result of the variables related to the organization, studies have also focused on the factors that affect loyalty [3]. Organizational commitment, as can affect many factors, can also affected by numerous factors [4]. In the reviews of the literature, it is seen that many studies express that organizational commitment is also influenced by job-related stress [1,4-11]. In this study, it was tried to determine the correlation between organizational commitment and job-related stress levels of nurses working in public hospitals, which is one of the important elements of health care delivery. At the same time, it was tried to determine the correlation between mandatory organizational change and organizational commitment levels and change direction and before/after change organizational commitment and job-related stress levels. The results to be obtained are intended to contribute significantly to the health sector and management science in general.

1.2.Conceptual Framework

Constant changes in competition, market, and technology in businesses also increase the importance that organizations place on the value of their human resources [12]. However, in recent years, negative attitudes and behaviors towards the organizational system and work have become more common in organizations, and in such an environment, it is becoming increasingly difficult to increase employees' feelings of commitment to work and organization [13]. In some studies, one of the reasons why the qualified workforce, leave the organization and accept to work in other organizations for less pay, appears that the organization and its managers have been referred to as failing to connect their employees to the organization [14,15]. Organizational commitment, which is considered as one of the job-related attitudes of employees and which is one of the concepts that organizations have emphasized in their productivity studies in recent years, in general, refers to coming together of individuals working to achieve a number of goals, the desire of the employees to stay in the organization by identifying with their job, their compatibility with the work, interest and their psychological commitment to the organization by being identified with their job with loyalty to organizational values [13,14,17-20]. Allen and Meyer (1991) address organizational commitment in three fundamental dimensions as emotional commitment, normative commitment, and continuance commitment [13,21].

Job-related stress/occupational stress, which significantly affects working life and is the precursor to many organizational behavior variables, has an important role in the performance of employees [22]. Work stress is the sum of correlations that exceed the individual's tolerability, which is threatening according to the mindset of the individual. Although work stress may seem to be an extension of general stress, its nature differs from general stress. Job-related stress occurs specifically as a consequence of

working life. Factors such as tasks, work environment, role conflict, the capacity of the employee may cause stress [23-25]. Although there are studies that express a positive correlation between organizational commitment and job-related stress, there are studies in which negative correlations are emphasized [5,8,26]. According to Leong, Furnham, and Cooper (1996), there are two different views on job-related stress and organizational commitment: According to the first view, employees with high organizational commitment experience the impact of stress more than employees with low organizational commitment. According to the second opinion, on the other hand, commitment protects individuals from experiencing the negative impacts of stress. There are several researches that reflect these two views. Meyer et al. (2002) stated in their meta-analysis study of research using a three-dimensional organizational commitment model that there is a positive correlation between continuance commitment and stress, Temizkan (2004), in his thesis on doctors in order to examine the correlations between organizational commitment and stress found a positive correlation between job-related stress and organizational commitment, Aydogan (2008) referred a positive correlation between stress and continuation commitment, Güçlü (2006), in his study, found a negative direction between work stress and emotional and normative commitment and Omoloara (2008), in his research, stated that there was a negative correlation between job-related stress and organizational commitment [1,5,6,9-11].

2. Research's Method

2.1. Purpose of Research

It was planned to determine the correlation between the loyalty of the nurses in Haydarpaşa Sultan Abdulhamit Han Education and Research Hospital to the organization and their job-related stress levels.

In this context, the hypotheses of the research are as follows;

H_0: There is no significant correlation between organizational commitment and job-related stress.

H_1: There is a significant correlation between organizational commitment and job-related stress.

Ethical Consideration

Before data collection, Ethics Committee approval was gained from the Ethics Committee of İstanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine (7/5/2019-108624)

Form of Research

It was planned as descriptive in order to determine the correlation between the loyalty of the nurses in Haydarpaşa Sultan Abdulhamit Han Education and Research Hospital to their organization and the stress levels related to work.

2.2. The Location of Research and Its Characteristics

The research was conducted on nurses in Haydarpaşa Sultan Abdülhamit Han Education and Research Hospital in Istanbul province in order to investigate the scientific results of nurses who received education in schools under the Turkish Armed Forces and General Staff and who are assigned to these institutions between hospitals on the basis of organizational commitment in changing their organizations.

2.3. The Population and Sample of Research

The population and sample of the research consist of military nurses who were transferred from the Turkish Armed Forces (TSK) to the Ministry of Health in 2016 and nurses who were employed at

Haydarpaşa Sultan Abdulhamit Han Education and Research Hospital after the transition and who agreed to participate in the research.

2.4. Application of Data Collection Forms

The 'Organizational Commitment Scale', which consists of 23 items in the first part, includes questions to assess the organizational commitment of employees. The scale is of Likert type and the items are (5) Strongly Disagree, (4) Disagree, (3) Neither agree nor disagree (2) Agree, (1) Strongly agree. In the second part, the "Job-related Tension Scale" developed by Revicki et al. in 1991 was used. The scale is of Likert type and the items are (4) Not suitable for me, (3) Partly suitable for me, (2) Mostly suitable for me (1) Completely suitable for me.

2.5. Data Collection

The required data were collected using the Job-Related Tension Scale and the Organizational Commitment Scale**.** The data were collected after informing the participants on the purpose of the research and obtaining their consent and the scale was applied by face-to-face interview method at the inconvenience of the participants.

In this study, the reliability of the organizational commitment scale was found to be high as Cronbach's Alpha=0.934. The reliability of the job-related tension scale was found to be high as Cronbach's Alpha=0.786.

3. Statistical Analysis of Data

The data obtained from the research were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 22.0. In the evaluation of the data, number, percentage, mean and standard deviation were used as descriptive statistical methods.

The scores of scale sizes are evaluated between 1 and 5. In order to calculate the distribution range, distribution range=maximum value - minimum value/ number of degrees formula was used. This range has a width of 4 points. This width was divided into five equal widths and the limit values were determined as "very low" from 1.00 to 1.79, "low" from 1.80 to 2.59, "medium" from 2.60 to 3.39, high from 3.40 to 4.19, very high from 4.20 to 5.00 and the findings were interpreted [27].

The t-test was used to compare quantitative continuous data between two independent groups, and a one-way ANOVA test was used to compare quantitative continuous data between more than two independent groups. To determine differences after ANOVA test, the Scheffe test was used as a complementary post-hoc analysis. Pearson correlation and regression analysis were applied among the continuous variables of the study. In the study, organizational commitment scores were checked and the difference of job-related stress scores compared to groups was analyzed by ANCOVA test.

4. Limitations

Since the study covers a multidimensional and comprehensive subject, the subject is limited in this respect by addressing organizational commitment and the impact of job-related stress on nurses. The findings obtained in the research were examined in the sample of Haydarpaşa Sultan Abdulhamit Han Education and Research Hospital and were limited within the time frame in which the data was collected. In this context, the evaluation of the findings from the current study together with findings

from different sample groups that are both quantitative and qualitatively differentiated is important to achieve more generalizable results.

5. Findings and Discussion

In this section, the findings, which were obtained from the analysis of data collected by scales from the employees involved in the research to solve the research problem, are included. Explanations and interpretations were made based on the findings.

5.1. Descriptive Analyses

By age, 57 (33.5%) of employees were aged 30 and under, 58 (34.1%) were aged between 31-40, and 55 (32.4%) were aged between 41 and over. By gender, 149 (87.6%) of employees were female and 21 (12.4%) were male. By education level, 75 (44.1) of employees were undergraduate and above, 49 (28.8%) were associate degree and 46 (27.1%) were high-school graduates. By the duration of their work in the institution, 87 (51.2%) of employees have 5 years or less and 83 (48.8%) have 5 years or more. By their weekly working hours, 119 (70.0%) of employees work 40 hours or less, and 51 (30.0%) work 40 hours and more. By working units, 64 (37.4%) of employees work in internal units, 49 (28.8%) in surgical units, 24 (14.1%) in out-patient units, 17 (10%) in intensive care units, 13 (7.6%) in administration units and 3 (1.7%) in the training unit. By the number of patients given daily care, 49 (28.8%) of employees have 10 and less, 60 (35.3%) have 11-20, 61 (35.9%) have 20 and more. By their work schedule, 86 (50.6%) of employees work at day-shifts, 12 (7.1%) at night-shifts, and 72 (42.4%) in shifts. According to the satisfaction level of the employees, 65 (38.2%) are satisfied, 49 (28.8%) are dissatisfied, and 56 (32.9%) are undecided. According to the satisfaction of the employees of their units, 111 (65.3%) are satisfied, 31 (18.2%) are dissatisfied, and 28 (16.5%) are undecided. According to monthly income satisfaction, 23 (13.5%) of employees are distributed as yes, and 147 (86.5%) as no. According to the employee groups, 82 (48.2%) were previously employed at GATA and 88 (51.8%) were employees of the Ministry of Health.

Table 1. Organizational Commitment and Job-Related Tension Means

	N	Mean	SD	Min.	Max.
Emotional Commitment	170	2.804	1.114	1.000	5.000
Continuance Commitment	170	2.884	0.740	1.000	5.000
Normative Commitment	170	2.636	0.813	1.000	5.000
Organizational Commitment Total	170	2.770	0.742	1.040	5.000
Job-Related Tension	170	39.688	7.441	2.000	68.000

The mean of "emotional commitment" of the employees is calculated as 2,804 ± 1,114 (Min = 1; Max = 5), the mean of "continuance commitment" as 2,884 ± 0,740 (Min = 1; Max = 5), the mean of "normative commitment" as 2,636 ± 0,813 (Min = 1; Max = 5), "organizational commitment total" mean as 2.770 ± 0.742 (Min = 1.04; Max = 5) and "job-related tension" mean as 39.688 ± 7.444 (Min = 21; Max = 68).

The emotional commitment score of the employees involved in our research towards the organization is very close to the continuity commitment score but ranks second. Normative commitment,

on the other hand, ranks third. According to this, nurses' organizational commitment and emotional, continuance, and normative commitments, which are the lower dimensions of organizational commitment, are at the "moderate" level. This situation, as stated by Meyer et al. (2002), can be assessed as the level of employees feeling responsible for their job for the benefits they receive from the organization, or their level of loyalty to the organization is moderate [6].

Evaluating our research in terms of score evaluations, it can be said that the employees have a medium level of emotional commitment, and by increasing the job satisfaction levels of the employees, they will feel more connected to their jobs and will be more efficient by feeling more responsibility for the organization. For this reason, organizational culture, an effective leadership process, an effective communication environment, and mutual trust, giving nurses the message that they are important and valuable employees of the organization, sharing organizational goals, recognizing career opportunities, and supporting participation in decisions can be helpful as basic tools for employee commitment [16-18].

5.2. Correlation Analysis

Table 2. Correlation Analysis Between Organizational Commitment and Job-Related Tension Scores

	Emotional Commitment	Continuance Commitment	Normative Commitment	Organizational Commitment Total	Job-Related Tension
Emotional Commitment	1.000 0.000				
Continuance Commitment	0.383** 0.000	1.000 0.000			
Normative Commitment	0.630** 0.000	0.505** 0.000	1.000 0.000		
Organizational Commitment Total	0.879** 0.000	0.696** 0.000	0.864** 0.000	1.000 0.000	
Job-Related Tension	-0.492** 0.000	-0.053 0.490	-0.314** 0.000	-0.393** 0.000	1.000 0.000

p*<0,05; p**<0,01

When correlation analyses are examined between emotional commitment, continuance commitment, normative commitment, organizational commitment total, and job-related tension, the following correlations are found.

• r = 0.383 positive correlation (p=0,000<0.05) between continuance and emotional commitment,

• r = 0.63 positive correlation (p = 0,000 <0.05) between normative commitment and emotional commitment,

• r = 0.505 positive correlation (p =0.000<0.05) between normative commitment and continuance commitment,

• r = 0.879 positive correlation (p = 0.000 <0.05) between organizational commitment total and emotional commitment,

• r = 0.696 positive correlation (p = 0.000 <0.05) between organizational commitment total and continuance commitment,

• r = 0.864 positive correlation (p = 0.000<0.05) between organizational commitment and normative commitment,

• r = -0.492 negative correlation (p = 0.000 <0.05) between job-related stress and emotional commitment,

• r = -0.314 negative correlation (p = 0.000 <0.05) between job-related stress and normative commitment,

• r = -0.393 negative correlation (p = 0.000 <0.05) between job-related stress and organizational commitment total

Correlations between other variables are not statistically significant (p>0.05).

In addition, another result of our research is that there is a negative correlation between job-related stress and emotional, normative, and overall organizational commitment. Looking at studies in foreign literature, many studies show that job-related stress has a significant and negative correlation with an organizational commitment [28-35]. The results of the research examining the characteristics between organizational commitment and job-related stress of nurses who play an active role in achieving the goals and objectives of hospitals and providing a quality and efficient service also support the results of our study [15,25,29,32,36-44]. Both literature surveys and the results of our research indicate that nurses, the most important component of the health care field, identify themselves with the organization and that, superior performance can be achieved from employees to the extent that nurses reflect their participation in the organization.

Highly motivated health manpower may tend to decrease job-related stress. Thus, his/her superior performance can be considered a success in the field of health by affecting the provision of quality health care and the service directed towards the community as a final outcome. For this purpose, an effective leadership process, an effective communication environment, and mutual trust in organizational culture can help nurses to communicate that they are important and valuable employees of the organization, sharing organizational goals, recognizing career opportunities, and supporting participation in decisions can be essential tools for commitment [4,15,16].

Table 3. Impact of Organizational Commitment on Job-Related Tension

Dependent Variable	Independent Variable	ß	T	p	F	Model (p)	R^2
Job-Related Tension	Invariant	45.946	21.628	0.000	20.225	0.000	0.254
	Emotional Commitment	-3.392	-5.906	0.000			
	Continuance Commitment	1,866	2.401	0.017			
	Normative Commitment	-0.807	-0.958	0.339			
Job-Related Tension	Invariant	50.611	24.803	0.000	30.695	0.000	0.149
	Organizational Commitment Total	-3.943	-5.540	0.000			

Regression analysis performed to determine the cause and effect relationship between emotional commitment, continuance commitment, normative commitment, and job-related tension was found to be significant (F=20.225; p=0.000<0.05). The total change in job-related tension level is 25.4% explained by emotional commitment, continuance commitment, and normative commitment (R^2=0.254). Emotional commitment reduces the level of job-related tension (ß=-3.392). Continuance

commitment increases job-related tension level (ß=1.866). Normative commitment, on the other hand, does not affect the job-related tension level (p=0.339>0.05).

Meyer et al. (2002), in their meta-analysis study of research using a three-dimensional model of organizational commitment, found a negative directional correlation between emotional commitment and stress, and a positive directional correlation between continuance commitment and stress. However, since the number of studies examining the correlation between normative commitment and stress is very small, they were unable to make a decisive analysis.

When the literature is examined in the context of the effect of organizational commitment on work-related tension, the results of the study that work-related stress affects organizational commitment by tending to be more organizationally dependent of less stressed workers support the results of our study [5,8,11,28,36-38].

5.3. Regression Analysis

Regression analysis conducted to determine the cause and effect relationship between organizational commitment total and job-related tension was found to be significant (F=30.695; p=0.000<0.05). The total change in job-related tension level is explained by organizational commitment total of 14.9% (R^2=0.149). Organizational commitment total reduces job-related tension level (ß=-3.943). When the literature is reviewed, it was found that Mathieu and Zajac (1990) found a negative correlation between organizational commitment and stress in their meta-analysis study, and Moore, Henderson, and Chawla (2004) found that less stressed workers tend to be more organizationally dependent in their research on health professionals and debt enforcers in Texas [8,26].

Post-merger means of organizational commitment total do not differ significantly according to group variable (t=1.827; p=0.070>0.05).

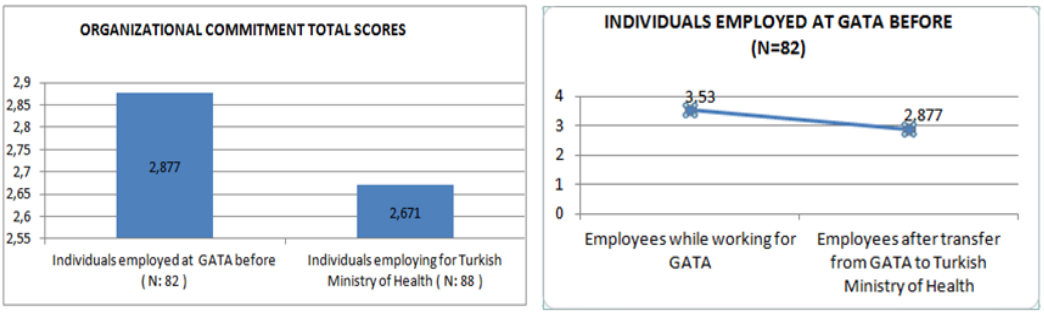

Figure 1. Organizational Commitment Total Scores by Groups

When we look at the differentiation of organizational commitment scores by groups, it is seen that the mean of organizational commitment of the Ministry of Health employees (2.671) is lower than the mean of overall organizational commitment (2.770). The organizational commitment means of GATA employees, which was 3,530 before the institution change, was found to be 2.877 after the merger.

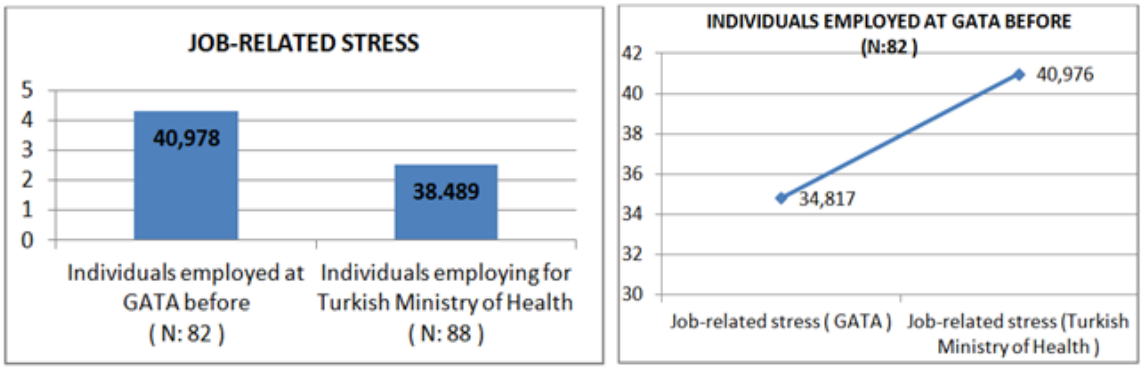

Figure 2. Total Scores of Job-Related Stress by Groups

After the merger, job-related stress scores of previously employed at GATA ($\bar{x}$ =40.976), were found to be higher than the job-related stress scores of the Ministry of Health employees ($\bar{x}$=38.489). Job-related stress on previously employed nurses at GATA ($\bar{x}$=34.817), according to GATA value, the increase in job-related stress value ($\bar{x}$ =40.976) was found significant ($p=0.000<0.05$).

Looking at the differentiation of job-related stress total scores by groups; the job-related stress mean (38.489) of the Ministry of Health employees was seen to be lower than the overall job-related stress mean (39.688). The job-related stress means of employees working at GATA before the merger, which was 34.817, was found 40.976 after the merger.

Strong organizational culture strengthens the organizational commitment by meeting the expectations of the employees about the organization and increases their motivation. The effects and contributions of organizational culture in efficiency and productivity are seen on motivation and organizational commitment. Tools used to motivate employees also affect the culture of the organization. At the same time, the organizational culture affects the strength of organizational commitment by determining the duties, responsibilities, and obligations within the organization [44,45]. In the study of Karadağ et al. (2011), it was observed that GATA academic administrators have a high sense of commitment to their institutions. The high level of organizational commitment of nurses employed at GATA before can be thought to stem from the fact that nurses, who started their working life by studying at schools affiliated to the Turkish Armed Forces, worked with a high discipline for long years, understanding the organizational environment of this institution. Employees who are transferred from a more autocratic institution with limited participation in decisions and high hierarchy to an institution where employees are expected to be more participatory are expected to increase their organizational commitment and work-related stress, on the contrary, in our study, it was observed that organizational commitment of GATA employees decreased in their new institution and their work-related stress increased. This situation can be interpreted as taking into account the importance of organizational culture and organizational values, the importance of organizational commitment in terms of management science, and a subject that should be evaluated in terms of guiding politicians. The main subject in organizations is to be able to place the organizational culture and to adapt it correctly to the employees. Although the leader has a very important role in achieving this, the organizational commitment and work-related stress levels of the employees should be taken into consideration in the establishment of the values system adopted by the employees and the implementation of these values [3-45].

5.4. Covariance Analysis

In the research, organizational commitment scores were checked and the difference of job-related tension scores according to groups was analyzed by ANCOVA (covariance analysis) test.

Table 4. ANCOVA Test Results on The Difference Between Groups in The Impact of Organizational Commitment on Job-Related Tension

Source of Variance	Sum of Squares	sd	Mean of Squares	F	p	η^2p
Emotional Commitment	1249.055	1	1249.055	31.566	0.000	0.161
Continuance Commitment	212.874	1	212.874	5.380	0.022	0.032
Normative Commitment	94.859	1	94.859	2.397	0.123	0.014
Group	323.051	1	323.051	8.164	0.005	0.047
Error	6528.926	165	39.569			
Total	277133.000	170				

$R^2 = 0.302$ (Adjusted $R^2 = 0.285$)

According to ANCOVA analysis results, the difference between adjusted job-related tension scores was found to be significant.

6. Conclusion

In this research, which reveals the correlation between stress and organizational commitment, different basic characteristics of nurses such as age, working hours, education level, marital status, and gender were taken into account. After determining descriptive data on employees, the correlation between stress and employees' organizational loyalty to the organization was examined. According to the findings obtained, there was a negative correlation between employees' job-related stress levels and organizational commitment. In other words, employees' job-related stress has been observed to negatively affect their level of commitment to the organization.

According to the results of our study, the job-related stress level of employees in GATA is higher than the job-related stress of the Ministry of Health employees. Despite the possibility that a military institution with more autocratic and limited participation in decisions and a higher hierarchy, and the stressors it can cause to the employee, would be expected to decline after the change of organization, the level of stress was observed to increase. It can be thought that this is due to the change that has been passed and the suddenness and necessity of this change. At the same time, it was concluded that the organizational commitment of GATA employees was on a downward trend compared to before the change of institution.

In conclusion, nurses experience very intense stress due to the nature of their job. In particular, it is observed that nurses experience stress from time to time due to their duties, their roles, relationships with patients/nurses or team members, physical conditions, and policies of the institution. Thus, sources of stress can weaken or sometimes completely eliminate people's commitment to the organization. On the other hand, individuals with low-stress levels tend to have a firm attitude towards the institution. Organizational commitment to the institution reveals the loyalty and commitment to thought, person,

and institution. Therefore, nurses should not experience problems such as incongruity or having difficulties.

The compliance to Research and Publication Ethics: This work was carried out by obeying research and ethics rules.

Ethical Consideration:
Before data collection, Ethics Committee approval was gained from the Ethics Committee of İstanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine (7/5/2019-108624)

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Review

A LITERATURE REVIEW ON GENITAL SELF IMAGE IN WOMEN AND AFFECTING FACTORS

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Abstract: *Genital self image, which is an important factor for women's health, has been defined as the self-attitude resulting from special interactions and experiences involving the genital organs directly or indirectly, and the following emotion. The purpose of this review is to give general information about female genital self image and the factors affecting it and to draw attention to this issue.*

This study is a literature review. PUBMED, Ovid-MEDLINE, Cochrane Library, Scopus, EBSCO, ProQuest, ULAKBİM and Turkey Citation Index database were searched. Various Turkish and English combinations of the keywords "genital self, genital self image, genital self-perception" were used in the literature review. Genital self image; body image, organ loss, sexual functions, genital hygiene practices, vaginal infections, culture, obesity, developmental periods, and media. When we look at the literature, body image studies mostly focused on women's attitudes towards weight, skin color, and beauty leaving the issue of genital self image in the background. Genital self-image has an important place in the development of sexual health and body image. Recently, it has been found that women have an increasing desire to undergo genital cosmetic/plastic surgery operations and change the appearance and functions of their vulva and vagina due to their negative views on their genital self image.

It is important to examine all the factors affecting the genital self image, which is of great importance for women's health, and to provide the necessary care by taking a holistic approach in terms of body perception and sexuality. Nurses/midwives should adopt approaches to increase the body and genital image of women and to increase the quality of life of individuals. Nurses / Midwives are healthcare professionals in the most appropriate position to provide the necessary support in developing a new genital self image and positive lifestyle.

Keywords *woman, genital self image, health, nursing, midwifery*

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1. Introduction

Self-concept is a social, deep, and broad concept. This concept starts in the family and takes shape within society [1,2]. The genital self-perception includes subjective thoughts and feelings against the genital appearance and function of the person and forms the basis of the genital self image. A subfield of body image studies is genital self-image and expresses individuals' attitudes, subjective feelings, and experiences towards their genital organs [3,4]. In another definition, it is a part of the behavioral and psychological aspects of physical health perceived from the genital organs. [5].

The concept of genital self image emerged with genital identity for the first time. Waltner expressed genital identity as “ego attitude and subsequent emotion arising directly or indirectly from special interactions and experiences involving the genital organs” [1]. It has been suggested that genital identity and sexual identity are related to the term genital self image. The term image was found by Berman et al to express women's genital perceptions in terms of emotions and behaviors [6].

It is not surprising that women are not familiar with certain anatomical features of their genital organs. This issue is still seen as a taboo that cannot be discussed. However, many women today find the appearance of their genital organs very important and are more concerned with their appearance. Genital self image has an important place in both sexual functions and the appearance of women. Recent studies show that women's genital self-perception is associated with sexual health [7]. The positive genital self image was found to be strongly associated with sexual functioning and satisfaction [8]. It is also considered to be the determinant of other behaviors, including genital examination behaviors [7,9].

Despite women and men express negative genital self image thoughts, studies mostly found that men have more positive genital self images than women. [10]. While most of the research on men's genital self image focuses on satisfaction with size, studies on the female genital self image have examined both appearance and function perceptions from an early period. [11].

Genital self image can be expressed as a common concern among women. It is important to consider all the factors that affect the genital self image, which is of great importance for women's health. The purpose of this review is to provide general information about female genital self-image and the factors affecting it and to draw attention to this issue.

The questions of the research are;

- What is female genital self-image?
- What are the factors affecting genital self-image in women?

2. Materials and Methods

This study is conducted in the literature review. In this literature review, article selection, data extraction, and evaluation of article quality were performed independently by the first and second researchers in order to reduce the risk of bias. Each stage was checked in a session attended by the third researcher and a consensus was established. PUBMED Ovid-MEDLINE, Cochrane Library, Scopus, EBSCO, ProQuest, ULAKBİM, and Turkey Citation Index database were searched for literature.

Scanning Strategy

Screenings for this review were conducted between 1 September 2020 - 14 October 2020. The searches were made on Ulakbim, Google Academic, and National Thesis Center search engines with the keywords "genital self, genital self image, genital self perception" to reach publications at the national level. International publications were reached by using the keywords "genital self, genital self-

image, genital self-perception" and by scanning through PubMed, Cochrane Library, Ovid-MEDLINE, Scopus, ProQuest, and EBSCO databases. Studies conducted between 2000 and 2020 were scanned from databases.

Studies with women, whose full text can be accessed, whose method is clear, without validity and reliability studies, were included in the study. The exclusion criteria from the study consisted of studies whose method was not clear, whose full text could not be reached, validity and reliability studies, and studies with men.

Studies dealing with female genital self-image and influencing factors were selected for this systematic review. The determination and selection of the studies were made independently by the first and second researchers in accordance with the inclusion criteria. After the repetitive studies were removed from the searches, the selection was made according to the title, abstract, and full text, respectively.

As a result of the screening, 92 records were reached at the beginning and were found from other records in one study. After the repeated studies were removed, 42 records were examined to make a selection in the title and abstract. As a result of this review, 30 studies were selected to be analyzed in the full text. Later, 30 articles, whose full text was accessed, were examined according to the inclusion and exclusion criteria, and 16 studies reporting results on genital self-image and affecting factors in women were analyzed.

Factors Affecting Genital Self Image

There are many factors affecting genital self image. Some of these factors are; body image, organ loss, sexual functions, genital hygiene practices, vaginal infections, culture, obesity, developmental stages, and media.

2.1. Body image

Our bodies have always been a powerful and important source of self-confidence, and the link between the two has been a subject of research for decades. The concept of "body image", which is an important part of our lives, is gaining importance day by day. Body image includes how a person sees and perceives himself when compared to standards set by society. This concept is used in many disciplines, including psychology, psychiatry, medicine, psychoanalysis, cultural philosophy, and feminist studies; the media often use this term. There is no unified definition of consensus among these disciplines, but body image in a broad sense consists of the way people look at themselves. The way an individual perceives his body affects his relationship with his body and self. Although many people think that body image has little effect on their lives, actually people's feelings and thoughts about their bodies are attitudes towards life [12].

Body image; It is shaped by the individual's values, personality, and relationships with his environment. Although it is generally based on a physiological basis, it is also affected by psychological, environmental, and social factors. Therefore, body image is not only limited to the personality structure of the individual but also creates a sociological meaning socially [13].

Body image dissatisfaction of women is not a new concept in the psychological field, but its links with genital self-esteem have recently been explained. Body image studies mostly focused on women's attitudes towards weight, beauty, and skin color, leaving the issue of genital self image in the background [14]. Genital self image is rarely included in such body image discussions, and although it actually falls under the umbrella of body image, it is often considered a completely separate concept.

Genital self image can be expressed as the perception, attitude, and feelings that a person has about her genital organs [4]. Women's genitals are traditionally seen as more of a taboo and therefore may appear 'unknown' or 'foreign' to women. In a study conducted on women's attitudes towards their genital organs, it was stated that the participants tend to focus their concerns about their sexuality and body on their genital organs [14]. During their lifetime, many women are unhappy with their genitals, generally or in one or more specific aspects. Genital self image is the aspect in which sexual body image emerges [11,15]. Considering the relationship between individuals' satisfaction with their appearance and their sexual behavior, this situation can reduce the sexual interest of the person, as they are more prone to focus on themselves and their bodies during sexual intercourse [15]. In recent years, the thought of having surgery to improve the external physical appearance of the genital organs has also increased among some women.

2.2. Organ Loss

Diseases and injuries such as traumatic situation for any changes occurring in the body, usually depending on the loss of an organ for the individuals, such as loss of physical function and loss of control of the body brings about various physical losses. However, the losses experienced by the individual are often not limited to these, but also cause various social losses such as job loss, loss of status, role loss, loss of beauty and attractiveness.

Surgical operations such as hysterectomy and mastectomy cause a change in women's feelings of motherhood, femininity or attraction. While these surgical operations pose a threat to women's self-esteem and body image, they indirectly affect the genital self image. Surgical operations that directly affect the appearance of the female genital organs, such as vulvectomy, directly affect the genital self image [13]. Roberts (1978) "For the female patient, the loss of the breast or uterus indicates the loss of femininity and sexuality to society. In the loss of femininity and integrity, the person experiences social loss rather than physical loss." [16].

The American Aesthetic Plastic Surgery Association (ASAPS) found that the number of cosmetic surgeries performed has increased significantly in recent years. Ten million surgical and non-surgical operations were performed in 2014, 90% of which were on women. Also, since most of the elective genital aesthetic procedures are in private clinics, the number of procedures performed annually is unknown. Most women do not have precise information about the normal condition and physical appearance of their vulva. In a study, it was found that the exposure of young women to natural vulva pictures has a positive effect on the genital self image and affects the positive genital self image [17].

2.3. Sexual Functions

Genital self-image has important effects on sexual health. Sexuality is a complex process associated with the vascular, endocrine systems, and neurological. It also affects the quality of life and general health of the woman. There are many factors that affect sexual function, such as psychological trauma, surgical operations, relationship dynamics, and drug side effects [18]. When examining the relationship dynamics that cause women to experience sexual dysfunction, harmony with sexual partners comes to the fore [19]. It is seen that women who are compatible with their sexual partner/partner and have high self-confidence have positive genital self image [11,18,20]. On the other hand, the frequency of sexual intercourse decreased sexual arousal, and the presence of surgical and aesthetic operations has been found to negatively affect women's sexual functions [21]. It is also known that female genital self

image is effective on sexual satisfaction and sexual function. Studies have shown that women's genital self image is a determinant of sexual functions such as sexual self image, sexual satisfaction, and sexual experience [11,18,20]. Deep anxiety of being negatively evaluated by others is thought to cause dissatisfaction with genital self image [22]

In their study on the relationship between genital self image and sexual functioning, Berman et al. (2003) found that positive genital self image was negatively associated with sexual dysfunction. Also, they found that positive genital self image was positively associated with sexual desire. [6]

2.4. Genital Hygiene Practices

One of the most important factors in protecting women's health is genital hygiene. When genital hygiene is not observed, susceptibility to genital infections increases [23].

The important step of correct genital hygiene behavior is the improvement of the reproductive health of individuals and protection from urogenital system infections. In many studies on this subject, it has been determined that genital hygiene insufficiency causes genital and urinary system infections. This situation negatively affects the sexual and family life of the woman, decreasing the quality of life, and even causing social isolation.

Genital hygiene practices are one of the important factors that increase genital self image. Genital hygiene practices that are not done completely and correctly may cause infection in women and as a result, women's health and genital self image may be negatively affected [24]. In some societies, many women are raised with the belief that their genitals are dirty. As a result, a "feminine hygienic crisis" may occur during menstruation. How women perceive their genital organs is important because the behaviors and choices made towards it can affect behaviors related to genital hygiene as they are often socially and culturally influenced [4]

2.5. Vaginal Infections

Approximately one million women in the world encounter urogenital infections every year, and at least 75% of women have a history of vaginal infection [25]. When we examine the literature, urogenital infections are one of the most common reasons women present in gynecology outpatient clinics. The presence of vaginal infection can adversely affect a woman's genital self image and overall body image. Also, they may cause a decrease in sexual functions, an increase in odor, a negative impact on sexual functions, aversion to sexual intercourse, and physical and mental fatigue [8]. It is stated that vaginal infection is an important health problem and, if not prevented, it will reduce the genital self image of the woman and negatively affect the standard of living [24]. Discharge, malodour, etc. in women with vaginal infections. Such situations affect the genital self image negatively. The suspicion of a worse disease in women also affects the rate of going to gynecological examination due to conditions such as fear of cancer [24].

2.6. Culture

Culture, which is intertwined with life, is one of the concepts that is constantly changing and developing socially with the human being and is important for the individual. Today, a healthy body depends on cultural and social factors rather than medical or biological factors. Body image is both a physiological and a cultural self, and the body exhibits an indicative quality [26].

The importance is given to appearance and the evaluations about appearance may change according to the time lived and the cultural characteristics of the societies. While it was important for women to be fat in the old times, today women are encouraged to have a slim and harmonious body structure. As a result, individuals' feelings and attitudes towards their bodies develop according to the ideal measures provided to them. In case of deviation from the ideal measurements, there may be changes in the self-concept of the individual and therefore in the body and genital self image. Individuals also have a body image and image in their minds. Whether he is satisfied or not shows his self-worth. It has been stated in the literature that culture plays an important role in the formation of appearance ideals and that these differ for women from different cultures. The values of society change over time and with the influence of other societies.

In a study conducted with Turkish women, it was found that the concepts of the beautiful face, thin body, and tall height were adopted by the influence of media organs and culture [27]. Since genital self image differs globally, culturally, and situationally, genital perceptions are largely dependent on a particular situation. Although the genital self image has been researched in international settings, this situation remains uncertain among culturally different women. Anatomy and physiology and one's cultural attitude and perception play an important and influential role in genital self image.

2.7. Obesity

One of the important public health problems of today is obesity. In recent years, the relationship between body and self-concept has been studied frequently in most obesity studies. It has been observed in most studies that body dissatisfaction is more common in obese individuals [28]. It is not clear whether obesity is the cause or the result of low self-esteem and negative body image [27]. Generally, women experience more dissatisfaction than men. Ideal weight negatively affects women's body images and genital self images by making comparisons with others through social interaction. High genital self image is thought to be related to the low BMI of women [29]. Being overweight among women causes negative genital self image.

2.8. Developmental Periods

The development of body and genital self image that begins in the first years of life occurs through the integration of various perceptions over time. When the baby is born, he does not have a physical body and genital self image, as the baby grows up, his attention increases, and begins to examine various parts of his body. With the development of the child, the body and genital self image also constantly changes. Motor skills develop, the environment and relationships with other individuals affect the child's body and genital self image.

Adolescence is the most intense period of changes in the body and genital self image. Many researchers state that adolescence is the most important period with the effect of rapid development and changes in the body. In this period, the body and genital self image of the adolescent are shaped by the peer group, people who are important to the individual, the value judgments of the society, and cultural events other than the parents. Changes occur in the body and genital self images of women as they transition from adolescence to adulthood [30].

It is stated that, with culture, makeup, clothes, jewelry, and ornaments, plastic surgery affects the body and genital self image of the individual temporarily or permanently during adulthood. Aging, which is the last phase of the growth-development process, causes a significant change in the individual's

self-concept and body image. During this period, as the body goes through the aging process, the functionality of the genital organs decreases, and physical and mental changes occur [31].

Women may experience negative body image, low genital self image, and inadequate sexual function [32].

2.9. Media

With the developing technology, the power of the media in society is increasing. When talking about media today; Especially newspapers, magazines, videos, theater, radio, cinema, television, and the internet come to mind. The fastest developing and the newest among these tools is the internet [33]. Women's body image and genital self image are seen as two inseparable concepts. Therefore, while the media affects the body image of women, it indirectly affects the genital self image. It was observed that women made social comparisons with the media [34]. It is known that women follow the models shown in fashion magazines [29, 34]. This false status promised by the media negatively affects the genital self image of women by comparing themselves with unrealistic images [35]. Exposure to genital images displayed on the Internet, particularly the vulva, has particularly affected women's interest in genital surgery [36].

Kubic and Chory found a positive relationship between the increase in the frequency of genital self image in television programs, and women's perfectionism and genital dissatisfaction [37]. In another study, they stated that women who watch make-up programs more frequently affect their genital self image and sexual functions associated with body image.

3. Studies Concerning Genital Self Image

In the study of Herbenick et al. (2011), they stated that most of the participants in the USA felt positive about their genitals. It was found that female genital self image was associated with women's sexual function, sexual behavior, sexual and genital health care behaviors [38].

DeMaria et al. (2012) interviewed four hundred and fifty undergraduate students in their study to determine the validity and reliability of the Female Genital Self-Image Scale in a sample of female university students and to examine the relationship between gynecological examination behaviors. It was found that women who had at least one gynecological examination in the last two years had a significantly more positive genital self image than those who did not [9].

Pazmany et al. (2013) examined body image and genital self image in premenopausal women with dyspareunia. As a result of the study, it was found that women with dyspareunia have more trouble with their body image and have a negative genital self image. [39].

Fahs (2014) conducted a qualitative study with twenty women to determine pubic hair care, genital attitudes about genital/vaginal self-image, and their views on sex during menstruation. It has been determined that women mostly use emotional language when talking about their genitals, and they generally feel anxiety, excessive and need for control. It has been observed that the perceptions of sexuality, health and body image of women experiencing genital panic are affected [14].

In a study conducted by Jawed-Wessel et al. (2017) on primiparous mothers, the relationship between body image, genital self image and sexual function was examined. Poor genital self image and body image concerns in 39.9% of the participants; It has been determined that it is affected by birth, breastfeeding, sexual experiences, and changes in body weight [40].

Fudge and Byers (2017) conducted a qualitative study with 20 women to understand women's genital self-perceptions and their feelings and thoughts about their genitals. As a result of the study, it was determined that women have a moderately positive attitude about their sexual organs. Also, it was determined from the qualitative data analysis that women's global genital self-perceptions are different, each woman has a special genital self-perception, women's genital self-perceptions change in people and situations, women's genital self-perceptions develop over time, and negative genital self-perceptions can be an important problem for women [13].

In a study by Smith et al. (2017), the relationship between genital self image and Elective Genital Surgery thought was investigated. It was determined that only 98 of the 1100 participants seriously considered elective genital surgery [10].

In a study conducted by Laan et al. (2017), it was evaluated whether exposure to natural vulva pictures of women with university education affects their genital self image. One group was shown pictures of natural vulvas (n = 29), in the other group pictures of neutral objects (n = 14). Genital self image was measured 2 weeks after pictures were shown and shown. Most of the participants felt positive about their genitals in general. It has been determined that women exposed to natural vulva pictures positively affect the genital self image [17].

In the study of Handelzalts et al. (2017), which examined the effect of genital self image on sexual function in women with pelvic floor disorder, low genital self image was observed in women with pelvic floor disorder [41].

Sabbağhan et al. (2017) investigated the effect of the training package on genital self image and sexual function in health centers in Iran. As a result of the study, it was found that the training given had no effect on genital self image and sexual function in women [22].

Marvi et al. (2018) investigated the relationship between genital self-image and sex in infertile women in Iran. It has been found that sexual satisfaction and genital self-image are very important in infertile individuals. [19].

DeMaria et al. (2019) conducted individual interviews with forty-six women in their study to determine the attitudes of Italian women towards their genitals, their relationship with reproductive and sexual health behaviors, and genital self-image. It was observed that the participants were ashamed when talking about their genitals and equated this with social taboos. Women's concerns about how their genitals might look were found to stem from limited information [4].

In the study conducted by Komarnicky et al. (2019) to examine the relationship between body image, sexuality, and genital self image, 3,222 women and 3,006 men were reached online. Participants were administered a questionnaire evaluating genital self image, sexual satisfaction body image, and sexual function. In female participants, it was found that as the genital self image increased, sexual satisfaction increased [11].

In the study conducted by Hodges et al. (2019) to evaluate the genital self image in women with vulvar lichen sclerosis, it was found that women with vulvar lichen sclerosis got a lower score on the female genital self image scale compared to the control group [42].

In the study conducted by Fernando and Keskin (2020), they investigated the effectiveness of a very short video aimed at increasing the knowledge of adolescent girls about normal female genitalia and improving their attitudes towards their own genitals. As a result of the research, it was determined that the education video significantly increased the knowledge of girls about female genital anatomy and genital appearance satisfaction. Also, it was found that the thoughts of having labiaplasty or

cosmetic genital surgery in the future decreased. It was determined that the participants who watched the training video trained other young people about female genital anatomy [30].

Fudge and Byers (2020) examined psychosocial factors associated with the female genital self image in their study. It has been stated that psychosocial factors play an important role in forming and maintaining women's genital self image [43].

4. The Importance of Genital Self image for Nurses / Midwives

It is known that genital self image has an important role in improving body image and sexual health. Nurses /midwives should adopt approaches to increase the body and genital image of women and to increase the quality of life of individuals. Today, due to the negative perceptions of women regarding their genital self image, it has been found that their desire to undergo genital plastic/cosmetic surgery and to change the appearance and functions of their vulva and vagina has increased [7].

Nurses / Midwives are healthcare professionals in the most appropriate position to provide the necessary support in developing a new genital self image and positive lifestyle. During the counseling process, nurses/midwives are expected to experience a therapeutic process based on trust and respect. In cases where the genital self image is negative, sexual health, sexual satisfaction, and sexual functions may be affected. The nurse/midwife should evaluate physiological and psychological problems for complications that may develop in terms of women's health and provide the necessary care [44].

Suggestions for increasing genital self-perception;

- Implementing initiatives for women to be satisfied with their bodies,
- Providing consultancy services to improve sexual health
- Teaching correct genital hygiene habits to protect women from infections.
- Providing psychological support for women in surgical operations that change genital perception such as hysterectomy and vulvectomy
- Teaching healthy lifestyle behaviors to women to prevent obesity
- Ensuring that women use media and mass communication correctly,
- It is recommended to avoid situations that may negatively affect body image in developmental periods (adolescence, adulthood, and old age).

5. Conclusion and Recommendations

In this systematic review, the importance of examining all factors affecting the genital self-image, which is of great importance for women's health, and taking the necessary care in terms of body perception and sexuality was emphasized. Nurses/midwives should adopt approaches to increase the body and genital image of women and to increase the quality of life of individuals. Also, nurses/midwives are healthcare professionals in the most appropriate position to provide the necessary support in developing a new genital self-image and positive lifestyle. Based on the results of such studies, they can rearrange the scope of their education programs, taking into account the individual and cultural characteristics of women. As a result, the body and genital image of women can be increased, unnecessary surgical operations can be avoided and the quality of life of individuals can be increased. More experimental studies and qualitative studies that can reveal the individual views and experiences of our women on the subject may be recommended.

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Review Article

PERIOPERATIVE NURSING CARE IN CASES REQUIRING EMERGENCY SURGERY IN COVID-19 INFECTED PATIENTS

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Abstract: *Covid-19 which emerged in Wuhan, China in December 2019, is an infectious disease caused by coronavirus and causes serious respiratory infections. The Covid-19 disease was declared as a pandemic by the World Health Organization in March 2020 due to its easy and rapid spread and affecting many countries globally. This rapid spread also increased the number of individuals infected with the virus worldwide. Unfortunately, deaths resulting from the disease cannot be prevented and the number of individuals who lost their lives continues to increase rapidly. Elective surgery of individuals who are infected or at risk can be postponed in pandemics with such a high rate of infectiousness and disease-related mortality. However, if the absence or postponement of the surgery is life-threatening, performing the surgery becomes inevitable. An individual infected or possibly infected with the Covid-19 virus may pose many risks during the surgical procedure, which requires taking some additional precautions before, during, and after surgery. In addition to the normal surgical process, perioperative nursing care should focus on some specific issues during the pandemic, which is improving the treatment success of the patients, improving the quality of the care, ensuring that the Covid-19 disease is overcome without complications, and preventing the transmission of the disease to other individuals. Thus, the perioperative nursing care of the Covid-19 patients with the possible or definitive diagnosis was discussed considering the available literature.*

Keywords: *Covid-19, Nursing, Nursing Care, Perioperative Care*

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1. Introduction

Covid-19 emerged in Wuhan, China in December 2019 as a disease of unknown cause and transmitted from person to person. This disease caused pneumonia and did not respond to treatments [1–3]. It spread rapidly in late January 2020 and started to cause epidemics in many different countries. For this reason, the Covid-19 disease was declared as a pandemic by the World Health Organization (WHO) in March [4].

The Covid-19 virus is transmitted through the spread of droplets from sick individuals' coughing or sneezing [4, 5]. It is stated that the virus can live 4 hours in the copper [2], 24 hours in cardboard [2],

24 hours in cloth [6], 24 hours in the wood [6], 4-7 days in plastic and stainless steel [2,6], and 2 days in glass [6]. When individuals touching the surfaces infected with the Covid-19 virus take their hands to the mouth, nose, or eye mucosa, the disease is transmitted [4, 5]. The Coronavirus is generally not known to be very resistant to the external environment [4]. Therefore, the activity and life span of the Covid-19 virus in the external environment vary depending on the humidity and temperature of the environment, the amount of organic matter it is discharged from, and the texture of the contaminated surface. This information reveals that the lifespan of the virus and the individual's contact duration with the virus are also important in the contagiousness of the disease [4, 5].

It has been reported that the general incubation period of the Covid-19 virus is 2- 14 days, mostly 5-6 days [5, 7], however, in some cases, there is a viral eruption time of 37 days [1]. Although the infection period of the virus is not known precisely, it is thought that it starts 1-2 days before the symptoms develop and ends with the disappearance of the symptoms [4]. The symptoms of the disease are fever, dry cough, and dyspnea [1, 8, 9]. In approximately half of the patients, the symptoms may be mild enough to be ignored [10]. In more serious cases, pneumonia, acute respiratory failure syndrome, sepsis, metabolic acidosis, coagulation dysfunction, kidney failure and even death (the fatality rate of Covid-19 is 3.8%) can be observed [4, 5].

In the world, the number of individuals who came into contact with this virus and got sick, and the number of individuals who died has been increasing rapidly [11]. In severe pandemic situations that spread rapidly and cause deaths, elective surgeries can be postponed. However, the situation is different in an emergency (such as intestinal obstruction, kidney or ureteral obstruction that cannot be delayed more than 24-48 hours) or very urgent (such as gunshot wound or stab wound requiring immediate intervention and aortic aneurysm). If there is a life-threatening situation when surgery is not performed, surgery cannot be delayed and it becomes a surgical obligation [12]. It is necessary to increase the success of treatment of patients who are planned to have surgery due to an emergency, to improve the quality of care, and to prevent the transmission of the disease to other individuals (other patients, healthcare workers). Therefore, good planning is required for preoperative preparation and postoperative care. This is possible with team collaboration and good nursing care. In this study, information about the nursing care provided for the patients with a possible or definitive Covid-19 diagnosis before, during, and after surgery is given.

2. Preoperative Preparation Period of a Covid-19 Patient

The patient, who is scheduled for emergency surgery, may be an asymptomatic patient or a patient with a definitive Covid-19 diagnosis. For this reason, surgical nurses feel under considerable pressure during the preoperative period.

2.1. Preoperative Patient Evaluation

Nurses should act according to droplet and contact isolation methods at every stage of the preoperative process and every contact with the patient. Personal Protective Equipment (PPE) must be used within the scope of the measures to be taken (Table 1) [3, 8, 13]. The personal protective equipment should be worn in accordance with the rules and in the order of gowns, masks, bonnets, goggles, face protectors, and gloves [3, 8, 13]. The nurse to be in contact with the patient should wear the PPE in a specially reserved room [10]. The nurse should leave all his/her belongings in this room, tie his/her

hair up, put the upper part of his/her uniform inside the pants, and disinfect his/her hands. Shoes must be made of non-perforated and sterilizable material and fully cover the feet and ankles. The legs of the surgical gown should be inserted into the shoes, and then a waterproof apron should be worn. Even specially prepared protective overalls can be used. After a bonnet is worn to cover the head and neck, a protective mask (surgical mask, N95/FFP2 or N99/FFP3), which is determined according to the procedure to be performed with the patient, is worn. Then, goggles or face protective transparent barriers (screen), and finally gloves are worn. After the preparation is completed, the shortest path is followed without touching the items in the room and the nurse enters the patient's room [3, 4, 10, 13].

Table 1. Personal Protective Materials Required for Personnel Who will Contact Possible/Definitive Covıd-19 Cases at a Distance Less than one Meter

Material	Characteristics
Gloves	➢ Non-sterile (sterile gloves can be used according to the process to be performed)
Gown or overall	➢ Preferably water-proof and long-sleeved
Bonnet	➢
Mask	➢ Surgical mask ➢ N95/FFP2 or N99/FFP3 mask: Only for processes that produce droplets/ aerosolization such as aspiration, bronchoscopy, and bronchoscopic procedures, intubation, taking the respiratory sampling
Face protective	➢
All face respiration protective equipment or motor-operated air cleaner respirator	➢ In operations such as tracheal intubation, tracheotomy, broncho-fibro scope, and gastroenterological endoscopy as possible or validated patient can spray or splash respiratory secretion, blood or body fluid ➢ While healthcare personnel is performing the operation or autopsy of the patient who possibly has the virus or confirmed to have the virus. ➢ While the personnel is running Covid-19 nucleic acid test

2.2. Physical assessment

It is very important to obtain accurate and detailed information about the patient in the preoperative period. Thus, the nurse should take a detailed history. However, a safe environment must be established to protect the patient and himself/herself [11]. The patient must be kept in an isolated room (Table 2) and the nurse must enter the patient's room dressed in PPE [3, 13]. During this period, a detailed history should be obtained from the patient and/or their relatives, and factors that may pose a risk during surgery should be evaluated. The patient's age, job, place of residence, chronic diseases, past surgical experience, history of allergy, medications, substance use, and history of all body systems should be included in the history [12].

Table 2. Features of the Patient Room and Rules to be followed in the Room

➢ Standard, contact, and droplet isolation methods should be applied during the hospitalization of individuals with possible or definitive diagnosis of Covid-19.
➢ The patient should be treated in a single room with a bathroom and toilet.
➢ In cases when single rooms are not available, patients with Covid-19 definitive diagnosis can be cohort in the same room.
➢ It is preferable to treat potential Covid-19 patients in separate rooms.
➢ In compulsory cases, potential Covid-19 patients can be in the same room. However, they should be at least 1 meter apart.
➢ Potential Covid-19 patients in the same room should wear a medical mask during hospitalization.
➢ Medical materials to be used for diagnosis, treatment, or care of patients should be patient-specific and should not be taken out of the room.
➢ Patients should not be allowed to use the same materials.
➢ If the equipment to be used (e.g. stethoscope, fever meter) should be used in more than one patient, the tools should be cleaned and disinfected after each use (e.g. ethyl alcohol 70%).
➢ Unless medically necessary, patients should not be moved from their environment to another environment.
➢ Portable devices designated for potential Covid-19 patients should be used (X-ray device and/or other important diagnostic devices).
➢ If there are no portable diagnostic devices, the patient should be taken, if possible, as the last case in accordance with contact and droplet isolation methods and wearing a medical mask, minimizing contact with other patients and visitors.
➢ Health personnel involved in the transportation of the patient should wear medical masks, gowns, and gloves and pay attention to hand hygiene.
➢ N95 / FFP2 or N99 / FFP3 mask and goggles should be present next to the patient if the patient has a condition that may cause aerosolization according to the general condition of the patient.
➢ All surfaces that the patient touches should be cleaned and disinfected regularly.
➢ Patient rooms should be cleaned and disinfected based on the rules determined in accordance with the directives of the infection control committees.
➢ To dispose of used personal protective equipment and other wastes, two separate medical waste bins should be kept at the entrance of the patient room and inside the patient room.

The data required to evaluate the patient's condition and to compare changes before and after the intervention should be obtained during this period. The patient's vital signs should be measured and recorded. Necessary diagnosis and laboratory tests should be performed and the results obtained should be documented correctly [12]. Patients with Covid-19 poor prognosis have been reported to have a high Sequential Organ Failure Assessment (SOFA) score [1]. Therefore, if the patient is unconscious or is in the intensive care unit, the necessary scoring systems must be applied. Besides, patients with Covid-19 poor prognosis are reported to have d-dimer levels higher than 1.0 μg / Ml [1]. Therefore, this value should also be checked in laboratory tests.

2.3. Psychological assessment and pre-surgery training

Confirmed or potential Covid-19 patients may experience feelings of loneliness, fear, anger, and anxiety before the operation due to both surgery and having an infectious disease. These emotional problems can be observed due to uncertainty, being in a different environment, leaving relatives behind, being alone, and fear of being disabled and dying. [12, 14]. While approaching the patient, the feeling

of trust should be established, taking this situation into consideration. Also, the patient's age, education level, and level of consciousness should be taken into consideration while communicating with the patient, and the patient's cultural values and beliefs should be respected [12].

The needs, priorities, developmental structure, experiences, and culture of the patient and the environmental conditions should be taken into consideration in patient education. Education should start as early as possible, taking these characteristics into account. However, there may be a time problem in emergency surgeries. For this reason, the patient should be informed shortly and in order of priority and should be given information about the structure of the operating room, the operating room staff, the intervention to be applied, the process, and the quarantine rules. If there is a situation such as emergency surgery that can be kept for 24-48 hours, preoperative training on breathing, coughing, early mobility, active body movements, foot exercises, and pain management should be planned [12]. The patient and his family should be told that there is a quarantine period of at least 14 days [1]. Information should be given on issues such as how to behave during this process, isolation rules, and hygiene. In addition, the patient should be informed that only the personnel responsible for the patient and who are required to enter will be allowed to enter the room and that there will be no patient visit [3].

If the patient's surgery is not very urgent and there is a period of 24-48 hours for the operation, it is also necessary to prepare for the patient's specific systems the night before. If the patient will undergo major abdominal, perianal, or perineal surgery, bowel preparation can be performed in accordance with institutional policy [12]. The preoperative fasting and carbohydrate treatment of the patient should be in accordance with the ERAS (Enchanged Recovery After Surgery) protocol [15].

For skin preparation, a general body bath is recommended in order to reduce the temporary flora of the patient. If the physician recommends, a skin antiseptic should be used during the bath. If hair removal is necessary, it should be performed in aseptic conditions and as soon as possible to begin the surgical procedure. If possible, electrical and skin-safe tools should be used for cleaning [12, 15]. In addition, the patient should be provided to spend the night before the surgery sleeping and comfortably [12].

2.4. Legal preparation

In the legal preparation phase, the patient should be informed about the forms specified in the hospital protocol (surgical procedure, blood transfusion, etc.), and signed consent must be obtained from the patient. These forms must be documented and included in the patient file [12]. Particular attention should be paid to the isolation methods during the signing of the Covid-19 patient. In fact, it is reported that verbal consent is sufficient in cases when there is a high probability of infection and that signed approval should not be obtained for security reasons [10].

2.5. Transferring the patient to surgery

On the day of the operation, it is checked whether everything that should be done before the surgery (patient's history, physical assessment, necessary diagnosis and laboratory tests, legal permission, informing the patient) has been performed completely [12]. Before transferring it to the operation, the patient's vital signs are checked and recorded (the materials used should be patient-specific) [10]. The clothes and removable prostheses (if any) of the patient are removed in a way that respects privacy. The patient is dressed in surgical clothes, bonnets, and overshoes. In order to ensure that the patient's skin color is monitored in the operation and the blood O_2 is monitored with a pulse

oximeter, the cosmetics on the nail should be removed, if any. Patient information and the presence of infectious disease and allergy should be written on the patient's wristband. The patient goes to the operating room, accompanied by a nurse on a wheelchair or stretcher [12]. During the transfer, the nurse should be wearing a PPE and the patient should be wearing a surgical mask. If the patient is receiving noninvasive or invasive breathing support, respiratory isolation measures should be followed and an N95 mask should be used instead of a surgical mask during the transfer. The nurse should deliver the records he/she received in accordance with the isolation methods and all the documents belonging to the patient to the operating room nurse [3].

Once the patient is transferred to the operating room, the nurse should remove the PPE. While removing the PPE, care should be taken to remove it in the correct order (gloves, gown, goggles, face protection, mask). In particular, it is necessary to remove the mask last and apply hand hygiene [3].

3. Nursing Care During The Operation

The surgical team assumes responsibility for the care of the patient upon taking the patient to the operating room. A well-organized surgical team reduces the risk of contamination through pathogens [16]. Among the most common causes of contamination of pathogens during surgery are accidents during the exchange of surgical instruments, and not wearing gloves, safety goggles, and mask during the procedure. It is also an important factor to have staff who do not have sufficient professional experience. When the personnel carrying medical wastes and doing cleaning duties neglect protective measures, there may be an infection [5].

Ti et al. presented an operating room protocol for confirmed or potential Covid-19 patients admitted to the hospital for surgery. They stated that in this protocol, an operating room with a negative pressure environment and a different entrance was arranged in one corner of the operating room complex and that the same anesthesia device was used only for Covid-19 patients during the pandemic [17]. It is controversial whether the surgical method to be applied to these patients should be performed with laparoscopic or open surgical methods. It has been revealed that there may be viruses in the surgical smoke produced during laparoscopy. It is recommended to use CO_2 filters for aerosolized particles in laparoscopy [10, 18]. In their study, Yu et al. suggested that the operations of patients with colon cancer infected with Covid-19 can be performed using the laparoscopic method by managing laparoscopic gase [18].

Nurses, who are the main advocates of the patient during the operation period, try to maintain the care, safety, and homeostasis of the patient. They inform the patient, give him/her the appropriate position, manage the pain and body temperature, and provide psychological support. They also try to provide a safe environment by defining the existing risk factors and supporting the solution of complex situations [16, 19]. The sterile (scrab) nurse, who is responsible for the preparation of the operating room, works directly with the surgeon. Besides technical skills and dexterity, this nurse has knowledge of the anatomical and mechanical aspects of surgery [1, 20]. The circulating nurse responsible for the management and coordination of the operating room accepts the patient to the operating room. This nurse helps the patient to be placed on the operating table, gives the correct position, cleans the skin for incision, and covers the patient. She/he ensures that the part(s) taken from the patient during pathology are sent to the pathology department. The circulating nurse also controls the application of aseptic techniques of scrup nurses and other team members [16, 21]. In the operating room protocol, Ti et al.

presented five interconnected rooms. Only the ante room and anesthesia induction rooms have negative atmospheric pressures [17]. In case additional medications or equipment are required during the operation, a runner is placed in the anteroom. These drugs and equipment are placed in a cart that is left in the ante room for the operating room team to take. The same process is employed in the reverse order to send samples such as arterial blood gas samples and frozen section samples. The runner wears PPE when entering the entrance room [17]. At the end of the operation, removing the PPE in a way that prevents contamination before leaving the operating room is one of the most important stages. At this stage, the team should move away from the patient with slow movements and should avoid contacting each other. They should help each other while removing the PPE and follow the principles of preventing basic contamination [3]. The personnel leaving the operating room throw their used gowns and gloves into the ante room and perform hand hygiene before leaving. All masks should be removed outside the ante room. When the operation is completed, at least one hour should be left between each case after the patient is sent to the ward. All personnel must take a shower before continuing their duties [17].

All disposable medical products and body fluids belonging to the operating period should be disposed of according to the medical waste standard; the operating room should be disinfected after surgery; and the infected person and the healthcare professionals entering the surgery should be isolated for 14 days [10, 19].

4. Post-Operative Nursing Care

In the postoperative period, which covers the time between patient's leaving the operating room and being discharged from the hospital, the aim is to reorganize the hemostatic balance of the patient, relieve his/her pain, prevent complications, ensure that the patient follows the self-care recommendations, and return to normal life in a short time [22–24].

4.1. Care in the Postanesthesia Care Unit

In the literature, if Covid-19 infected patients do not require intensive care, it is stated that they recover in the operating room, but there is uncertainty about the process of their admission to the Postanesthesia Care Unit (PACU) [10]. Under normal conditions, after the operation, the patient is taken to the PACU where care is given by specially trained nurses [22]. The PACU is located next to the operating room for fast patient transfer. After the operation, patients remain in this unit until the patient comes out of anesthesia and regain consciousness. Collaboration between anesthesiologists and PACU nurses is required in admitting patients to the PACU. The anesthetist is responsible for the transfer of the patient from the operating room to the PACU and checks the tools and equipment that should be kept in the PACU before the patient is transferred and completes what is missing [22–24]. While all patients should be kept in the PACU until their vital signs are stable after surgery, it is also known that patients who do not have a high risk of developing complications are taken directly to the clinic in many hospitals [24]. All the staff involved in the transfer and care process of Covid-19 patients should use PPE [17].

Nursing care in the PACU involves determining the patient's level of consciousness, location, time and person orientation, and response to verbal commands as well as controlling and observing respiratory and circulatory functions, pain, fever, bleeding, and drainage amount of the surgical site [22, 24]. After leaving the PACU, the patient can go to the intensive care unit or the clinic. The patient who

does not need intensive care is transferred to the clinic by the PACU nurse and delivered to the clinical nurse [22].

4.2. Care in the Surgical Clinic

After the operation, the patient should be taken to the clinic in a single room, which is isolated from other units and where the patient stayed before having the operation, and visitors must be restricted to prevent cross-contamination [10, 18]. It is recommended to include a chest diseases specialist and anesthesiologist in the patient's clinical treatment and care process. Specific treatment is not required in this direction in patients who do not have confirmed Covid-19 infection. Normal treatment and care are carried out. However, treatment and care specific to this virus is applied in patients with a definitive diagnosis of Covid-19 [10]. The same high performance is expected from nurses in patient care whether or not there is infection [25]. By taking the measures that follow the hospital protocol and ensure high levels of protection, nurses should provide the necessary nursing care. The standard nursing care of the patient who comes to the clinic after the operation involves evaluating respiration, monitoring of vital signs, observing the patient's skin, performing surgical wound dressing and drainage control, monitoring urinary catheter if any, evaluating urine amount and properties, preventing bladder distension, helping patients do deep breathing and coughing exercises. In addition, providing vessel and paper towels for nausea and vomiting, evaluating patient's level of consciousness, orientation, and limb mobility, assessing the severity of pain, giving an analgesic based on request and giving a safe and comfortable position, IV treatment control, and informing the patient and the family are involved in standard nursing care [22, 24].

5. Discharge of the Patient

After recovery due to surgery-related disease, patients who meet the discharge criteria for Covid-19 can complete their recovery period at home. Within the scope of discharge training, information is given to the patient on wound care, dressing change, medications, activities, diet, symptoms, hygiene, and medical examination time. In the discharge applications for Covid-19, the patient is recorded in the system as 'follow-up at home'. The patient is given enough masks by the hospital. The patient should spend this time at home. Patients who are followed-up at home are examined by a family doctor until they recover. No visitors should be allowed to come home. If there are other people sharing the same house, the patient should wear a mask. The patient and his family are informed about hygiene, domestic isolation methods, emergency numbers, and the ways of monitoring health status and what to do [4, 22].

6. Conclusion

Studies are being conducted on the disease caused by Covid-19, which the World Health Organization has declared as a pandemic, and on the prevention methods. Furthermore, protocols and guidelines are being prepared. When the studies conducted so far were examined, it was seen that there are not enough studies on perioperative nursing care given in cases requiring urgent surgery. Nurses who spend more time with patients are at serious risk as they are at the forefront of the fight against Covid-19. For this reason, new studies on the perioperative care processes of Covid-19 infected patients are needed.

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Conflict of Interest

The authors declare that there are no conflicts of interest.

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