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- Review
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B. References

C. Special Terms and Conditions

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Dear Readers,

We're delighted to be here with you for the final issue of 2023. In this issue, we will share with you 9 studies, including 5 original research articles, 3 cases and one letter to the editor. Once again, some of these articles originate from international researchers. In 2023, our journal received articles from 45 different countries around the world. This demonstrates that our journal has gained international recognition.

Two of our studies in this issue are related to cancer screening, one of the preventive health services. Dođan Kaya et al. examine patients' belief models in cervical cancer screening in their study. Aykanat Aykanat Yurtsever et al. aims to assess the community's level of awareness regarding cancer screenings. Breastfeeding promotion is one of the important topics in family medicine, and Kamiş et al. examined the level of breastfeeding knowledge in their study. Seeking an answer to whether flexible working truly reduces emergency admissions, Tüzün et al. explore this practice in their study. It would be very useful to increase the number of such studies in order to generate evidence for the regulation of the health system. Polycystic ovary syndrome is strongly linked to metabolic issues like obesity, dyslipidemia, and insulin resistance. Moreover, the anti-müllerian hormone is associated with polycystic ovary syndrome. The study of Güngör et al. was to investigate the relationship between anti-Müllerian hormone and prolactin levels in polycystic ovary syndrome. It takes its place in this issue as an interesting clinical study...

I would like to thank all our authors, reviewers and editors who contributed to this issue.

Hope to meet you in the spring...

Mustafa Reşat DABAK, Prof. M.D.

Editor in Chief



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The Relationship between Anti-mullerian Hormone and Prolactin Levels in Polycystic Ovarian Syndrome

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ABSTRACT

Objectives: This study aimed to investigate serum anti-Mullerian hormone (AMH) and prolactin levels in polycystic ovarian syndrome (PCOS) according to the presence of oligomenorrhea.

Methods: Women with PCOS who were admitted to an endocrinology outpatient clinic consecutively between January and December 2020 were enrolled in this study retrospectively. The age of the patients included in this study was between 18 and 40 years. Patients diagnosed with PCOS according to Rotterdam revised criteria. Demographic and clinical characteristics of the patients were obtained from patients' files.

Results: A total of 301 women with PCOS were enrolled in this study. The mean prolactin levels were 20.0±8.5 ng/mL and 22.2±5.5 ng/mL in PCOS patients with and without oligomenorrhea ($p=0.091$). No significant differences in AMH levels were also found between the two groups 5.3 (5.2–5.4) versus 5.3 3 (5.0–6.0) ng/mL, respectively ($p=0.798$). AMH levels were positively correlated with prolactin and negatively with follicular-stimulating hormone in PCOS subjects ($r=0.512$, $p<0.001$, $r=-0.155$, $p=0.007$, respectively). The oligomenorrhea group demonstrated increased serum glucose and Vitamin D levels and platelet distribution width value and decreased glycated hemoglobin, estradiol, free testosterone, hemoglobin, and red cell distribution width values ($p<0.001$, $p=0.017$, $p=0.018$, $p=0.001$, $p=0.008$, $p=0.027$, $p=0.001$, and $p=0.010$, respectively). In addition, serum prolactin had a relationship between free testosterone and vitamin D levels ($r=0.210$, $p<0.001$; $r=-0.123$, $p=0.320$, respectively).

Conclusion: AMH and prolactin levels did not differ in PCOS patients with and without oligomenorrhea.

Keywords: Anti-Mullerian hormone, oligomenorrhea, polycystic ovary syndrome, prolactin



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INTRODUCTION

Polycystic ovarian syndrome (PCOS) is the most common endocrine disorder among reproductive-age women leading to the major cause of infertility and is characterized by hyperandrogenism and menstrual irregularities such as oligomenorrhea, chronic anovulation, and polycystic ovarian morphology.^[1] PCOS is closely associated with metabolic abnormalities, including abdominal obesity, dyslipidemia, and insulin resistance (IR), and may lead to an increased incidence of long-term risk of metabolic syndrome, diabetes mellitus, cardiovascular diseases, and infertility. The underlying involvement of biological mechanisms in these abnormalities still remains complex and inconclusive.^[2] Identification of potential molecular pathogenic mechanisms and interacting processes that contribute to the pathogenesis of PCOS provide additional data for the development of a diagnostic and therapeutic target in the management of metabolic alterations in PCOS patients.

Prolactin is a multifunctional pleiotropic polypeptide secreted mainly by the lactotrophs of the anterior pituitary gland and also extra pituitary tissues such as the endometrium, decidua, breast, adipose tissue, and brain that is involved in numerous physiological and pathophysiological processes including lactation, appetite, homeostasis, immunity, tumorigenesis, luteal function, and reproduction.^[3] In recent years, prolactin has been shown to be a potent diabetogenic and lipogenic factor that affects glucose and lipid metabolisms and insulin functions of pancreatic beta cells and adipose tissues.^[4] Some studies have reported that prolactin secretion may be impaired in PCOS, but the mechanism involved has not been fully defined.^[5,6]

Anti-Müllerian hormone (AMH) is a glycoprotein hormone from the transforming growth factor- β family. It is secreted from granulosa cells within pre-antral and small antral follicles in the ovaries to regulate folliculogenesis.^[7] Its level peaks with puberty and gradually declines with age until it becomes undetectable at the post-menopausal period, and it is tightly related to the number of antral follicles in both healthy individuals and PCOS patients, suggesting that AMH is an indirect biomarker of the ovarian follicular reserve.^[7,8] Previous studies have reported that hyperandrogenism, altered glucose metabolism and insulin sensitivity, and increased body mass index (BMI) are associated with elevated AMH levels in PCOS women.^[9] However, the relationship between serum AMH and prolactin levels on the pathogenesis of PCOS has not been comprehensively investigated yet.

This study aimed to assess serum AMH and prolactin levels between biochemical features in PCOS according to the presence of oligomenorrhea.

METHOD

This retrospective study was carried out in Prof. Dr. Süleyman Yalçın City Hospital, Department of Endocrinology, between January and December 2020 in patients 18 and 40 years old. Based on the American Society for Reproductive Medicine Rotterdam Revised Diagnostic Criteria, 301 patients diagnosed with PCOS were included in the study.^[10] The patients included in the study were divided into two groups: oligomenorrheic and non-oligomenorrheic. A patient can be diagnosed with PCOS based on the Rotterdam criteria when two of the following three criteria are present: (1) Biochemical and/or clinical signs or symptoms associated with excess androgen activity, (2) oligo ovulation or anovulation, and (3) the presence of ≥ 12 follicles with a diameter of 2–9 mm or ovarian volume of > 10 mL (without a cyst or dominant follicle in either ovary) upon gynecologic ultrasonography imaging examination. In addition, the fol-

lowing exclusion criteria were also considered: Irregular menstrual cycles and/or androgen excess, including congenital adrenal hyperplasia, Cushing's syndrome, androgen-secreting tumors, and hyperprolactinemia. Patients with thyroid conditions, cardiovascular diseases, autoimmune disorders, chronic inflammation, acute or chronic infections, breastfeeding and pregnancy, systemic diseases that could alter insulin sensitivity, such as diabetes mellitus, gestational diabetes mellitus, and impaired glucose tolerance, malignancy, hypertension, smoking, or excessive alcohol consumption were excluded from the study. Patients who received any medication that could alter insulin sensitivity, prolactin levels, or sex steroid levels within the past 6 months were also excluded from the study. All participants' prolactin levels were within the normal range; serum prolactin levels above 25 ng/mL were considered hyperprolactinemia.

Demographic and clinical characteristics of the patients recruited to study, including age, BMI, the anamnesis of oligomenorrhea, and infertility, were obtained from patients' files. The BMI of all participants was calculated as body weight (kilograms) divided by the square of body height (meters). Hirsutism scoring was done subjectively with the Ferriman–Gallwey (FG) score by the same physicians from the research team. The distribution of terminal hair in 11 androgen-sensitive areas was scored from 0 (no terminal hair) to 4 (severe hirsutism). The total score was found by summing the scores from all areas, indicating no hair growth (0 points), mild (1–7 points), moderate (8–15 points), or severe (≥ 15 points). Hirsutism was evaluated by the same physician and determined by a total FG score of ≥ 8 . Ultrasonographical evaluation and measurements of all participants were performed by the same researcher.

Biochemical tests were performed from venous blood samples after overnight fasting during the early follicular phase (on days 3–5 of the natural menstrual cycle) or with progesterone-withdrawal bleeding if the patient had amenorrhea. Blood samples were kept at room temperature for 30 min after collection and centrifuged at 2000 g for 15 min to obtain serum. Complete blood count, including white blood count, platelet count, hemoglobin value, red cell distribution width (RDW), platelet distribution width (PDW), and mean platelet volume, was measured using Mindray BC-6800 autoanalyzer (Mindray Electronics Co, Ltd, Shenzhen, China). Serum glucose and glycated hemoglobin (HbA1c) levels were determined by photometric method with an Olympus AU 2700 autoanalyzer (Beckman Coulter Inc., CA, USA). Serum follicular-stimulating hormone (FSH), luteinizing hormone (LH), estradiol, thyroid-stimulating hormone, free thyroxine (T4), Vitamin B12, Vitamin D, in-

sulin, and prolactin levels were measured using chemiluminescent enzyme immunoassay on the UniCel Dxl 800 (Beckman Coulter Inc.). IR was assessed using the homeostatic model assessment of IR (HOMA-IR = fasting blood glucose (mg/dL) \times fasting insulin (mIU/L)/405). Thyroid peroxidase antibodies and thyroglobulin antibodies were measured by a chemiluminescent immunometric assay using Roche Elecsys autoanalyzer (Roche Diagnostics GmbH, Mannheim, Germany). Free testosterone, total testosterone, dehydroepiandrosterone sulfate, and 17-OH progesterone were determined by radioimmunoassay with Cobas E 601 (Roche Diagnostics GmbH). After the samples were collected in lithium heparin tubes, serum AMH levels were measured using an automated electrochemiluminescence immunosorbent assay using the Elecsys reagent kit on Cobas autoanalyzer (Roche Diagnostics GmbH) according to the manufacturer's instructions. The analytical sensitivity of this assay was 0.03 ng/mL, and the inter- and intra-assay coefficients of variations of this method were 3.7% and 2.1%, respectively.

All analyses were performed on SPSS v21 (SPSS Inc., Chicago, IL, USA). Q-Q and histogram plots were used to determine whether variables are normally distributed. Data are given as mean \pm standard deviation or median (25th–75th percentile) for continuous variables according to the normality of distribution and as frequency, and percentage for categorical variables. Normally distributed variables were analyzed with independent samples t-test. Non-normally distributed variables were analyzed using the Mann–Whitney U test. Categorical variables were analyzed using the Chi-square or Fisher's exact tests. Pearson or Spearman correlation coefficients were calculated to evaluate relationships between continuous variables. Two-tailed $p < 0.05$ were considered statistically significant.

RESULTS

A total of 301 patients with PCOS were recruited in the study. The mean age of patients was 29.5 ± 4.6 years, and the mean BMI values were 25.9 ± 3.5 kg/m². Out of these patients, 134 (44.5%) of them were normal, 121 (40.2%) were overweight, and 46 (15.3%) were obese. Results also revealed that 279 (92.7%) patients had oligomenorrhea, 219 (72.8%) women presented with hirsutism, and 85 (28.2%) with a history of infertility. Patients' clinical and biochemical features regarding the presence or absence of oligomenorrhea are summarized in Table 1.

There were no significant differences between the two groups in terms of the presence of hirsutism, the history of infertility, and ultrasonographic findings ($p = 0.888$, $p = 0.072$, $p = 1.000$, respectively).

Serum AMH was positively correlated with serum prolactin levels in PCOS patients ($r = 0.512$, $p < 0.001$). The relationship between participants' characteristics and laboratory measurements and AMH and prolactin are summarized in Table 2.

DISCUSSION

The present study aimed to investigate relationships between AMH and prolactin levels and clinical and biochemical features in patients diagnosed with PCOS. There was no significant difference between AMH and prolactin levels in terms of oligomenorrhea in PCOS patients. In PCOS patients with oligomenorrhea, increased serum levels of glucose and vitamin D were observed, along with elevated PDW values. In addition, decreased levels of HbA1c, estradiol, free testosterone, hemoglobin, and RDW values were noted compared to those without oligomenorrhea. A positive correlation between AMH and prolactin levels was found, and a negative correlation between AMH and FSH was observed in PCOS subjects. It was also demonstrated that a relationship existed between serum prolactin, free testosterone, and Vitamin D levels.

Menstrual disorders, including oligomenorrhea and anovulation, and resulting infertility are clinical characteristics of PCOS and hyperprolactinemia.^[11] For that reason, relationships between PCOS and hyperprolactinemia have been investigated in several studies. There is debate as to whether the similarities between PCOS and hyperprolactinemia are because they share a common pathophysiological mechanism, are coincidental, have a cause-effect relationship, or are both different clinical conditions. Forbes et al. demonstrated in six patients with prolactin adenoma related to clinical hyperandrogenism in 1954. Filho et al. showed that 16% of 82 PCOS women presented with elevated circulating prolactin levels; of them, nine had prolactin adenomas, three were associated with hyperprolactinemic drugs, and one had macroprolactin, suggesting that hyperprolactinemia is not a clinical PCOS manifestation.^[12] Hassan et al. demonstrated in 53 infertile women that hyperprolactinemia is more frequent in PCOS patients than in non-PCOS patients.^[13] Hayashida et al. revealed that prolactin levels increased in 5.8% of 259 patients diagnosed with PCOS, and they explained this by the presence of macro prolactin, which is in a biologically inactive form and causes falsely elevated measurements.^[14] The researchers also found that PCOS patients with macro prolactin had lower BMI and HOMA-IR than women without macro prolactin. Szosland et al. showed a similar daily profile of prolactin levels in patients with PCOS than those without PCOS.^[5] The causative relationship between PCOS and hyperprolactinemia has been investigated in previous studies. One opinion is based on elevated LH levels in patients with PCOS, which leads to a secondary decrease in dopaminer-

Table 1. Participants' characteristics and laboratory measurements with regard to the presence of oligomenorrhea

| | Total (n=301) | Oligomenorrhea | | p |
|--------------------------------------|---------------------|---------------------|---------------------|--------------------|
| | | Absent (n=22) | Present (n=279) | |
| Age (years) | 29.5±4.6 | 31.1±4.6 | 29.4±4.6 | 0.090* |
| Body mass index (kg/m ²) | 25.9±3.5 | 27.7±4.5 | 25.7±3.4 | 0.054* |
| AMH (ng/mL) | 5.3 (5.0–6.0) | 5.3 (5.2–5.4) | 5.3 (5.0–6.0) | 0.798 [†] |
| Prolactin (ng/mL) | 20.1±8.3 | 22.2±5.5 | 20.0±8.5 | 0.091* |
| Free T4 (ng/mL) | 1.1 (0.9–1.3) | 1.0 (0.9–1.1) | 1.1 (0.9–1.3) | 0.664 [†] |
| TSH (mIU/mL) | 1.7 (1.1–2.4) | 1.2 (1.1–2.2) | 1.7 (1.1–2.4) | 0.210 [†] |
| TPO-Ab positivity | 124 (41.2) | 7 (31.8) | 117 (41.9) | 0.482 [§] |
| TG-Ab positivity | 57 (18.9) | 5 (22.7) | 52 (18.6) | 0.581 [§] |
| HbA1c (%) | 5.3±0.3 | 5.5±0.3 | 5.3±0.3 | 0.001* |
| Blood glucose (mg/dL) | 89.1±6.2 | 85.6±3.3 | 89.4±6.3 | <0.001* |
| Insulin (µIU/mL) | 7.0±2.2 | 7.6±2.1 | 7.0±2.2 | 0.245* |
| HOMA-IR | 1.6±0.5 | 1.6±0.4 | 1.6±0.5 | 0.675* |
| Vitamin D (ng/mL) | 23.1 (15.4–32.0) | 17.6 (13.5–24.3) | 23.8 (16.0–32.0) | 0.017 [†] |
| Vitamin B12 (pg/mL) | 322.0 (236.0–418.0) | 321.5 (226.0–380.0) | 322.0 (236.0–419.0) | 0.697 [†] |
| FSH (mIU/mL) | 6.4±1.5 | 6.5±1.5 | 6.4±1.5 | 0.789* |
| LH (mIU/mL) | 6.6 (5.4–8.2) | 7.5 (5.3–9.0) | 6.6 (5.4–8.2) | 0.562 [†] |
| Estradiol (pg/mL) | 26.9 (23.6–36.5) | 34.8 (29.0–41.0) | 26.4 (23.5–36.5) | 0.008 [†] |
| 17-OH PG (ng/mL) | 0.9±0.3 | 0.9±0.2 | 0.9±0.3 | 0.309* |
| Total testosterone (ng/mL) | 26.8±8.2 | 25.4±6.1 | 26.9±8.4 | 0.420* |
| Free testosterone (pg/mL) | 0.8±0.3 | 1.0±0.3 | 0.8±0.3 | 0.027* |
| DHEA-S (µg/dL) | 297.2±64.3 | 311.8±45.2 | 296.0±65.6 | 0.141* |
| Hirsutism | 216 (71.8) | 15 (68.2) | 201 (72.0) | 0.888 [§] |
| Infertility | 84 (27.9) | 2 (9.1) | 82 (29.4) | 0.072 [#] |
| USG findings | 298 (99.0) | 22 (100.0) | 276 (98.9) | 1.000 [#] |
| WBC (10 ⁹ /L) | 8.1±2.8 | 8.8±3.1 | 8.1±2.8 | 0.273* |
| Hemoglobin (g/dL) | 12.7±1.3 | 13.2±0.7 | 12.7±1.3 | 0.001* |
| RDW (fL) | 34.6 (32.4–40.9) | 41.9 (32.6–43.8) | 34.4 (32.4–39.6) | 0.010 [†] |
| Platelet count (10 ⁹ /L) | 242.0 (196.0–278.0) | 203.5 (139.0–289.0) | 242.0 (199.0–278.0) | 0.159 [†] |
| MPV (fL) | 9.5±1.3 | 9.3±0.8 | 9.5±1.4 | 0.337* |
| PDW (fL) | 11.9 (10.3–17.3) | 10.3 (10.0–12.6) | 12.0 (10.4–17.6) | 0.018 [†] |

AMH: Anti-Mullerian hormone; DHEA-S: Dehydroepiandrosterone sulfate; HbA1c: Glycated hemoglobin; HOMA-IR: Homeostatic model assessment of insulin resistance; FSH: Follicular stimulating hormone; LH: Luteinizing hormone; MPV: Mean platelet volume; 17-OH PG: 17-hydroxy progesterone; PDW: Platelet distribution width; RDW: Red cell distribution width; T4: Free thyroxine; TSH: Thyroid stimulating hormone; TPO-Ab: Thyroid peroxidase antibodies; TG-Ab: Thyroglobulin antibodies; USG: Ultrasonography; WBC: White blood cell count.

Data are presented as mean±standard deviation, median (25th–75th percentile) and n (%).

*Student t test, [†]Mann-Whitey U test, [§]Chi-square test, [#]Fisher's exact test.

gic tone, resulting in elevated prolactin levels. Another hypothesis proposes that relative hyperestrogenemia in PCOS women induces elevated prolactin secretion and synthesis. Recently, Delcour et al. demonstrated no connection between hyperprolactinemia and PCOS in a review of the literature.^[15] Consistently, similar prolactin levels were found in PCOS patients with oligomenorrhea as in those without oligomenorrhea. Our study indicates that impaired prolac-

tin secretion and elevated circulating prolactin levels are not clinical manifestations of PCOS. In cases of oligomenorrheic patients with hyperprolactinemia, we recommend a comprehensive etiological investigation to explore the classical etiologies of hyperprolactinemia (drugs, stress, hypothyroidism, adenoma, chronic kidney failure, cirrhosis, etc.) before concluding that elevated circulating prolactin is secondary to PCOS.

Table 2. Relationship between participants' characteristics and laboratory measurements and AMH and prolactin

| | AMH | | Prolactin | |
|----------------------------|--------|--------------------|-----------|--------------------|
| | r | p | r | p |
| Age (years) | -0.075 | 0.192 [†] | 0.014 | 0.804* |
| BMI (kg/m ²) | 0.084 | 0.147 [†] | -0.040 | 0.485* |
| Free T4 (ng/mL) | 0.079 | 0.174 [†] | -0.007 | 0.909 [†] |
| TSH (mIU/mL) | 0.058 | 0.312 [†] | 0.063 | 0.278 [†] |
| HbA1c (%) | 0.004 | 0.948 [†] | 0.086 | 0.137* |
| Blood glucose (mg/dL) | -0.090 | 0.118 [†] | -0.031 | 0.588* |
| Insulin (μIU/mL) | 0.023 | 0.693 [†] | 0.084 | 0.146* |
| HOMA-IR | 0.001 | 0.992 [†] | 0.071 | 0.220* |
| Vitamin D (ng/mL) | -0.008 | 0.886 [†] | -0.123 | 0.032 [†] |
| Vitamin B12 (pg/mL) | -0.055 | 0.343 [†] | 0.087 | 0.130 [†] |
| FSH (mIU/mL) | -0.155 | 0.007 [†] | -0.093 | 0.107* |
| LH (mIU/mL) | -0.109 | 0.059 [†] | -0.004 | 0.945 [†] |
| Estradiol (pg/mL) | -0.099 | 0.088 [†] | -0.012 | 0.836 [†] |
| 17-OHP(ng/mL) | -0.046 | 0.424 [†] | -0.013 | 0.827* |
| Total testosterone (ng/mL) | -0.079 | 0.171 [†] | 0.040 | 0.490* |
| Free testosterone (pg/mL) | 0.054 | 0.348 [†] | 0.210 | <0.001* |
| DHEA-S (μg/dL) | 0.009 | 0.882 [†] | 0.040 | 0.486* |

AMH: Anti-Mullerian hormone; BMI: Body mass index; DHEA-S: Dehydroepiandrosterone sulfate; FSH: Follicular stimulating hormone; HbA1c: Glycated hemoglobin; HOMA-IR: Homeostatic model assessment of insulin resistance; LH: Luteinizing hormone; 17-OHP: 17-hydroxy progesterone; TSH: Thyroid stimulating hormone; T4: Free thyroxine.

*Pearson correlation coefficient, [†]Spearman correlation coefficient.

AMH is secreted from early antral to small antral follicles in the ovaries and indicates the number of growing follicles. AMH also indirectly reflects the number of residual primordial follicles or ovarian follicular reserve.^[16] AMH plays an important integral role in ovarian functions with its local growth factor and cellular differentiation factor effects and its paracrine inhibitory effect on the activation of folliculogenesis.^[17] An increase in AMH levels decreases the response of pre-antral and small antral follicles to FSH through decreased FSH-induced aromatase expression and FSH receptor mRNA expression. These alterations cause anovulation by impairing the response of follicles in the ovaries to gonadotropins.^[18] As expected, negative correlations between FSH and AMH levels were found in our study population. AMH levels reach the highest level at puberty and decrease with advancing age. Studies have reported that serum AMH is constantly higher in women with PCOS. Abbara et al. reported in 187 non-obese infertile patients that serum AMH levels were higher in women with all three characteristics of PCOS (hyperandrogenism, menstrual irregularities, and polycystic morphology) than in patients without these characteristics.^[19] Laven et al. demonstrated elevated serum AMH levels in 106 PCOS women

with anovulation than in 41 normo-ovulatory women.^[20] In a systemic literature review and meta-analysis, Iliodromiti et al. demonstrated that the sensitivity and specificity for diagnosing PCOS in symptomatic patients were 82.8% and 79.4%, respectively, for a cutoff AMH value of 4.7 ng/mL.^[21] Consistently, we found increased AMH levels in our study group, with a mean AMH level of 5.3 ng/mL. Our data confirm the hypothesis that AMH is involved in the pathogenesis of PCOS and may be used as a biomarker for PCOS diagnosis, especially in assessing ovarian reserve. Similar AMH levels in terms of oligomenorrhea were also demonstrated in PCOS patients. Our study indicates that serum AMH levels could not determine the risk of oligomenorrhea in women diagnosed with PCOS. Therefore, serum AMH levels could not be used as a tool to identify menstrual disturbances in PCOS women.

In addition, a relationship between AMH and prolactin in PCOS patients was shown. This could be explained by the potential sharing of a common pathophysiological link. The associations between PCOS and IR, dyslipidemia, and disturbed glucose metabolism have been reported a few decades ago. Excessive androgen in PCOS women can cause induced IR, elevated adipose lipid accumulation

and dyslipidemia, and an unbalanced LH/FSH ratio.^[22,23] IR may promote adrenal and ovarian hormone production, increase LH secretion frequencies, and decrease hepatic sex hormone-binding globulin synthesis and, thus, increase testosterone activity.^[23,24] Increased gonadotropins may also induce androgen synthesis in ovarian theca cells and reduce estrogen expression and aromatization in granulosa cells, whereas high androgen and decreased estrogen can advance the LH/FSH ratio.^[25] These describe PCOS as a vicious cycles. Prolactin and AMH can synergistically contribute to these metabolic processes. Glintborg et al. showed in 1007 patients with PCOS that prolactin levels were associated with metabolic risks and cortisol levels.^[23] Yang et al. demonstrated in 2052 PCOS patients that serum prolactin levels were correlated with glucose, lipid profile, hepatic profile, and BMI retrospectively.^[26] Recently, in another study, the same researchers showed that prolactin levels were associated with HOMA-IR and fasting insulin levels in 792 PCOS patients.^[27] AMH is also involved in the mechanism of metabolic changes in PCOS, such as prolactin. Jun et al. demonstrated that serum AMH levels were related to HOMA-IR, triglycerides, high-density lipoprotein cholesterol, and adiponectin levels in PCOS women.^[28] Consistent with the literature, our study indicates that AMH and prolactin are involved separately or jointly in the pathogenesis of PCOS and may be substantial causes of metabolic disturbances in PCOS patients.

The low number of patients and retrospective design were among the limitations of the current study.

CONCLUSION

Our study demonstrated similar AMH and prolactin levels in PCOS women in terms of oligomenorrhea. However, we found a relationship between AMH and prolactin, suggesting that these metabolites are involved in the pathophysiology of PCOS and may be substantial causes of metabolic disturbances in PCOS patients.

Disclosures

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Authorship Contributions: Concept – K.G.; Design – K.G.; Supervision – N.D.G.; Materials – K.G.; Data collection and/or processing – K.G.; Analysis and/or interpretation – N.D.G.; Literature search – N.D.G.; Writing – N.D.G.; Critical review – N.D.G.

REFERENCES

- Escobar-Morreale HF. Polycystic ovary syndrome: Definition, aetiology, diagnosis and treatment. *Nat Rev Endocrinol* 2018;14(5):270.
- AbuFaza M, Abdelazim I, Purohit P, Shikanova S, Zhurabekova G, Karimova B, et al. The diagnosis and the reproductive and metabolic consequences of polycystic ovary syndrome. *J Obstet Gynecol Investig* 2018;1:67–73.
- Ravi B. Assessment of prolactin and insulin resistance in women with polycystic ovarian syndrome. *Int J Adv Biol Biomed Res* 2014;5(11):556–8.
- Rasheed HA, Al-Kuraishy HM, Al-Gareeb AI, Hussien NR, Al-Nami MS. Effects of diabetic pharmacotherapy on prolactin hormone in patients with type 2 diabetes mellitus: Bane or boon. *J Adv Pharm Technol Res* 2019;10(4):163.
- Szosland K, Pawłowicz P, Lewiński A. Prolactin secretion in polycystic ovary syndrome (PCOS). *Neuro Endocrinol Lett* 2015;36(1):53–8.
- Glintborg D, Altinok M, Mumm H, Buch K, Ravn P, Andersen M. Prolactin is associated with metabolic risk and cortisol in 1007 women with polycystic ovary syndrome. *Hum Reprod* 2014;29(8):1773–9.
- Stracquandano M, Ciotta L, Palumbo M. Relationship between serum anti-Müllerian hormone and intrafollicular AMH levels in PCOS women. *Gynecol Endocrinol* 2018;34(3):223–8.
- Gupta M, Yadav R, Mahey R, Agrawal A, Upadhyay A, Malhotra N, et al. Correlation of body mass index (BMI), anti-Müllerian hormone (AMH), and insulin resistance among different polycystic ovary syndrome (PCOS) phenotypes - a cross-sectional study. *Gynecol Endocrinol* 2019;35(11):970–3.
- Moggetti P, Tosi F. Insulin resistance and PCOS: Chicken or egg? *J Endocrinol Invest* 2021;44(2):233–44.
- Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. *Fertil Steril* 2004;81(1):19–25.
- Forbes AP, Henneman PH, Griswold GC, Albright F. Syndrome characterized by galactorrhea, amenorrhea and low urinary FSH: Comparison with acromegaly and normal lactation. *J Clin Endocrinol Metab* 1954;14(3):265–71.
- Filho RB, Domingues L, Naves L, Ferraz E, Alves A, Casulari LA. Polycystic ovary syndrome and hyperprolactinemia are distinct entities. *Gynecol Endocrinol* 2007;23(5):267–72.
- Hassan MF. The frequency of elevated prolactin level in polycystic ovary syndrome women (PCOS) and its' effect on pregnancy rate. *GJPHM* 2020;2(1):109–17.
- Hayashida SA, Marcondes JA, Soares Jr JM, Rocha MP, Barcellos CR, Kobayashi NK, et al. Evaluation of macroprolactinemia in 259 women under investigation for polycystic ovary syndrome. *Clin Endocrinol* 2014;80(4):616–8.
- Delcour C, Robin G, Young J, Dewailly D. PCOS and hyperpro-

- lactinemia: What do we know in 2019? *Clin Med Insights Reprod Health* 2019;13:1179558119871921.
16. Capuzzo M, La Marca A. Use of AMH in the differential diagnosis of anovulatory disorders including PCOS. *Front Endocrinol Lausanne* 2021;11:616766.
 17. Sacchi S, D'Ippolito G, Sena P, Marsella T, Tagliasacchi D, Maggi E, et al. The anti-Müllerian hormone (AMH) acts as a gatekeeper of ovarian steroidogenesis inhibiting the granulosa cell response to both FSH and LH. *J Assist Reprod Genet* 2016;33(1):95–100.
 18. Chang H-M, Klausen C, Leung PC. Anti-Müllerian hormone inhibits follicle-stimulating hormone-induced adenyl cyclase activation, aromatase expression, and estradiol production in human granulosa-lutein cells. *Fertil Steril* 2013;100(2):585–92. e1.
 19. Abbara A, Eng PC, Phylactou M, Clarke SA, Hunjan T, Roberts R, et al. Anti-Müllerian hormone (AMH) in the diagnosis of menstrual disturbance due to polycystic ovarian syndrome. *Front Endocrinol Lausanne* 2019;10:656.
 20. Laven JS, Mulders AG, Visser JA, Themmen AP, De Jong FH, Fauser BC. Anti-Müllerian hormone serum concentrations in normoovulatory and anovulatory women of reproductive age. *J Clin Endocrinol Metab* 2004;89(1):318–23.
 21. Iliodromiti S, Kelsey TW, Anderson RA, Nelson SM. Can anti-Müllerian hormone predict the diagnosis of polycystic ovary syndrome? A systematic review and meta-analysis of extracted data. *J Clin Endocrinol Metab* 2013;98(8):3332–40.
 22. Sanchez-Garrido MA, Tena-Sempere M. Metabolic dysfunction in polycystic ovary syndrome: Pathogenic role of androgen excess and potential therapeutic strategies. *Mol Metab* 2020;35:100937.
 23. Glintborg D. Endocrine and metabolic characteristics in polycystic ovary syndrome. *Dan Med J* 2016;63(4):2015.
 24. Ong MLT. The effects and mechanisms of paeoniflorin on murine ovarian cells for the treatment of polycystic ovarian syndrome. *Master Sci Res* 2018;2018:1–102.
 25. Zeng X, Xie YJ, Liu YT, Long SL, Mo ZC. Polycystic ovarian syndrome: Correlation between hyperandrogenism, insulin resistance and obesity. *Clin Chim Acta* 2020;502:214–21.
 26. Yang H, Di J, Pan J, Yu R, Teng Y, Cai Z, et al. The association between prolactin and metabolic parameters in PCOS women: A retrospective analysis. *Front Endocrinol Lausanne* 2020;11:263.
 27. Yang H, Lin J, Li H, Liu Z, Chen X, Chen Q. Prolactin is associated with insulin resistance and beta-cell dysfunction in infertile women with polycystic ovary syndrome. *Front Endocrinol Lausanne* 2021;12:11.
 28. Jun TJ, Jelani AM, Omar J, Rahim RA, Yaacob NM. Serum anti-Müllerian hormone in polycystic ovary syndrome and its relationship with insulin resistance, lipid profile and adiponectin. *Indian J Endocrinol Metab* 2020;24(2):191.



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Breast Milk and Breastfeeding Knowledge among Reproductive-Age Women at a Family Health Center

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ABSTRACT

Objectives: This study aimed to assess the knowledge of breast milk and breastfeeding, along with the associated factors, among reproductive-age women attending a family medicine unit.

Methods: Conducted in Ataşehir, Istanbul, from April to January 2020, this cross-sectional study included women aged 18-49 registered at the unit. Participants completed a demographic information questionnaire and a 30-question survey on breastfeeding knowledge, using a 3-point Likert scale.

Results: The study comprised 205 female participants, with the mean age of 33.7±8.65 years. The overall knowledge score was 71.8±17.1, with the highest score in the category of adequate breastfeeding duration (90.4±22.0). The breast milk general knowledge level score was lower in those with ≤ 8 years of education compared to those with 9-12 years and >12 years (64.8±16.9 for ≤ 8 years, 74.5±14.5 for 9-12 years, 74.3±17.6 for >12 years, p=0.001). Additionally, while the score was 74.2±17.3 for employed women, it was 68.8±16.5 for unemployed women (p=0.012).

Conclusion: While knowledge about the benefits of breast milk and breastfeeding for babies is high, gaps exist in understanding the benefits for mothers and in correct breastfeeding techniques.

Keywords: Breastfeeding, breast milk, health knowledge, attitudes, practice.



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INTRODUCTION

The rising prevalence of obesity and chronic diseases has underscored the importance of maintaining a healthy diet.^[1] A critical first step in adopting healthy eating habits is ensuring adequate breastfeeding. Family physicians, as the most accessible health professionals for women of reproductive age in healthcare and counseling, should prioritize educating all women of childbearing age, including new mothers, about the importance of breast milk and breastfeeding. Family medicine, offering personalized preventive health services, addresses both acute and chronic issues. Its accessibility, respect for individual autonomy, consideration of cultural characteristics, prioritization of needs, and continuity in problem-solving make health education interventions more straightforward and effective.^[2,3]

Breast milk is the sole source of all necessary nutrients for a baby's first six months, promoting optimal growth and development.^[4] It is naturally clean and always at the ideal temperature for the baby.^[5,6] The World Health Organization recommends initiating breastfeeding as soon as possible after birth, exclusively breastfeeding for the first six months, and then introducing complementary foods while continuing breastfeeding until the child is two years old.^[7]

This study aimed to assess the knowledge level about breast milk and breastfeeding and the related factors among women of reproductive age attending a family medicine unit.

METHOD

This cross-sectional study took place in Ataşehir, Istanbul, from April to January 2020. The study population consisted of women aged 18-49 registered at a family health unit. To ensure statistical validity, a sample was selected based on a 5% Type 1 error rate and a 95% confidence interval, aiming for 80% study power. The sample size was determined to be 205.

Participants were invited to the family health center for a personal interview. A questionnaire, developed by the researchers and based on existing literature, was used. This questionnaire included demographic information such as age, marital status, educational background, training on breast milk and breastfeeding, income level, the number of children breastfed, and questions assessing breastfeeding knowledge. The knowledge questions used a 3-point Likert scale with options for true, false, and no idea. The questionnaire's breastfeeding knowledge section comprised 30 questions. The scale's internal consistency coefficient (Cronbach's α) was 0.67. It included 6 subheadings: information about the first food given to the baby and colostrum (6 questions), adequate duration of breast milk (2 questions), benefits of breast milk to the baby (8 questions), correct breastfeeding techniques (5 questions), benefits of breastfeeding for the mother (6 questions), and negative factors affecting breast milk and breastfeeding (3 questions). A total knowledge score and subheading scores were calculated by awarding 1 point for each correct answer, with the total knowledge score converted to a 100-point system.

Data analysis was performed using the Number Cruncher Statistical System 2007 (Kaysville, Utah, USA). The Shapiro–Wilk test and graphical evaluations confirmed the quantitative data's normal distribution. Descriptive statistics (frequency, percentage, mean, standard deviation) were used to present the data. For quantitative data, the Student's *t*-test was applied for two-group comparisons not showing normal distribution. The One-way ANOVA test was used for comparisons among three or more groups not showing a normal distribution, with the Bonferroni–Dunn test for pairwise comparisons. Significance was assessed at the $p < 0.005$ level.

RESULTS

The study included 205 female participants, with an average age of 33.7 ± 8.65 years. The general demographic characteristics of the participants are summarized in Table 1.

The overall knowledge score of the participants was 71.8 ± 17.1 . The scores for the subheadings of knowledge are detailed in Table 2.

Upon evaluating the breastfeeding knowledge scores in relation to general characteristics, differences were observed in the general knowledge levels about breast milk based on education level, employment status, and income level. The breastfeeding knowledge scores according to these general characteristics are summarized in Table 3.

DISCUSSION

Breastfeeding is notably prevalent in Türkiye.^[4] The 2013 and 2018 Türkiye Demographic and Health Survey (TDHS) data indicate that 97% of children were breastfed for some time, albeit with minor variations based on basic

Table 1. General demographic features of participants

| | n (%) |
|-----------------------|------------|
| Age groups | |
| ≤25 year | 42 (20.5) |
| 26-35 year | 79 (38.5) |
| 36-44 year | 60 (29.3) |
| > 45 year | 24 (11.7) |
| Marital status | |
| Married | 139 (67.8) |
| Single | 63 (32.2) |
| Education level | |
| ≤ 8 years | 53 (25.9) |
| 9-12 years | 49 (23.9) |
| >13 years | 103 (50.2) |
| Employment status | |
| Employed | 114 (55.6) |
| Unemployed | 91 (44.4) |
| Income level | |
| Low | 15 (7.3) |
| Middle | 118 (57.6) |
| High | 72 (35.1) |
| Pregnancy history | |
| Yes | 134 (65.4) |
| No | 71 (34.6) |
| Breastfeeding history | |
| Yes | 123 (91.8) |
| No | 11 (8.2) |
| Breastfed child count | |
| 1 | 40 (32.5) |
| 2 | 61 (49.6) |
| ≥3 | 22 (17.9) |

Table 2. Subheadings knowledge scores of the participants

| | Score |
|--|-----------|
| First food given to the baby and colostrum | 73.9±27.8 |
| Adequate duration of breast milk | 90.4±22.0 |
| Benefits of breast milk to the baby | 72.7±19.1 |
| Correct breastfeeding | 60.3±23.6 |
| Benefits of breastfeeding for the mother | 58.4±25.8 |
| Negative factors affecting breastfeeding | 85.2±22.2 |

Data is presented as mean±standard deviation.

Table 3. Breastfeeding knowledge score according to general characteristics

| | Score | p |
|-----------------------|-----------|--------|
| Age groups | | 0.250* |
| ≤25 year | 73.0±19.5 | |
| 26-35 year | 71.3±16.7 | |
| 36-44 year | 73.9±15.5 | |
| > 45 year | 66.7±18.4 | |
| Marital status | | 0.489† |
| Married | 72.4±17.3 | |
| Single | 70.7±16.8 | |
| Education level | | 0.001* |
| ≤ 8 years | 64.8±16.9 | |
| 9-12 years | 74.5±14.5 | |
| >12 years | 74.3±17.6 | |
| Employment status | | 0.012† |
| Employed | 74.2±17.3 | |
| Unemployed | 68.8±16.5 | |
| Income level | | 0.037* |
| Low | 62.2±11.1 | |
| Middle | 71.4±16.4 | |
| High | 74.5±18.5 | |
| Pregnancy history | | 0.052† |
| Yes | 73.6±16.2 | |
| No | 68.5±18.3 | |
| Breastfeeding history | | 0.654† |
| Yes | 73.8±16.1 | |
| No | 71.2±18.3 | |
| Breastfed child count | | 0.063* |
| 1 | 77.5±14.4 | |
| 2 | 70.5±16.2 | |
| ≥3 | 76.5±17.6 | |

Data is presented as mean±standard deviation.

*One-way ANOVA test, †Student t test.

characteristics. The TDHS 2018 data reveal that 41% of children under 6 months were exclusively breastfed, with rates decreasing rapidly as children aged.^[8,9] Despite the commonality of post-partum and ongoing breastfeeding, challenges persist in maintaining it.^[10] In Turkish society, prevalent misinformation and attitudes towards breast milk contribute to many infants not receiving adequate breast milk.^[11] This shortfall can lead to developmental delays in infants, increasing the risk of various diseases in adolescence and adulthood and causing economic losses for the country.^[5,12]

Previous studies have demonstrated that a mother's attitude towards breastfeeding post-birth, her awareness of its benefits for the baby's health, and the support she receives from her surroundings influence her breastfeeding decisions.^[11,13] Community support for breastfeeding mothers is crucial.^[2]

In a 2015 study by Vijayalakshmi et al. in India, over 80% of mothers recognized colostrum as the first milk, understood its importance for the baby's immunity, and knew that only breast milk should be given for the first 6 months.^[14] They also acknowledged that breastfeeding strengthens the mother-baby bond and were aware of the need to clean the breast before breastfeeding and that breast milk aids digestion. In Türkiye, 2018 data showed that 97.6% of mothers breastfed their babies. Engin et al.'s study found that 88.1% of mothers with babies aged 0-3 months knew about colostrum, 53.6% planned to continue breastfeeding as long as possible, and 57.1% understood that the duration of exclusive breastfeeding is 6 months.^[15] These findings align closely with those of our study.

In the 2018 data published by the Türkiye Demographic and Health Survey (TDHS), the rate of exclusive breastfeeding up to 6 months was 41%, and the rate of continued breastfeeding up to 2 years of age was 34%.^[9] A study conducted in 2015 by Öztürk et al. at Karabük University, titled 'Truths and Mistakes Known by Mothers About Breast Milk and Breastfeeding', shared similar demographic features with our study.^[16] These included the age of the participants, receiving information about breast milk, a high percentage of health personnel as the source of information, and the initiation of breastfeeding. Both studies also reported similar rates of exclusive breastfeeding in the first 6 months. The Öztürk et al. study found that while a majority of mothers received information about breast milk and breastfeeding, their knowledge on the subject was insufficient. In contrast, our study demonstrated a significantly higher score level. This difference is attributed to the higher education and income levels of our study's participants. When evaluat-

ing the knowledge level scores according to age, income level, and knowledge parameters about breast milk and breastfeeding, no statistically significant difference was found. These results suggest that our educational efforts on the duration of adequate breastfeeding have been successful.

In the context of global literature, a study involving 322 Chinese mothers in Ireland reported that 82% of the participants believed breast milk to be the ideal food for babies, and 60% acknowledged its protective effect against certain diseases.^[17] A 2013 study by Arslan and Yeniterzi on Turkish mothers of pre-term babies found that 71.0% were aware of the benefits of breast milk. Specifically, 26.0% recognized its role in growth and development, 17.0% in disease prevention, and 11.0% in both enhancing growth and providing disease protection.^[18] In our study, when analyzing data based on marital status and information received about breast milk and breastfeeding, no significant differences were found in scores based on marital status. However, those who had received information scored higher than those who had not. The findings of our study suggest that while mothers may have some knowledge about the benefits of breastfeeding, this knowledge is not comprehensive and could be enhanced with visual educational materials. The use of such materials can simplify complex medical terms, improve the quality of education, and encourage more questions from participants.

According to 2013 TDHS data, 39.7% of infants younger than 6 months were bottle-fed.^[8] The 2018 TDHS data indicated an increase in bottle use among infants younger than 2 months, rising from 31.0% to 60.0% in children aged 9–11 months, with a rate of 53.0% for children aged 0–23 months.^[9] Bottle and pacifier use is discouraged as infants can become accustomed to them, leading to a reluctance to breastfeed. Additionally, the nipple part of bottles is prone to contamination, increasing the risk of illness in children. Therefore, bottle use is not recommended for children under 2 years of age.^[19] The high knowledge scores in our study regarding the negative factors affecting breast milk and breastfeeding may be attributed to the socio-demographic characteristics of the participants, their high level of education and income, and a significant proportion receiving counseling. When evaluating the data according to age, education, and income level, no significant statistical differences were observed. We infer that the common practice among Family Health Center staff of discouraging the use of breastfeeding aids has contributed to our high success rate in this area.

CONCLUSION

Our study revealed that knowledge about colostrum and breast milk, breastfeeding durations, benefits of breastfeeding for the baby, and negative factors affecting breastfeeding was at the desired level. However, awareness regarding the benefits of breastfeeding for the mother and correct breastfeeding techniques was found to be lower. Despite the high frequency of breastfeeding, there are gaps in knowledge about its benefits for the mother and incorrect practices in breastfeeding techniques. Additionally, our study identified that single participants had lower knowledge levels compared to married participants.

Disclosures

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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Ethics Committee Approval: This study received approval from the Fatih Sultan Mehmet Training and Research Hospital Ethics Committee (Approval date: October 24, 2019, Approval number: 2019/66). Verbal and written informed consent was obtained from all participants, in accordance with the Health Sciences University and Istanbul Provincial Health Directorate guidelines.

Authorship Contributions: Concept – F.K.; Design – F.K.; Supervision – A.Ö.; Materials – F.K.; Data collection and/or processing – F.K.; Analysis and/or interpretation – F.K.; Literature search – F.K.; Writing – F.K.; Critical review – B.T.

REFERENCES

1. Ungan M, Telatar B. The role of breastfeeding in childhood and adult obesity. In Telatar B, editor. The importance of breast milk in family medicine for maternal and infant health. *Türkiye Klinikleri J Fam Med [Article in Turkish]* 2019;2019:135–40.
2. Çiftetepe ÖD, Öztora S. Breastfeeding counseling in family medicine. *Türkiye Klinikleri J Fam Med [Article in Turkish]* 2019;2019:76–80.
3. Çetinbaş A, Dağdeviren HN. The factors that effect the success of breastfeeding. *Türkiye Klinikleri J Fam Med [Article in Turkish]* 2019;2019:66–8.
4. Özer ZY, Kurdak H, Bozdemir N. Breastfeeding status in Turkey. *Türkiye Klinikleri J Fam Med [Article in Turkish]* 2019;2019:61–5.
5. Samur GE. Breast milk. [Article in Turkish] Ankara: Publications of the Ministry of Health; 2008.
6. T.C. Ministry of Health, Public Health Institution of Turkey. Promotion of breast milk and baby-friendly Health institutions training materials 2015. Available at: <https://hsgm.saglik.gov.tr/tr/beslenme-programlari/anne-sutunun-tesviki-bebek-dostu-skp.html>. Accessed Dec 01, 2023.

7. WHO/UNICEF. Breastfeeding counselling: A training course. Available at: https://iris.who.int/bitstream/handle/10665/63428/WHO_CDR_93.4-eng.pdf?sequence=1 . Accessed December 01, 2023.
8. Hacettepe University Institute of Population Studies. Turkey Demographic and Health Survey. Breastfeeding and supplementary food. Feeding infants and toddlers. [Article in Turkish]. Available at: <http://www.sck.gov.tr/wp-content/uploads/2020/02/Turkiye-Nufus-ve-Sa%C4%9Flik-Arastirmasi-2013.pdf>. Accessed Dec 01, 2023.
9. Hacettepe University Institute of Population Studies. Turkey Demographic and Health Survey. Breastfeeding and supplementary food. Feeding infants and toddlers [Article in Turkish]. Available at: http://www.sck.gov.tr/wp-content/uploads/2020/08/TNSA2018_ana_Rapor.pdf. Accessed December 21, 2023.
10. Vitrinel A, Telatar B. Problems encountered during breastfeeding and solutions. *Türkiye Klinikleri J Fam Med* [Article in Turkish] 2019;2019:69–75.
11. Doğan B, Toprak D. The risks of inadequate breastfeeding for mothers and infants. *Türkiye Klinikleri J Fam Med* [Article in Turkish] 2019;2019:111–16.
12. American Academy of Pediatrics. Breastfeeding and the use of human milk. *Pediatrics* 2012;129:827–41.
13. Stuebe AM, Bonuck K. What predicts intent to breastfeed exclusively? Breastfeeding knowledge, attitudes, and beliefs in a diverse urban population. *Breastfeed Med* 2011;6:413–20.
14. Vijayalakshmi P, Susheela T, Mythili D. Knowledge, attitudes, and breastfeeding practices of postnatal mothers: A cross sectional survey. *Int J Health Sci* 2015;9:364–74.
15. Engin MMN, Kılıçaslan Ö, Aslantaş M, Kocabay K. Evaluation of breastfeeding knowledge level of mothers with babies between 0-3 months. *Int Anatol Acad Online J* [Article in Turkish] 2020;6:1:1–18.
16. Öztürk Ö, Sarıkaya P, Özdemir Ş, Çikendin Z, Zümbül N. True and false known by the mothers about mother milk and breastfeeding. *JCP* [Article in Turkish] 2018;16(2):40–54
17. Zhou Q, Younger KM, Kearney JM. An exploration of the knowledge and attitudes towards breastfeeding among a sample of Chinese mothers in Ireland. *BMC Public Health* 2010;10:722.
18. Arslan FT, Yeniterzi E. Views of parents' about taking human milk of premature infants. *Perinat J* [Article in Turkish] 2013;21:77–84.
19. Örs OP, Kars V. Breastfeeding Tecnics, Milk Production and Storage. *Türkiye Klinikleri J Fam Med* [Article in Turkish] 2019;2019:81–87.



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The Impact of Flexible Working Hours in Family Medicine Practice on Emergency Department Admissions

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ABSTRACT

Objectives: The aim of the study was to evaluate the frequency of emergency department admissions (EDA) and related factors in the last year among patients admitted to family health centers (FHC) with and without flexible working hours (FWH).

Methods: This study was conducted in 6 regions in Turkey, 50 FHCs were selected for each study region by random sampling and the first nine patients who applied to the FHC were included in the study. Patients who applied to emergency department health services at least once for any health problem in the last year were considered to have EDA.

Results: A total of 2605 patients were included in the study, and EDA was found in 1024 (39.3%) of the patients. EDA was detected in 246 (41.5%) patients with FHCs with FWH and 778 (36.7%) patients with FHCs without FWH ($p=0.232$). In addition, there was no significant difference between patients with and without FWH in the distance of the FHC from home, the frequency of making an appointment to see the FP, the ease of making an appointment, the waiting time after making the appointment, and the limitation of the working hours of the FHC ($p>0.05$).

Conclusion: It has been determined that the presence of FWH did not cause a difference in terms of EDA, and further studies are needed on the reasons for this.

Keywords: Emergency health services, family practice, health services accessibility, health services administration, health services misuses

INTRODUCTION

Emergency healthcare services are hospital organizations that provide 24-hour treatment for acute conditions requiring urgent medical intervention.^[1] Unnecessary emergency department admissions (EDAs) are a concerning issue in emergency healthcare services worldwide.

^[2-4] Although the frequency of unnecessary EDA varies depending on the criteria used for de-

fining it, it is generally observed to be between 24-40%.^[4,5] In a systematic review, it was found that 37% of EDAs were not emergencies.^[3] EDA leads to overcrowding, making it challenging to access emergency health services during real emergencies.^[4,6] A significant fraction of unnecessary EDAs are conditions that can be treated in primary care.^[4] Despite the lack of contrary evidence on the impact of primary healthcare services on EDA, some studies have found that difficulties in accessing primary healthcare services contribute significantly to EDA.^[2,7,8]

Primary healthcare services are the initial point of contact with the healthcare system and provide continuous, comprehensive, and coordinated care to the community regardless of age, gender, and disease.^[9] In Turkey, the "Family Medicine Practice" was gradually introduced in 2005 to strengthen primary healthcare services.^[10] In addition, family health centers (FHCs) have been grouped based on various parameters since 2010 to improve the quality of primary healthcare.^[11] One of these parameters, flexible working hours (FWH), entails providing primary healthcare services for a minimum of 14 hours per week during out-of-hours periods in FHCs implementing this practice. Consequently, FHCs meeting the required criteria receive higher current expense payments compared to other FHCs.

This study aims to assess the frequency and causes of EDA in patients admitted to FHCs with and without FWH in the last year.

METHOD

This study is derived from the "Evaluation of Primary Healthcare Services in Europe: QUALICOPC Project" data on Turkey. The QAULICOPC study aims to evaluate quality, cost, and equity factors in primary healthcare services across 31 European countries, and the research protocol was published in 2012.^[12] FHCs in a total of 6 regions in Turkey were included in the study, and data were collected from two provinces in the fifth region as the targeted sample could not be reached in the first province. In the sample selection, a balanced selection was made between provinces with short and long-term family medicine practice, considering the date of the province's transition to the family medicine system. The lists of Family Physicians (FPs) working in the selected provinces were obtained from the Public Health Directorate to which they were affiliated, and 50 FHCs were randomly sampled for each study region. Only one FP from each FHC was included in the study, and thus, only one of the FPs with the same working conditions was included from FHCs with multiple FPs. In addition, the first nine patients who presented to each FHC on the day of data collection were included in the study (Fig. 1).

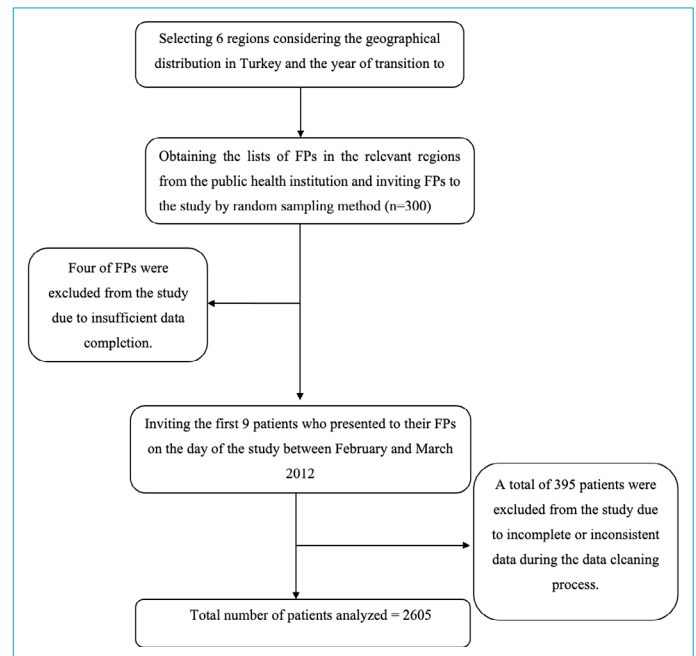


Figure 1. Research protocol.

**Izmir in the first region, Adana in the second, Kayseri in the third, Ankara in the fourth, Rize and Trabzon in the fifth, Istanbul in the sixth.*

During the data collection period of the study, it was determined that there were 272 FHCs in Izmir (first region), 148 in Adana (second region), 65 in Kayseri (third region), 315 in Ankara (fourth region), 21 in Rize and 74 in Trabzon (fifth region), and 890 in Istanbul (sixth region).^[13] Informed consent was obtained from the selected FPs and patients to participate in the study, and in the absence of consent, a new FP and patient were randomly selected from the same FHC. The questionnaire forms used in the research were translated from English to Turkish and then back to English, and any discrepancies in meaning were discussed and agreed upon by the researchers.

In the questionnaire form, more than one option could be marked in the questions evaluating the reasons for EDAs and the reasons for not going to FP in the last year. Patients who applied to emergency department health services for any health problem at least once in the last year were considered as having an EDA, while those who did not apply to the emergency department were considered as having no EDA.

Patients under 18 years of age and those who were unable to cooperate in answering the questions were excluded from the study.

Descriptive statistics such as frequency, percentage, mean, standard deviation, median, median, and interquartile range were calculated using SPSS 15.0 program. In addition, the Student t-test was used for the comparison of con-

tinuous variables with normal distribution, and the Mann-Whitney U test was used for the comparison of continuous variables with abnormal distribution. Categorical variables were analyzed with a Chi-square test, and $p < 0.05$ values were considered significant in all analyses.

RESULTS

A total of 2605 patients were included in the study, with 448 (17.2%) from the first region, 450 (17.3%) from the second region, 450 (17.3%) from the third region, 387 (14.9%) from the fourth region, 449 (17.3%) from the fifth region, and 421 (16.2%) from the sixth region. Among the FHCs included in the study, 593 (22.8%) had implemented FWH, while 2012 (77.2%) FHCs did not have FWH.

EDA was found in 1024 (39.3%) of the patients included in the study. The sociodemographic characteristics of the patients by the presence of EDA and the information on the FHC that they visited are summarized in Table 1.

It was found that 246 (41.5%) of the patients of FHCs with FWH and 778 (36.7%) of the patients of FHCs without FWH presented to emergency health services ($p = 0.232$). The sociodemographic characteristics of the patients by the presence of EDA in FHCs with and without FWH and information on their health service utilization are summarized in Table 2.

In the FHCs with FWH, the frequency of patients who did not visit the FP despite the necessity in the last year was found to be 23 (9.4%) among those with EDA and 18 (5.2%) among those without EDA ($p = 0.070$). On the other hand, in FHCs without FWH, the frequency of patients who had not visited the FP despite the necessity in the last year was 69 (8.9%) among those with EDA and 50 (4.1%) without EDA ($p < 0.001$). Furthermore, in FHCs with FWH, the frequency of patients who consulted a specialist physician in the hospital for a health problem in the last year was 214 (87.0%) in patients with EDA and 239 (68.9%) in patients without EDA. ($p < 0.001$). In FHCs without FWH, the frequency of patients who consulted a specialist physician in the hospital for a health problem in the last 1 year was 660 (84.8%) in patients with EDA and 778 (63.1%) in patients without EDA ($p < 0.001$).

Regarding the reasons for EDA in patients with EDA, it was found that 207 (20.5%) had a problem that the FP was unable to treat, 262 (25.9%) did not have an FP they could reach, 27 (2.7%) had economic reasons, 210 (20.5%) thought that they would wait for a shorter time in the emergency department, 57 (5.6%) believed that better and higher quality service was provided in the emergency department, and 51 (5.0%) thought that it was easier to access health services in the emergency department. The

reasons why patients with EDA prefer EDA in FHCs with and without FWH are summarized in Figure 2.

DISCUSSION

The aim of this study was to evaluate the impact of FWH on EDA in primary healthcare services in Turkey. In this study, no significant difference was found in the frequency of EDA between patients affiliated with FHCs with and without FWH. However, among patients registered in FHCs with FWH, the reasons "not having an FP to reach" and "having a health problem that the FP was unable to treat" were found to be high among patients with EDA. On the other hand, no difference was observed between patients registered in both FWH and non-FWH FHCs in terms of the time to reach the FHC, ease of making an appointment, waiting time to see the FP after making the appointment and waiting time after arriving at the FHC. Nevertheless, there was no difference between patients with and without EDA enrolled in FHCs with and without FWH in terms of the working hours limitation of the FHC and the difficulty of seeing the FP outside of working hours.

One of the significant reasons for the high frequency of EDA is the ease of access to healthcare services provided in the emergency department compared to other healthcare services.^[3] Facilitating access to primary healthcare services outside of working hours to reduce emergency department utilization is a strategy implemented in some countries.^[4] A systematic review reported that while easier access to after-hours primary care services increased the utilization of primary care services, its effect on emergency department utilization remained highly controversial.^[4] Some studies found that one of the most important reasons for EDA was the inability to receive health services from FHC outside working hours.^[1,14] In previous studies, it was indicated that by providing healthcare services after working hours, FPs could decrease the EDA of their patients.^[4,7] However, some studies reported that ensuring accessibility of primary healthcare services had no effect on EDA.^[6,7] In another study, out-of-hours service provision during the week in FHCs led to a decrease in EDA; however, no similar result was observed in weekend out-of-hours service provision.^[15] In several studies conducted in the UK, it was observed that the extension of primary healthcare services outside working hours led to a decrease in emergency department utilization, but this decrease was detected primarily for semi-emergencies and did not lead to a decrease in unnecessary EDA.^[16,17] In Ireland, a study found no effect of primary healthcare services on EDA, whereas another study reported a decrease in unnecessary EDA.^[18,19] In our study, no significant difference was found in terms of EDA in patients admitted to FHCs with and without FWH. This

Table 1. The sociodemographic characteristics of the patients by the presence of EDA and the information on the FHC that they visited

| | EDA | | p |
|--|--------------|--------------|---------------------|
| | No (n=1581) | Yes (n=1024) | |
| Age (year) | 40.0 [24.0] | 36.0 [23.0] | <0.001* |
| Gender | | | |
| Female | 940 (59.5%) | 655 (64.0%) | 0.021 [†] |
| Male | 641 (40.5%) | 369 (36.0%) | |
| Education | | | |
| Elementary School | 818 (51.8%) | 589 (57.6%) | 0.004 [†] |
| High school and above | 760 (48.2%) | 433 (42.4%) | |
| Level of income | | | |
| Below average | 456 (28.9%) | 383 (37.5%) | <0.001 [†] |
| Average and above | 1124 (71.1%) | 638 (62.5%) | |
| How many times you visit FP in the last 6 months? | | | |
| ≤ Twice | 834 (52.8%) | 442 (43.2%) | <0.001 [†] |
| ≥ 3 times | 745 (47.2%) | 581 (56.8%) | |
| Time to arrive FHC from home | | | |
| Under 20 minutes | 1409 (89.1%) | 890 (86.9%) | 0.088 [†] |
| 20 minutes or more | 172 (10.9%) | 134 (13.1%) | |
| Making an appointment for today's consultation | 70 (4.4%) | 55 (5.4%) | 0.270 [†] |
| Defining making an appointment as easy [‡] | 53 (80.3%) | 34 (66.7%) | 0.094 [†] |
| Waiting time after making the appointment [‡] | | | |
| Today | 40 (62.5%) | 32 (64.0%) | 0.869 [†] |
| Yesterday or earlier | 24 (37.5%) | 18 (36.0%) | |
| Waiting time to see a doctor at FHC | | | |
| 30 minutes or less | 1491 (94.3%) | 968 (94.5%) | 0.808 [†] |
| Over 30 minutes | 90 (5.7%) | 56 (5.5%) | |
| Limitations of your FHC's working hours | 315 (20.0%) | 215 (21.1%) | 0.501 [†] |
| Hard to contact FP on weekends, evenings and after hours | 587 (37.2%) | 356 (34.8%) | 0.203 [†] |
| Having a FP | 1545 (97.8%) | 1006 (98.4%) | 0.243 [†] |
| Specialty education of the FP | | | |
| Specialist | 182 (11.5%) | 88 (8.6%) | 0.017 [†] |
| Medical Practitioner | 1399 (88.5%) | 936 (91.4%) | |

EDA: Emergency Department Admission; FHC: Family Health Centers; FP: Family Physician

Data are presented as median [interquartile range] and n (%) as appropriate.

*Mann-Whitney U test, [†]Chi-square test

[‡]Only patients who made an appointment were evaluated.

result may be related to the insufficient efficiency of FWH in Turkey.^[20] In a study conducted in Turkey, it was found that not many patients visited the FHC during FWH, according to the statements of the FPs, and FWH had no effect on EDA.^[20] In another study conducted in Turkey, 59% of EDA patients presented during working hours, and 41% had admission during non-working hours.^[21] Therefore, the effect of FWH on EDA in our country may not have been detected.

In studies, it has been found that young individuals have EDA more frequently.^[3,8] Evaluation of EDA by gender revealed that females had a higher rate of EDA in one study, while another study found no significant difference between genders in terms of EDA.^[6,8] In a systematic review, EDA was observed more frequently in females in some studies and males in other studies, and no difference was found between genders in terms of EDA in some other

Table 2. The sociodemographic characteristics of the patients by the presence of EDA in FHCs with and without FWH and information on their health service utilization

| | EDA in FHCs with FWH | | p | EDA in FHCs without FWH | | p |
|--|----------------------|-------------|--------------------|-------------------------|-------------|---------------------|
| | No (n=347) | Yes (n=246) | | No (n=1234) | Yes (n=778) | |
| Age (year) | 44.1±15.6 | 42.1±14.8 | 0.124* | 41.4±14.6 | 39.3±14.3 | 0.001* |
| Gender | | | | | | |
| Female | 215 (62.0) | 163 (66.3) | 0.299 [†] | 725 (58.8) | 492 (63.2) | 0.049 [†] |
| Male | 132 (38.0) | 83 (33.7) | | 509 (41.2) | 286 (36.8) | |
| Education | | | | | | |
| Elementary School | 182 (52.5) | 144 (58.5) | 0.228 [†] | 636 (51.7) | 445 (57.4) | 0.045 [†] |
| High School | 111 (32.0) | 74 (30.1) | | 391 (31.8) | 218 (28.1) | |
| University | 54 (15.5) | 28 (11.4) | | 204 (16.5) | 113 (14.5) | |
| Level of income | | | | | | |
| Below average | 86 (24.9) | 82 (33.5) | 0.026 [†] | 370 (30.0) | 301 (38.8) | <0.001 [†] |
| Average and above | 260 (75.1) | 163 (66.5) | | 864 (70.0) | 475 (61.2) | |
| How many times you visit FP in the last 6 months? | | | | | | |
| ≤ Twice | 171 (49.4) | 93 (37.8) | 0.005 [†] | 663 (53.8) | 349 (44.9) | <0.001 [†] |
| ≥ 3 times | 175 (50.6) | 153 (62.2) | | 570 (46.2) | 428 (55.1) | |
| Time to arrive FHC from home | | | | | | |
| Under 20 minutes | 294 (84.7) | 201 (81.7) | 0.329 [†] | 1115 (90.4) | 689 (88.6) | 0.197 [†] |
| 20 minutes or more | 53 (15.3) | 45 (18.3) | | 119 (9.6) | 89 (11.4) | |
| Making an appointment for today's consultation | 22 (6.3) | 15 (6.1) | 0.904 [†] | 48 (3.9) | 40 (5.1) | 0.181 [†] |
| Defining making an appointment as easy [‡] | 16 (80.0) | 10 (71.4) | 0.562 [†] | 37 (80.4) | 24 (64.9) | 0.110 [†] |
| Waiting time after making the appointment [‡] | | | | | | |
| Today | 13 (68.4) | 12 (85.7) | 0.252 [†] | 27 (60.0) | 20 (55.6) | 0.687 [†] |
| Yesterday or earlier | 6 (31.6) | 2 (14.3) | | 18 (40.0) | 16 (44.4) | |
| Waiting time to see a doctor at FHC | | | | | | |
| 30 minutes or less | 325 (93.7) | 238 (96.7) | 0.091 [†] | 1166 (94.5) | 730 (93.8) | 0.537 [†] |
| Over 30 minutes | 22 (6.3) | 8 (3.3) | | 68 (5.5) | 48 (2.4) | |
| Limitations of your FHC's working hours | 68 (19.7) | 47 (19.2) | 0.874 [†] | 247 (20.1) | 168 (21.7) | 0.385 [†] |
| Hard to contact FP on weekends, evenings and after hours | 132 (38.0) | 98 (39.8) | 0.658 [†] | 455 (37.0) | 258 (33.2) | 0.081 [†] |

EDA: Emergency Department Admission; FHC: Family Health Centers; FWH: Flexible Working Hours.

Data are presented as mean±standard deviation and n (%) as appropriate.

*Student t-test, [†]Chi-square test.

[‡]Only patients who made an appointment were evaluated.

studies.^[3] Regarding educational level, no difference was found in unnecessary EDA in some studies.^[6,8] Moreover, some studies observed that unnecessary EDA was more frequent in those with low income, while in other studies, no difference was found between those with necessary and unnecessary EDA based on income level.^[3,6,8] In this study, a higher prevalence of EDA was observed in younger, female, and low-income individuals. In addition, no significant difference was found between patients with and without EDA in terms of age and gender in FHCs with FWH,

while patients with EDA in non-FWH FHCs were younger and female. Besides, the prevalence of EDA in patients with lower income levels was higher in patients who applied to both FWH and non-FWH FHCs.

The reasons provided by patients for EDA include the perception that better and higher quality healthcare is provided in the emergency department, ease of access to emergency health services, availability of 24-hour emergency healthcare, and economic reasons.^[1,3,6,14] Addition-

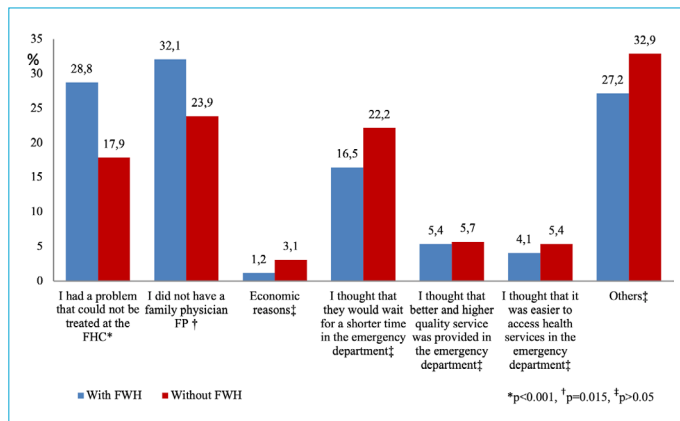


Figure 2. Reasons for preferring admission to the emergency department instead of FP in FHCs with and without flexible working hours.

ally, approximately half of the patients who usually seek medical care with EDA attempt to find an FP first.^[6] In a systematic review, it was found that not having a regular FP increased the frequency of unnecessary EDA, although another article reported that a similar relationship was not found.^[3] In our study, the most common reasons for EDA were found to be the lack of an FP to reach, having a health problem that the FP was unable to treat, and the perception that the waiting in the emergency department would be shorter. Regarding the reasons for EDA among patients in FHCs with and without FWH, "having a health problem that the FP cannot treat" and "not having an FP to reach" were more common among patients in FHCs with FWH. On the other hand, no difference was found between patients in FHCs with and without FWH regarding EDA due to economic reasons, the thought of waiting for a shorter time in the emergency department, the belief in better health service provision in the emergency department, and ease of access to emergency health services.

In a systematic review, no relationship was found between the number of admissions to primary healthcare services and unnecessary EDA.^[3] One study reported that the average number of doctor visits in outpatient settings other than the emergency department was higher for people with unnecessary EDA.^[3] In this study, the frequency of contact with FP in the last six months was found to be high in individuals with EDA. Furthermore, the frequency of referral to FPs and a physician in the hospital was significantly higher in patients with EDA in both FWH and non-FWH FHCs.

One of the main reasons patients use the emergency department for medical care is the difficulty in obtaining early appointments for primary healthcare services.^[1] In one study, it was suggested that ease of access to non-emergency healthcare services may lead to a decrease in EDA.^[8] However, while one study has observed a relation-

ship between unnecessary EDA and difficulty in making appointments for primary healthcare services, in another study, such a relation was not reported in one study.^[6,8] Additionally, one study found no relationship between waiting time after the appointment and unnecessary EDA.^[8] In this study, the frequency of making an appointment at the FHC, the ease of making an appointment, and the waiting time after making the appointment were not significantly different between patients with and without EDA. Moreover, in patients visiting both FWH and non-FWH FHCs, no significant difference was found in terms of the frequency of making an appointment, ease of making an appointment and waiting time after making an appointment between patients with and without EDA.

This study has some limitations. One of the limitations of this study is that the necessity of EDA was not examined. Another limitation is that there is a memory factor during the evaluation of EDA as the last year was considered. Another limitation of this study is that although the study regions were selected considering geographical distribution and the duration of initiation of the FP system, and the participants were randomly selected from these regions, the results may not be generalized to the whole of Turkey due to the inclusion of participants only from some selected provinces.

CONCLUSION

Unnecessary EDAs are a concerning problem in emergency healthcare services worldwide.^[4] One proposed solution to prevent this is to ensure the accessibility of primary healthcare services outside working hours. However, in this study, it was found that FWH had no significant effect on individuals' EDA. Nevertheless, the frequency of individuals with EDA with a health problem that FP was unable to treat, and the frequency of not having FP was found to be high. In light of these results, out-of-hours health service provision in primary healthcare does not lead to a decrease in EDA.

Disclosures

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REFERENCES

1. Steele S, Anstett D, Milne WK. Rural emergency department use by CTAS IV and V patients. *CJEM* 2008;10(3):209–14.
2. Ragin DF, Hwang U, Cydulka RK, Holson D, Haley Jr LL, Richards CF, et al. Reasons for using the emergency department: Results of the EMPATH study. *Acad Emerg Med* 2005;12:1158–66.
3. Uscher-Pines L, Pines J, Kellermann A, Gillen E, Mehrotra A. Deciding to visit the emergency department for non-urgent conditions: A systematic review of the literature. *Am J Manag Care* 2013;19(1):47–59.
4. Hong M, Thind A, Zaric GS, Sarma S. The impact of improved access to after-hours primary care on emergency department and primary care utilization: A systematic review. *Health Policy* 2020;124:812–8.
5. Carret MLV, Fassa AG, Domingues MR. Inappropriate use of emergency services: A systematic review of prevalence and associated factors. *Cad Saude Publica* 2009;25(1):7–28.
6. Al-Otmy SS, Abduljabbar AZ, Rajaa M Al-Raddadi RM, Farahat F. Factors associated with non-urgent visits to the emergency department in a tertiary care centre, western Saudi Arabia: Cross-sectional study. *BMJ Open* 2020;10:e035951.
7. Ismail SA, Gibbons DC, Gnani S. Reducing inappropriate accident and emergency department attendances: A systematic review of primary care service interventions. *Br J Gen Pract* 2013;63(617):e813–20.
8. Sarver JH, Cydulka RK, Baker DW. Usual source of care and nonurgent emergency department use. *Acad Emerg Med* 2002;9:916–23.
9. Norberg G, Sundström BW, Christensson L, Nyström M, Herlitz J. Swedish emergency medical services' identification of potential candidates for primary healthcare: Retrospective patient record study. *Scand J Prim Health Care* 2015;33(4):311–7.
10. Akdağ R. Türkiye Health Transformation Program. Evaluation Report 2003–2011. Ankara: Turkish Ministry of Health Publications; 2012. Publication No: 839. Available at: <https://ekutu-phane.saglik.gov.tr/Yayin/452>. Accessed Feb 20, 2023.
11. Resmi gazete. Family medicine practice regulation. 25 May 2010 Issue: 27591. [Article in Turkish] Available from: <http://www.resmigazete.gov.tr/eskiler/2010/05/20100525-10.htm>. Accessed February 20, 2023.
12. Schäfer WL, Boerma WG, Kringos DS, De Maeseneer J, Gress S, Heinemann S, et al. QUALICOPC, a multi-country study evaluating quality, costs and equity in primary care. *BMC Fam Pract* 2011;12:115.
13. Sarıöz A, Taskın Egici M, Akman M, Sakarya S, Sargın M, Ünlüoğlu İ. Quality and costs of primary care in Europe: The QUALICOPC project: Results from Türkiye. [Article in Turkish] Available at: <https://tahev.org.tr/download/QUALICOPC%20Bask%C4%B1%20Dosyas%C4%B1%201509.pdf>. Accessed Feb 20, 2023.
14. Becker J, Dell A, Jenkins L, Sayed R. Reasons why patients with primary health care problems access a secondary hospital emergency centre. *S Afr Med J* 2012;102(10):800–1.
15. Lowe RA, Localio AR, Schwarz DF, Williams S, Tuton LW, Maroney S, et al. Association between primary care practice characteristics and emergency department use in a Medicaid managed care organization. *Med Care* 2005;43(8):792–800.
16. Dolton P, Pathania V. Can increased primary care access reduce demand for emergency care? Evidence from England's 7-day GP opening. *J Health Econ* 2016;49:193–208.
17. Whittaker W, Anselmi L, Kristensen SR, Lau Y-S, Bailey S, Bower P, et al. Associations between extending access to primary care and emergency department visits: A difference-in-differences analysis. *PLoS Med* 2016;13(9):e1002113.
18. O'Keefe N. The effect of a new general practice out-of-hours co-operative on a county hospital accident and emergency department. *Ir J Med Sci* 2008;177(4):367–70.
19. O'Kelly FD, Teljeur C, Carter I, Plunkett PK. Impact of a GP co-operative on lower acuity emergency department attendances. *Emerg Med J* 2010;27(10):770–3.
20. Etçioğlu E. Evaluation of working conditions of family physicians: A qualitative research. Available at: <https://tez.yok.gov.tr/UlusalTezMerkezi/tezSorguSonucYeni.jsp>. Accessed Feb 20, 2023.
21. İncesu E, Beylik U, Küçükkendirci H. The problem of repetition of admission in emergency health services: A state hospital emergency department investigation in Türkiye. Available at: <https://dergipark.org.tr/pub/abuhbsd/issue/32947/366128>. Accessed Feb 20, 2023.



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The Relationship between Health Belief Model and Cervical Cancer Screening

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ABSTRACT

Objectives: The aim of the study is to determine the effect of health beliefs and knowledge levels on cervical cancer screening.

Methods: This is a cross-sectional-analytic study. It was carried out at Quran courses in the Sultanbeyli District of İstanbul between February 2019 and July 2019. All women aged between 18 and 65 who participated in the training and agreed to participate in the study were recruited. A sociodemographic and reproductive health information survey form and a test for detection of knowledge level, the “Cervical Cancer and Papanicolaou (PAP)-Smear Test Health Belief Model Scale” were applied.

Results: A total of 282 participants, the mean age was 43.3±12.4 years. The frequency of having a PAP-smear test was 113 (41.9%). The barriers subscale scores of the participants who had not been tested for cervical cancer were higher than those who had been tested (39.0±10.5 vs. 34.2±7.9, p=0.002).

Conclusion: In our study, the PAP-smear test rate was low, but this rate was higher in women with high education levels. It is expected that mortality and morbidity will decrease while avoiding barriers with the help of trainings to increase the level of knowledge and awareness.

Keywords: Cancer screening test, cervical cancer, health belief model



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INTRODUCTION

Cervical cancer is one of the most prevalent cancers in the world.^[1] According to the World Health Organization, cervical cancer represents 6.6% of all women cancers, with an estimated 570000 new cases in 2018 and is the fourth-most common cancer and is one of the 10 most common types of cancer in women in Turkey.^[1,2] Human Papilloma Virus (HPV) is a factor in 99.7% of cervical cancer cases.^[3] HPV is a sexually transmitted infection agent. Polygamy, early onset of sexual activity, increased smoking, low rate of Papanicolaou (PAP)-smear test, and low socio-economic status are important risk factors.^[4] The most significant risk factor is never being screened for cervical cancer. A single negative PAP smear reduces cancer risk by 45%, and nine negative PAP smears taken throughout life reduce this risk by 99%.^[5]

Screening programs have been reported to be effective in reducing mortality caused by cervical cancer.^[6-8] In Turkey, PAP-smear and HPV DNA testing (co-test) are being provided in Family Health Centers and Cancer Screening Centers all around the country as a part of the National Cancer Screening Program carried out by the Department of Combating Cancer of the Turkish Ministry of Health since 2014.^[5] Within the framework of this program, it is aimed at screening 30- to 65-year-old women once every 5 years for cervical cancer.

The awareness and knowledge level of cervical cancer are reported to be important factors in requesting screening services.^[9] Studies conducted in our country and in many countries have reported that women had low awareness of cervical cancer and cancer screening and that misinformation or inadequate information about health beliefs was the most important barrier to screening.^[10-14]

In a primary care setting, it is important to know the characteristics of the target population to plan and achieve the goals of preventive health-care services.^[2,4] The Ministry of Health planned to increase awareness among women through local trainings provided by health workers in community health Centres as an activity of “The National Cervical Cancer Screening Awareness Month” realized in January 2019. In Sultanbeyli, which is a distant district of Istanbul, these trainings were performed in Quran courses of the municipality that many women have already been participating. These trainings were an opportunity to investigate the knowledge level and health beliefs of the participant women about cervical cancer and their effects on cancer screening.^[11-13]

The aim of the study is to determine the effect of health beliefs and knowledge level on cervical cancer screening during structured group trainings performed in Istanbul Sultanbeyli District.

METHOD

This cross-sectional study was carried out in 29 courses in Sultanbeyli that accepted to give permission to the training from forty Quran courses in January 2019. Inclusion criteria were being 18–65 years of age, having no communication disability, and being a Turkish speaker. The participants’ screening rate, their health beliefs on cervical cancer, and the effect of health beliefs on cervical cancer screening rate were the primary outcomes of the study.

A sociodemographic information survey form, including questions about reproductive history and cervical cancer screening, is used to gather sociodemographic data for the “Cervical Cancer and PAP-smear Test Health Belief Model Scale” to assess the health beliefs of the participants, and a query form containing a total of 15 expressions prepared by the authors based on the presentation content is used for the evaluation of knowledge applied by the participants. The questionnaires were fulfilled by the face-to-face interviewing method for illiterate women; the others completed the questionnaires by themselves.

Cervical cancer and PAP-smear test health belief model scale: This scale was developed by Champion for breast cancer and mammography; it was adapted to cervical cancer and the PAP-smear test; and a Turkish validity and

reliability study was conducted by Güvenç et al. in 2010.^[15,16] It consists of 35 items and five main dimensions, and the method of five-point Likert-type scaling (strongly disagree (1), disagree (2), neutral (3), agree (4), totally agree (5)) was used in the evaluation of the scale. Each dimension of the scale is evaluated separately and scored, not combined into a single total score. A score equal to the number of subscales is obtained for each individual. Increased scores indicate increased sensitivity, seriousness, motivation, and benefit perception, which are positively related to Pap-Smear screening behavior; the high barrier perception score is negatively related.^[16]

The sample size was calculated as 265 women based on a confidence level of 97%, a PAP smear screening frequency estimated at 50.0%, confidence limits of $\pm 5\%$, and a design effect of 1.0. All the women who accepted to participate and fulfilled the criteria were recruited for the study.

The SPSS 23.0 package program was used for the data analysis. Frequency, percentage, mean, standard deviation, median, minimum, and maximum were used as descriptive statistical analyses for sociodemographic data. An independent t-test was used for comparing categorical and continuous variables in the analysis of normally distributed data. A binary logistic regression test was used to evaluate the effect of categorical and/or continuous variables on HPV screening status. Statistical significance is accepted as $p < 0.05$.

RESULTS

A total of 282 women participated in the study; their mean age was 43.4 ± 12.4 years, and their mean income was 2157.4 ± 1087.5 TL. The gynecologic-obstetric characteristics of the participants suggest that 123 (51.0%) of them had regular menstruation and 96 (34.0%) were in menopause; the prevalence of cesarean section, abortion, curettage history, and history of 18 years old and younger pregnancy were 66 (26.8%), 127 (54.3%), 34 (27.2%), and 72 (28.6%), respectively. The rate of first sexual intercourse of the participants at 16 years old and below was 81 (31.9%). The most commonly used modern contraceptive method was the intrauterine device, with 33 (18.2%). Other sociodemographic and gynecologic-obstetric features are summarized in Table 1.

The frequency of having a PAP smear test among all participants was 113 (41.9%), and the frequency of having a PAP smear test among participants with an active sexual life was 74 (45.7%). The frequency of the PAP-smear test was higher in participants with high school and above education than in those with secondary school and below (28 [80.0%] vs. 98 [46.4%], $p = 0.003$). On the other hand, no difference was found in the frequency of PAP smear test-

Table 1. Sociodemographic and gynecologic-obstetric characteristics of the participants

| | n (%) |
|-----------------------------------|-------------------------|
| Marital status (n=274) | |
| Married | 254 (92.7) |
| Single | 16 (5.8) |
| Divorced | 4 (1.5) |
| Educational status (n=254) | |
| Illiterate | 70 (27.5) |
| Primary and secondary school | 149 (58.7) |
| High school and above | 35 (13.8) |
| Employment status (n=277) | |
| Employment | 22 (7.9) |
| Unemployment | 250 (90.3) |
| Retired | 5 (1.8) |
| | Mean±SD |
| Menarche age (years) | 13.8±1.4 |
| Menopause age (years) | 46.8±5.1 |
| Age of first intercourse (years) | 19.1±3.3 |
| Age of first pregnancy (years) | 20.6±3.9 |
| The number of live children | 3.3±1.6 |
| | Median (min-max) |
| The number of pregnancies | 4.0 (0.0–14.0) |

ing between married and single participants (106 [43.6%] vs. 4 [20.0%], $p=0.057$). In addition, there was no difference in terms of PAP smear test frequency between participants with employment history and those who were housewives (10 [40.0%] vs. 102 [42.3%], $p=0.499$). The age groups were categorized into three groups: 30–39 age, 40–49 age, and 50–65 age; the screening rates were 20 (33.9%), 42 (57.5%), and 43 (51.7%), respectively. When evaluated across age

groups, the 40–49 and 50–65 age groups had a higher screening frequency than the 30–39 age group ($p=0.009$ and $p=0.017$, respectively). In terms of gynecological characteristics, the frequency of HPV-tested participants were higher in menopausal women compared to non-menopausal ones (48 [51.1%] vs. 65 [36.9%], $p=0.028$); in women with irregular menstruation compared to women with regular menstruation (56 [57.7%] vs. 41 [42.3%], $p=0.033$). There was no statistically significant difference between those who had heard about cervical cancer before in terms of whether they had been tested or not tested (107 [42.8%] vs. 143 [57.2%], $p=0.407$). Subscale scores of cervical cancer and the PAP-smear Test Health Belief Model Scale according to screened to the participants for HPV are summarized in Table 2.

According to the comparison of the participants' sociodemographic and health characteristics in terms of the health belief model, being literate makes a difference in terms of barriers and seriousness subscales. Illiterate participants had a higher barriers score ($40.7±9.8$ vs. $35.8±9.3$, $p=0.004$) and seriousness score than literate ones ($24.3±7.6$ vs. $21.2±8.3$, $p=0.018$). The seriousness score was higher in married participants than single ones ($22.3±8.1$ vs. $15.2±6.5$, $p=0.005$). Barriers subscale scores were higher in unemployed participants than employed ones ($38.0±9.7$ vs. $31.4±9.9$, $p=0.039$), in menopausal women than non-menopausal ones ($40.5±9.5$ vs. $36.2±9.8$, $p=0.015$), and in participants with a history of vaginal delivery than women with no history of vaginal delivery ($38.7±9.3$ vs. $34.3±10.9$, $p=0.025$). Participants who had only a cesarean section had lower scores for seriousness ($17.2±8.8$ vs. $23.3±7.9$, $p=0.002$), sensitivity ($5.9±3.1$ vs. $7.4±2.9$, $p=0.031$), and health motivation subscales ($7.5±3.7$ vs. $9.2±3.5$, $p=0.036$) than the participants who had both a cesarean section and a vaginal delivery history. Comparing those who had gynecological examination in the last year and those who

Table 2. Subscale scores of Cervical Cancer and PAP-smear Test Health Belief Model Scale according to screened for HPV of the participants

| | Screened for HPV (n=113) | | Not screened for HPV (n=169) | | p |
|--------------------|--------------------------|----------|------------------------------|-----------|-------|
| Benefit motivation | 84 (74.3) | 30.7±8.7 | 128 (75.4) | 30.2±8.6 | 0.672 |
| Barriers | 54 (47.8) | 34.2±7.9 | 97 (57.4) | 39.0±10.5 | 0.002 |
| Seriousness | 81 (71.7) | 21.6±8.5 | 109 (64.5) | 22.3±7.8 | 0.572 |
| Sensitivity | 92 (81.4) | 7.5±3.1 | 122 (72.2) | 7.1±2.9 | 0.420 |
| Health motivation | 94 (83.2) | 9.3±3.6 | 126 (74.6) | 8.8±3.2 | 0.344 |

HPV: Human papilloma virus.

Data is presented as n (%) and mean±standard deviation.

Independent sample t-test.

did not have, participants with a history of examination in the last year had a higher score in the health motivation subscale (10.1 ± 3.3 vs. 8.6 ± 3.3 , $p=0.001$) and a lower score in the barriers subscale (34.7 ± 9.5 vs. 40.6 ± 9.5 , $p=0.004$). Participants who heard about cervical cancer previously had a higher score in the benefit-motivation subscale than participants who did not hear it ever (30.8 ± 8.6 vs. 25.3 ± 8.3 , $p=0.021$). Participants who were willing for HPV vaccination had a higher scores of the benefit-motivation (32.1 ± 8.6 vs. 28.1 ± 8.8 , $p=0.001$) and seriousness subscales (23.1 ± 8.2 vs. 20.7 ± 7.9 , $p=0.044$) than the participants who were not. Barrier subscale items according to those who had screening and those who did not have screening are summarized in Table 3.

The factors that effects HPV screening status were analyzed by binary logistic regression. The model included age, education level, number of pregnancies, menopause status,

benefit motivation score, barriers score, seriousness score, sensitivity score, and health motivation score. The relationship between PAP-smear test status and participants' characteristics is summarized in Table 4.

DISCUSSION

The frequency of being screened for cervical cancer varies between countries. In our study, the frequency of being screened at least once among participant women was 49.3%, consistent with the literature. The frequency of screening in various studies conducted in our country varies between 12 and 51%.^[10-12] In a review performed by Gakidou et al. the frequency of cervical cancer screening in 57 countries was evaluated.^[17] While the average screening frequency in developing countries was 19%, in developed countries, it was reported as 63%. The low frequency of screening in our study can be attributed to the predominance of participants with low education levels.

Table 3. Barrier subscale items according to those who had screening and those who did not have screening

| Barrier subscale | Screened for HPV (n=133) | | Not screened for HPV (n=169) | | p |
|---|--------------------------|---------|------------------------------|---------|-------|
| Concern about bad outcome | 99 (74.4) | 2.5±1.3 | 145 (85.8) | 2.5±1.3 | 0.972 |
| Not knowing the procedure to be performed | 100 (75.2) | 2.3±1.3 | 140 (82.8) | 2.6±1.3 | 0.087 |
| Not knowing where the procedure will be performed | 98 (73.7) | 2.4±1.3 | 137 (81.1) | 2.9±1.4 | 0.010 |
| Being ashamed to show her private areas | 100 (75.2) | 3.1±1.3 | 142 (84.0) | 3.3±1.4 | 0.200 |
| Waste of time | 96 (72.2) | 2.1±1.1 | 140 (82.8) | 2.6±1.1 | 0.002 |
| Painful procedure | 95 (71.4) | 2.1±1.1 | 138 (81.7) | 2.6±1.0 | 0.001 |
| Negative behaviour of health personnel | 95 (71.4) | 2.1±1.1 | 137 (81.1) | 2.5±1.1 | 0.034 |
| Neglecting/inability to remember | 97 (72.9) | 3.1±1.3 | 143 (84.6) | 3.1±1.3 | 0.691 |
| Having more important problems | 96 (72.2) | 2.2±1.2 | 140 (82.8) | 2.5±1.3 | 0.170 |
| Being older age | 96 (72.2) | 2.0±1.1 | 134 (79.3) | 2.3±1.2 | 0.081 |
| Limitation of accessibility | 99 (74.4) | 2.0±1.2 | 140 (82.8) | 2.6±1.3 | 0.000 |
| If destined, smear will not prevent it | 99 (74.4) | 2.5±1.4 | 145 (85.8) | 2.6±1.4 | 0.680 |
| Gender of operator doctor | 74 (55.6) | 3.3±1.6 | 122 (72.2) | 3.6±1.5 | 0.325 |
| Whether or not the procedure has a fee | 92 (69.2) | 2.2±1.3 | 131 (77.5) | 2.2±1.2 | 0.835 |

HPV: Human papilloma virus.
Data is presented as n (%) and mean±standard deviation.
Independent sample t-test.

Table 4. The relationship between PAP-smear test status and participants' characteristics

| | B | SE | 95% CI | Exp (B) | p |
|------------------------|--------|-------|-------------|---------|--------|
| Age | 0.074 | 0.033 | 1.010–1.148 | 1.077 | 0.024 |
| Barrier subscale score | -0.113 | 0.031 | 0.840–0.949 | 0.893 | <0.001 |

Binary logistic regression model: Age, education level, number of pregnancies, menopause status, benefit motivation score, barriers score, seriousness score, sensitivity score, health motivation score.
CI: Confidence interval.

The fact that the only statistically significant parameter between the participants who had and did not have screenings was the educational level; the frequency of screening was higher in those with high school and over educational level. In the studies conducted in our country, the high level of education is reported as the most critical parameter affecting screening.^[11,12] In a meta-analysis by Damiani et al. investigating the relationship between the frequency of breast cancer and cervical cancer screening and education, addressing 10 cross-sectional studies, it was reported that women with the highest education level were 96% more likely to have at least one PAP-smear test over a 3-year period than those with the lowest education level.^[18]

In our study, women with irregular menstruation periods and women in menopause had more prevalent PAP-smear tests. It is thought that the perception of having disease is an essential for patients seeking health care. Furthermore, this is a reason for applying to a health-care center or a hospital. The other factor can be that post-menopausal period complications and/or advanced age provide for regular gynecological control. These reasons are a good opportunity to suggest the test to doctors and being aware for the patients about the test. Koç et al. reported in their study about the impact of education and healthy lifestyle behaviors that inadequate health-seeking behaviors are one of the barriers to PAP-smear screening.^[19] Yanikkerem et al. support that advanced age is a reason for having tests in their study.^[20]

The "Cervical Cancer and PAP-smear Test Health Belief Model Scale" was created to help health professionals develop more effective screening programs taking into account women's sociocultural status and health beliefs.^[16] In our study, only the barriers subscale scores were higher among participants who had and did not have a test. The leading barriers were: "do not know where the procedure will be performed," "considering this a waste of time," "the concern that the procedure may be painful," "negative behaviors of health personnel" and "the limited accessibility" in our study. The statements in this subscale provide an understanding of the barriers to screening. Accordingly, it is understood that there are barriers that need to be avoided before women undergo tests. In other studies, the barriers subscale score was similarly high, and the barriers reported were "discomfort and fear of the procedure to be performed," "difficulties in reaching the health center," "fear of bad results," "not knowing where and who is performing the test," and "feeling sick and thinking that the procedure is painful."^[11,12,21] The barriers are similar in the studies. The fact that similar results are still being obtained in these studies conducted for years, especially in the last decade,

may also be explained as an indicator of a lack of and/or inadequate knowledge. While education level did not make any statistically significant difference in any subscale, in illiterate participants, high scores were found in the barrier subscale in this study. In addition, participants who had heard about cervical cancer had a higher score in the benefit-motivation subscale, which includes knowledge-based expressions. Knowledge provides perception and/or awareness in women, which can explain this result. Studies in our country reported that the benefit-motivation score was higher for participants who had heard about cervical cancer, similarly to their study.^[10,11,21] Aldohaian et al. who studied with 450 Saudi women, suggested that knowledge is a leading factor in cervical cancer screening.^[13]

In this study, employed women had a lower barrier subscale score. Being working ensures socio-economic freedom for women and can eliminate the limitations of accessibility. Furthermore, being in a social environment may allow peer education between women and can encourage the changing health behaviors. Some other studies conducted in our country also support our findings.^[10,11,20,22] Participants who remarked that they could be vaccinated if eligible had higher benefit-motivation and seriousness subscale mean scores. This is not a surprising result, as it is expected behavior from people who take care of their health. Married participants care more about cervical cancer detected in our study. Being single may be an excuse for a delay of following up on gynecological health. Furthermore, married women may be more sexually active, may have more complaints about their gynecologic system, or their partner can help remind them of their health control to lead them to regular gynecological controls. These can be an opportunity to have a test or to maintain a healthy life. Marital status is confused in the literature. Studies found different results for non-significant parameter, low barrier, and high sensitivity subscale mean scores.^[11,13,21,23] Furthermore, in the literature, it is reported that being married is one of the factors contributing to health-seeking behavior.^[24-26]

It is possible to reduce the frequency of cervical cancer, which is common all over the world and affects women's lives negatively, with training and effective screening programs.^[19,27] The positive effects of training to increase knowledge and awareness about cervical cancer among women have been shown in many studies.^[19,27,28] Our study was conducted with middle-income and middle-educational-level women. "Information Training on Cervical Cancer and Screening" was offered within the scope of the "Health Improvement Project" of the Ministry of Health of the Republic of Turkey. The effectiveness of training on cervical cancer and screening in our country has been inves-

tigated by many trainers, and the results have been published.^[10-12] Similar studies have been published in different countries during the same period.^[27,28]

In our study, the pre-training evaluation revealed that 95% of the participants had heard of cervical cancer, and 32% knew that it was a sexually transmitted disease. In the study of Aşilar et al., it was reported that 33.7% of participants women received information about cervical cancer and smear tests, 44.1% were aware of smear tests, and 39.7% knew the reason for smear tests correctly.^[11] In the study conducted by Koç et al. with 156 participants, 8.3% reported that they had heard of HPV before, and 58.3% did not know how to protect themselves from the disease.^[19] The studies conducted in countries such as Ghana, Nigeria, and India, which have low screening rates, have reported that the level of knowledge is lacking, and the level of knowledge is increased with various trainings and training materials.^[27-31]

One of its strengths is that it is a field study conducted by reaching women who do not know whether they should have a PAP-smear test. Along with similar studies, it supports the knowledge that women from many segments still need education. Since the content of the study questions not only knowledge and behavior but also belief in the screening method, it is different from other similar studies. The use of the belief scale also illuminates the barriers to the screening program. This should be perceived as another strength of the study. The limitation of the study is that it cannot be generalized to society because it was not conducted with a sample that reflects society.

CONCLUSION

In our study, PAP-smear test frequency was found to be low in line with the literature, and this rate was higher in people with high education levels. There is a need for attempts to identify and remove the barriers to cervical cancer screening with wide-ranging studies. Preventive medicine is a crucial component of primary health care. In this context, it is expected that the level of knowledge and awareness of individuals will increase and mortality and morbidity will decrease with the help of the training to be offered.

Disclosures

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REFERENCES

1. World Health Organization. Cervical cancer. Available at: <http://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en>. Accessed July 1, 2019.
2. Başara BB, Güler C, Yentür GK, Birge B, Pulgat E, Ekinci BM. Sağlık Araştırmaları Genel Müdürlüğü. Yayın No: 917 [Article in Turkish]. Ankara: Sağlık Bakanlığı; 2013.
3. Öztürker C, Sönmez G. Endometrium ve serviks kanserlerinde görüntüleme. TRD Sem [Article in Turkish] 2015;3:1–11.
4. Bebiş H, Reis N, Yavan T, Bayrak D, Ünal A, Bodur S. Effect of health education about cervical cancer and Papanicolaou testing on the behaviour, knowledge and beliefs of Turkish women. *Int J Gynecol Cancer* 2012;22(8):1407–12.
5. Köğ İ, Turan T, Karabük E, Karayünlü B, Özgül N, Demir ÖF, et al. Cervical and breast cancer screening program results of Etlik KETEM group. *TAF Prev Med Bull* [Article in Turkish] 2012;11:145–52.
6. Yıldırım D, Gökaslan H. The importance of HPV DNA test in the screening of cervical cancer. *Turk Onkol Derg* [Article in Turkish] 2015;1:1–6.
7. Saslow D, Solomon D, Lawson HW, Killackey M, Kulasingam S, Cain J, et al. American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology Screening guidelines for the prevention and early detection of cervical cancer. *Am J Clin Pathol* 2012;137(4):516–42.
8. Demirhindi H, Nazlıcan E, Akbaba M. Cervical cancer screening in Türkiye: A community-based experience after 60 years of PAP-smear usage. *Asian Pac J Cancer Prev* 2012;13:6497–500.
9. Hendry M, Pasterfield D, Lewis R, Clements A, Damery S, Neal RD, et al. Are women ready for the new cervical screening protocol in England? A systematic review and qualitative synthesis of views about human papillomavirus testing. *Br J Cancer* 2012;107:243–54.
10. Bal MD. Evaluation of women having pap smear test by health belief model scale. *Clin Exp Health Sci* [Article in Turkish] 2014;4(3):133–8.
11. Aşilar RH, Köse S, Yıldırım A. Women's knowledge, beliefs and behaviors about cervical cancer and pap smear test. *Türkiye Klinikleri J Nurs Sci* [Article in Turkish] 2015;7(2):102–11.
12. Çankaya S. The effect of training for cervical cancer on the

- information levels, attitudes and behaviour of the women at Quran courses. *J Obstet Gynecol Neonatal Nurs [Article in Turkish]* 2017;14(4):176–81.
13. Aldohaian AI, Alshammari SA, Arafah DM. Using the health belief model to assess beliefs and behaviours regarding cervical cancer screening among Saudi women: A cross-sectional observational study. *BMC Womens Health* 2019;19(1):1–12.
 14. Kirag N. Knowledge, health beliefs and preventive behaviour regarding cervical cancer among Turkish women: A cross sectional study. *J Public Health Berl* 2021;29:239–44.
 15. Champion VL. Instrument refinement for breast cancer screening behaviours. *Nurs Res* 1993;42(3):139–43.
 16. Güvenç G, Akyüz A, Açikel CH. Health belief model scale for cervical cancer and PAP-smear test: Psychometric testing. *J Adv Nurs* 2011;67(2):428–37.
 17. Gakidou E, Nordhagen S, Obermeyer Z. Coverage of cervical cancer screening in 57 countries: Low average levels and large inequalities. *PLoS Med* 2008;5(6):132.
 18. Damiani G, Basso D, Acampora A, Bianchi CB, Silvestrini G, Frisciale EM, et al. The impact of level of education on adherence to breast and cervical cancer screening: Evidence from a systematic review and meta-analysis. *Prev Med* 2015;81:281–9.
 19. Koç Z, Özdeş EK, Topatan S, Çınarlı T, Şener A, Danacı E, et al. The impact of education about cervical cancer and human papillomavirus on women's healthy lifestyle behaviours and beliefs: Using the PRECEDE educational model. *Cancer Nurs* 2019;42(2):106–18.
 20. Yanikkerem E, Selçuk AK, Esmeray N. Women's attitude and beliefs about cervical cancer and PAP-smear test by using the health belief model. *Int J Cancer Clin Res* 2018;5:102–11.
 21. Reis N, Bebiş H, Köse S, Sis A, Engin R, Yavan T. Knowledge, behaviour and beliefs related to cervical cancer and screening among Turkish women. *Asian Pac J Cancer Prev* 2012;13(4):1463–70.
 22. Cetişli NE, Top ED, Işık G. Cervical cancer and PAP-smear test health beliefs and health-promoting lifestyle of women in Turkey. *Int J Caring Sci* 2016;9(2):630–9.
 23. Uysal A, Birsal A. Knowledge about cervical cancer risk factors and pap testing behaviour among Turkish women. *Asian Pac J Cancer Prev* 2009;10(3):345–50.
 24. Hanske J, Meyer CP, Sammon JD, Choueiri TK, Menon M, Lipsitz SR, et al. The influence of marital status on the use of breast, cervical, and colorectal cancer screening. *Prev Med* 2016;89:140–5.
 25. Adam VY, Aigbokhaode AQ. Sociodemographic factors associated with the healthcare-seeking behaviour of heads of households in a rural community in Southern Nigeria. *Sahel Med J* 2018;21(1):31.
 26. Were EO, Buziba NG. Presentation and health care seeking behaviour of patients with cervical cancer seen at Moi Teaching and Referral Hospital, Eldoret, Kenya. *East Afr Med J* 2001;78(2):55–9.
 27. Fung LC, Nguyen KH, Stewart SL, Chen Jr MS, Tong EK. Impact of a cancer education seminar on knowledge and screening intent among Chinese Americans: Results from a randomized, controlled, community-based trial. *Cancer* 2018;124:1622–30.
 28. Ebu NI, Amissah-Essel S, Asiedu C, Akaba S, Pereko KA. Impact of health education intervention on knowledge and perception of cervical cancer and screening for women in Ghana. *BMC Public Health* 2019;19:1505.
 29. Reichheld A, Mukherjee PK, Rahman SM, David KV, Pricilla RA. Prevalence of cervical cancer screening and awareness among women in an urban community in South India: A cross sectional study. *Ann Glob Health* 2020;86(1):30.
 30. Abiodun OA, Olu-Abiodun OO, Sotunsa JO, Oluwole FA. Impact of health education intervention on knowledge and perception of cervical cancer and cervical screening uptake among adult women in rural communities in Nigeria. *BMC Public Health* 2014;14:814.
 31. Rosser JI, Njoroge B, Huchko MJ. Changing knowledge, attitudes, and behaviours regarding cervical cancer screening: The effects of an educational intervention in rural Kenya. *Patient Educ Couns* 2015;98(7):884–9.



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Awareness and Approaches of Breast, Cervical, and Colorectal Cancer Screening in Rize, Türkiye

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ABSTRACT

Objectives: It was aimed to determine the awareness and approaches of people who make up the target group of national cancer screening programs in Rize, Türkiye.

Methods: This observational study was carried out in community health centers and family health centers between January 15, and November 15, 2020, in Rize. A survey questioning their demographics, awareness, and approaches about breast, cervical, and colorectal cancer screenings was applied to women aged 20–70 and men aged 50–70 who volunteered to participate in the study.

Results: The numbers of participants who knew about breast self-examination (BSE), clinical breast examination (CBE), mammography, Pap smear test, fecal occult blood test (FOBT), and colonoscopy were found to be 216 (87.4%), 190 (76.9%), 139 (94.6%), 184 (92.0%), 156 (73.9%), and 104 (49.3%), respectively. Family physicians were the most common source of information for all cancer screenings except BSE. The numbers of participants who perform BSE, CBE, mammography, Pap smear test, FOBT, and colonoscopy at the recommended frequency were found to be 71 (28.7%), 51 (20.6%), 61 (41.5%), 81 (40.5%), 46 (21.8%), and 13 (6.2%), respectively.

Conclusion: This study has shown that it is important to inform people more comprehensively about cancer screening and to take encouraging measures.

Keywords: Early detection of cancer, early diagnosis, preventive medicine, primary health care



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INTRODUCTION

Cancer is a major public health problem, accounting for nearly 10 million deaths worldwide in 2020.^[1] Besides its mortality, it causes heavy losses in the workforce and in the country's economy due to its morbidities and high costs in its treatment.^[2] If cancer treatment can be started in the early period, the mortality rate can be reduced.^[1] This makes cancer screening programs important for early detection. Cancer screenings aim to detect findings suggestive of a specific cancer or pre-cancer in individuals with no symptoms and promptly direct individuals who appear at risk for diagnosis and treatment. In Turkey, cancer screenings have been carried out for three types of cancer (breast, cervical, and colorectal cancers) recommended by the World Health Organization, within the "National Cancer Control Program" since 2008.^[3]

In Turkey, breast cancer screenings are performed with breast examinations and mammography, cervical cancer screenings with Pap smear test, colorectal cancer screenings with fecal occult blood test (FOBT), and colonoscopy.^[2] The recommendations of the Ministry of Health are as follows: Breast self-examination (BSE) for women once a month after the age of 20, clinical breast examination (CBE) for women every 2 years after the age of 20 and annually af-

ter the age of 40, mammography for women every 2 years aged 40–69, Pap smear test (including cervical cytology and HPV-DNA test) for women every 5 years aged 30–65, FOBT every 2 years, and colonoscopy every 10 years for men and women aged 50–70 years. These screenings are provided by “Cancer Early Diagnosis, Screening, and Education Centers” (In Turkish: Kanser Erken Teşhis, Tarama ve Eğitim Merkezleri [KETEM]), community health centers and family health centers throughout the country.^[3] In particular, family physicians, who are the first point of contact with patients and provide preventive health services to their patients, have been given authority and responsibility in this struggle.

Although great efforts are being made by health workers for cancer screening in Turkey, early diagnosis rates are low due to the low participation of the population in screening.^[4-7] In recent studies in our country, it has been determined that there are still numerous people who do not have breast, cervical, and colorectal cancer screenings.

The aim of our study is to determine the awareness and approaches of the people who make up the target group of the national cancer screening programs, including breast, cervical, and colorectal cancers in Rize Province, in the Eastern Black Sea region of Turkey.

METHOD

This is an observational study carried out in community health centers and family health centers affiliated to the Provincial Health Directorate between January 15, and November 15, 2020, in Rize, on the Black Sea coast, in the northwest of Turkey.

The population of the study comprised women between the ages of 20 and 70 and men between the ages of 50 and 70 living in the province of Rize. A sample was randomly selected from (1) people who applied to family health centers and community health centers for any reason, and their attend-ants, (2) those invited to the stands established by the community health centers in the socializing are-as of the public, and (3) individuals who were visited for neighborhood and village tours organized within community health services. Individuals with cognitive impairment to the extent that they could not carry out the survey application and those who could not communicate were excluded from the study.

Besides the central district of Rize, data were collected from eight districts (Çamlıhemşin, Çayeli, Derepaazarı, Güneysu, Hemşin, İyidere, Kalkandere, and Pazar) and the number of participants in these districts was determined according to the population frequency of the districts within the province. Half of the data were obtained from randomly se-

lected family health centers and the other half from community health centers in each district.

As a data collection form, a survey was created by the researchers questioning the demographic characteristics of the participants and their awareness and approaches for breast, cervical, and colorectal cancer screenings.

In the first part of the data form, the participants' age, gender, marital status, educational status, working status, place of residence, whether they have any additional disease, and applied to KETEM were questioned. Afterward, in separate sections for each cancer screening method, it has been tried to determine whether they knew the screening method, if they have, from where they heard it, whether they had the screening as recommended, and why they did not. Finally, the questionnaire was ended by asking people whether they wanted training in cancer screening.

After being informed about the study, the questionnaire form was applied to the individuals who volunteered to participate by face-to-face interview method. While the first part of the questionnaire containing demographic characteristics was applied to all participants, the sections related to cancer screening were applied only to the relevant gender and age groups. Women aged 20–70 were asked questions about BSE and CBE; women aged 40–70 about mammography; women aged 30–65 about Pap smear test; and all participants aged 50–70 about FOBT and colonoscopy.

The Statistical Package for Social Science software was used for data entry and analysis. Descriptive data were evaluated as frequency and percentage distributions. Percentages were calculated independently for each cancer screening method, considering the total number of individuals within the recommended age and gender groups. Chi-square test was used to determine the relationship between categorical variables. Statistical significance level was taken as $p < 0.05$.

RESULTS

Three hundred and seventy-five participants were included in the study. Of the participants, 123 (32.8%) were men aged 50–70, and 252 (67.2%) were women aged 20–70. While 5 (2.0%) women did not want to answer questions about breast cancer screening, this number was also 5 (2.4%) for cervical cancer screening. Finally, the number of people who answered the questions about BSE, CBE, mammography, Pap smear test, FOBT, and colonoscopy were 247 (98.0%), 247 (98.0%), 147 (96.7%), 200 (97.6%), 211 (100.0%), and 211 (100.0%), respectively.

Breast Cancer Screenings

The number of women aware of breast cancer screening was 216 (87.4%) for BSE, 190 (76.9%) for CBE, and 139 (94.6%) for mammography. While “nurses” were the most common source of information for BSE, it was “family doctor” for CBE and mammography. The number of women who reported performing BSE and CBE as recommended was 71 (28.7%) and 51 (20.6%). Sixty-one (41.5%) of women aged 40–70 said that they had a mammogram regularly. The sources of information about breast cancer screenings for participants and their reasons for not performing them are summarized in Table 1.

When the frequency of CBE was examined, it was seen that it was higher in women between the ages of 50 and 59, married individuals and primary school graduates. BSE and CBE of participants according to demographic characteristics are summarized in Table 2.

It was determined that the frequency of mammography was higher in women between the ages of 50 and 59. Mammography of participants according to demographic characteristics are summarized in Table 3.

Cervical Cancer Screening

While the number of people who knew that Pap smear test is recommended every 5 years after the age of 30 was 184 (92.0%), 51 (28.2%) of them learned this from “family doctor.” Other sources of information were “nurses” with 48 (26.5%), “relatives, neighbors, friends” with 22 (12.2%), “other doctors” with 21 (11.6%), “other” with 20 (11.1%), and “television, internet” with 19 (10.5%), respectively. Eighty-one (40.5%) women stated that they had a Pap smear test as recommended. The reasons for not having this screening were “laziness-neglect” (34 [34.0%]), “other” (32 [32.0%]), “shame” (22 [22.0%]), “fear that the procedure will be painful” (4 [4.0%]), “ignorance” (3 [3.0%]), “find unnecessary” (3 [3.0%]), and “fear of being diagnosed with cancer” (2 [2.0%]), respectively.

Cervical cancer screening was observed at a higher frequency in individuals aged 50–59 (27 [54.0%] for ages 50–59 vs. 15 [25.0%] for ages 30–39, 28 [44.4%] for ages 40–49, 11 [40.7%] for ages 60–70, $p=0.017$), married (74 [43.8%] vs. 7 [22.6%], $p=0.027$), residing in the city center (46 [51.7%] vs. 35 [31.5%], $p=0.004$), having comorbidities (38 [58.5%] vs. 43 [31.9%], $p<0.001$), and applying to KETEM (61 [62.9%] vs. 20 [19.4%], $p<0.001$).

Colorectal Cancer Screening

While 156 (73.9%) participants were aware of FOBT, the number of participants who knew that colonoscopy was

Table 1. The sources of information about breast cancer screenings for participants and their reasons for not performing them

| | n (%) |
|---|-----------|
| Breast self-examination | |
| The sources of information (n=212) | |
| Television and internet | 42 (19.8) |
| Relatives, neighbors, and friends | 34 (16.0) |
| Family doctor | 42 (19.8) |
| Other doctors | 15 (7.1) |
| Nurses | 53 (25.0) |
| Other | 26 (12.3) |
| Reasons for not performing (n=124) | |
| Afraid to find a mass | 10 (8.1) |
| Ignorance | 7 (5.7) |
| Laziness-neglect | 82 (66.1) |
| Find unnecessary | 4 (3.2) |
| Other/no answer | 21 (16.9) |
| Clinical breast examination | |
| The sources of information (n=187) | |
| Television and internet | 37 (19.8) |
| Relatives, neighbors, and friends | 23 (12.3) |
| Family doctor | 42 (22.5) |
| Other doctors | 24 (12.8) |
| Nurses | 37 (19.8) |
| Other | 24 (12.8) |
| Reasons for not having (n=147) | |
| Afraid to find a mass | 7 (4.8) |
| Ignorance | 15 (10.2) |
| Laziness-neglect | 63 (42.9) |
| Find unnecessary | 13 (8.8) |
| Shame | 25 (17.0) |
| Other | 24 (16.3) |
| Mammography | |
| The sources of information (n=136) | |
| Television and internet | 20 (14.7) |
| Relatives, neighbors, and friends | 19 (14.0) |
| Family doctor | 46 (33.8) |
| Other doctors | 14 (10.3) |
| Nurses | 28 (20.6) |
| Other | 9 (6.6) |
| Reasons for not having (n=67) | |
| Afraid to find a mass | 3 (4.5) |
| Fear that the procedure will be painful | 10 (14.9) |
| Ignorance | 3 (4.5) |
| Laziness-neglect | 34 (50.7) |
| Find unnecessary | 5 (7.5) |
| Shame | 4 (6.0) |
| Other | 8 (11.9) |

Table 2. Self-breast examination and clinical breast examination of participants according to demographic characteristics

| | Total (n=247) | BSE (n=71) | p | CBE (n=51) | p |
|------------------------------|---------------|------------|-------|------------|--------|
| Age groups | | | 0.181 | | <0.001 |
| 20–29 years | 40 (16.2) | 9 (12.7) | | 1 (2.0) | |
| 30–39 years | 60 (24.3) | 16 (22.5) | | 6 (11.8) | |
| 40–49 years | 64 (25.9) | 17 (23.9) | | 17 (33.3) | |
| 50–59 years | 49 (19.8) | 21 (29.6) | | 20 (39.2) | |
| 60–70 years | 34 (13.8) | 8 (12.3) | | 7 (13.7) | |
| Marital status | | | 0.752 | | 0.023 |
| Married | 188 (76.1) | 55 (77.5) | | 45 (88.2) | |
| Single | 59 (23.9) | 16 (22.5) | | 6 (11.8) | |
| Educational status | | | 0.785 | | 0.011 |
| Illiterate | 34 (13.8) | 8 (11.2) | | 4 (7.8) | |
| Primary school | 80 (32.4) | 24 (33.8) | | 25 (49.0) | |
| High school | 45 (18.2) | 15 (21.2) | | 11 (21.6) | |
| University | 88 (35.6) | 24 (33.8) | | 11 (21.6) | |
| Employment status | | | 0.704 | | 0.171 |
| Employee | 88 (35.6) | 24 (33.8) | | 14 (27.5) | |
| Unemployee | 159 (64.4) | 47 (66.2) | | 37 (72.5) | |
| Residence | | | 0.043 | | 0.038 |
| City center | 104 (42.1) | 37 (52.1) | | 28 (54.9) | |
| District | 143 (57.9) | 34 (47.9) | | 23 (45.1) | |
| Comorbidities | | | 0.241 | | 0.164 |
| Yes | 77 (31.2) | 26 (36.6) | | 20 (39.2) | |
| No | 170 (68.8) | 45 (63.4) | | 31 (60.8) | |
| Those who applied to “KETEM” | | | 0.112 | | <0.001 |
| Yes | 99 (40.1) | 34 (47.9) | | 39 (76.5) | |
| No | 148 (59.9) | 37 (52.1) | | 12 (23.5) | |

BSE: Breast self-examination, CBE: Clinical breast examination, KETEM: Cancer Early Diagnosis, Screening and Education Centers (In Turkish: Kanser Erken Teşhis, Tarama ve Eğitim Merkezleri)

Data are given as n (%)

Chi-square test.

recommended every 10 years was 104 (49.3%). The frequency of participants who had colorectal cancer screening was 46 (21.8%) for FOBT and 13 (6.2%) for colonoscopy. The sources of information about colorectal cancer screening for participants and their reasons for not performing it are summarized in Table 4.

While it was found that individuals applying to KETEM tended to undergo both screenings more frequently, the frequency of FOBT was higher among women, whereas the frequency of colonoscopy was higher among those residing in the city center. Colorectal cancer screenings of participants according to demographic characteristics are summarized in Table 5.

DISCUSSION

In our study, the awareness and approaches of women about breast, cervical, and colorectal cancer screenings and of men about colorectal cancer screenings were examined.

While the frequency of knowing BSE, CBE, and mammography screenings of the women in our study was quite high, the frequencies of having these screenings regularly remained low. In other studies, conducted in Turkey, the frequency of regular BSE in women varies from 11.1% to 62.1%.^[4,8-13] In some studies, conducted abroad, the frequency of regular BSE was 13.2%, 17.4%, and 20.3%.^[14-16] In the study of Tarı Selçuk et al. published in 2020, the frequency of CBE was reported as 8.9%.^[10] Again, in the same study, the frequency of mammography was determined as

Table 3. Mammography of participants according to demographic characteristics

| | Total (n=147) | Mammography (n=61) | p |
|------------------------------|---------------|--------------------|--------|
| Age groups | | | 0.004 |
| 40–49 years | 64 (43.5) | 18 (29.5) | |
| 50–59 years | 49 (33.4) | 29 (47.5) | |
| 60–70 years | 34 (23.1) | 14 (23.0) | |
| Marital status | | | 0.150 |
| Married | 128 (87.1) | 56 (91.8) | |
| Single | 19 (12.9) | 5 (8.2) | |
| Educational status | | | 0.151 |
| Illiterate | 34 (23.1) | 11 (18.0) | |
| Primary school | 65 (44.2) | 32 (52.5) | |
| High school | 20 (13.6) | 10 (16.4) | |
| University | 28 (19.1) | 8 (13.1) | |
| Employment status | | | 0.150 |
| Employee | 38 (25.9) | 12 (19.7) | |
| Unemployee | 109 (74.1) | 49 (80.3) | |
| Residence | | | 0.060 |
| City center | 59 (40.1) | 30 (49.2) | |
| District | 88 (59.9) | 31 (50.8) | |
| Comorbidities | | | 0.066 |
| Yes | 64 (43.5) | 32 (52.5) | |
| No | 83 (56.5) | 29 (47.5) | |
| Those who applied to “KETEM” | | | <0.001 |
| Yes | 89 (60.5) | 56 (91.8) | |
| No | 58 (39.5) | 5 (8.2) | |

KETEM: Cancer Early Diagnosis, Screening and Education Centers (In Turkish: Kanser Erken Teşhis, Tarama ve Eğitim Merkezleri)
 Data are given as n (%)
 Chi-square test.

11.3%, while in two different studies in Turkey, it was shown that 99.1% and 89.3% of women did not have mammography.^[13,17] In a study conducted in Jamaica, 88.6% of women and in a study conducted in Vietnam, 83.3% of women have never had a mammogram in their lives.^[18,19] As a result of our study, it was seen that the frequency of mammography in Rize Province was higher than other studies in our country and some studies abroad.

When the literature is assessed, in studies conducted in different groups and regions in Turkey, the frequency of women hearing about the Pap smear test varies between 48.2% and 79.1%, and the screening frequency varies between 29% and 51.3%, and these results are close to our study.^[4,6,13,20-23] In a study conducted in Saudi Arabia in 2020, the frequency of women hearing about the Pap smear test was 51.5%, and the screening frequency was 14.2%, while frequencies very close to ours were reported in the study

of Bakogianni et al. in Greece.^[24,25] In 2012, the proportion of women in the United States who were not screened for cervical cancer in the past 5 years was estimated to be only 11.4%, and most cases of cervical cancer occur in underserved, underscreened female populations.^[26,27] From 2007 to 2011, the incidence frequency of cervical cancer in the United States of America (USA) decreased by 1.9%/year. According to the results of our study, although almost all women have heard of the Pap smear test, our screening frequency is quite low compared to the USA and there is still a target population that we cannot reach.

As a result of a study conducted in the province of Trabzon, which is right next to Rize, the frequency of performing the FOBT was 6.6% for women and 30% for men, while the frequency of having colonoscopy was 3.7% for women and 10.8% for men and these results are close to our study.^[4] According to the results of the Turkey Household Health

Table 4. The sources of information about colorectal cancer screenings for participants and their reasons for not performing them

| | n (%) |
|---|-----------|
| Fecal occult blood test | |
| The sources of information (n=155) | |
| Television and internet | 13 (8.4) |
| Relatives, neighbors, and friends | 23 (14.8) |
| Family doctor | 67 (43.2) |
| Other doctors | 13 (8.4) |
| Nurses | 33 (21.3) |
| Other | 6 (3.9) |
| Reasons for not having (n=128) | |
| Fear of being diagnosed with cancer | 10 (7.8) |
| Ignorance | 31 (24.2) |
| Laziness-neglect | 59 (46.1) |
| Find unnecessary | 15 (11.7) |
| Shame | 2 (1.6) |
| Other | 11 (8.6) |
| Colonoscopy | |
| The sources of information (n=100) | |
| Television and internet | 13 (13.0) |
| Relatives, neighbors, and friends | 17 (17.0) |
| Family doctor | 41 (41.0) |
| Other doctors | 15 (15.0) |
| Nurses | 9 (9.0) |
| Other | 5 (5.0) |
| Reasons for not having (n=162) | |
| Fear of being diagnosed with cancer | 9 (5.5) |
| Fear that the procedure will be painful | 15 (9.3) |
| Ignorance | 38 (23.5) |
| Laziness-neglect | 53 (32.7) |
| Find unnecessary | 21 (13.0) |
| Shame | 7 (4.3) |
| Other/no answer | 19 (11.7) |

Survey, 74.5% of the 50–70 age group have never had a FOBT, and the frequency of colonoscopy in this age group in the past 10 years is only 12.1%.^[5] In a study conducted in Saudi Arabia, it was seen that 69% of the participants had heard of colorectal cancer screenings, and only 12.5% had had colorectal cancer screening at least once.^[28] According to the results of our study and the literature, it is concluded that the frequency of colon cancer screening in societies is quite low.

To increase the participation frequencies of the society in cancer screening, it is important to find the reasons

that decrease participation and to solve these reasons. In our study, it was observed that the most common reason for not performing the cancer screenings we investigated was “laziness-neglect.” We have determined that the frequency of participants not having cancer screening due to “ignorance” is quite low. In a study conducted in Jordan, it was determined that the most common reason women do not have mammography, and in a study conducted in Korea, the most common reason for not performing BSE is “ignorance.”^[14,29] A study conducted in Egypt showed that the most common reason women do not have a Pap smear test is that they are not informed.^[30] In a study from Saudi Arabia, the most common reason for participants not being screened for colorectal cancer was lack of doctor’s advice, and the second most common reason was absence of symptoms.^[28] In a study conducted in the USA, the most common reason participants did not have FOBT and colonoscopy was the absence of symptoms.^[31]

In our study, it was seen that the source of information for people who stated that they heard about cancer screenings except BSE was family physicians (BSE was heard most frequently from nurses, and from family physicians second most frequently). Similarly, in another study conducted in Turkey, cancer screening was recommended to most women by their family physicians.^[6] In a study from Korea, it was observed that participants heard BSE mostly from the media.^[14] Considering that in a study in Vietnam, 81.7% of women did not receive a recommendation for mammography from a healthcare professional, it is a source of pride that the frequency of knowing about breast cancer screening in our province is high, and family physicians have a significant share in this situation.^[19]

The first limitation of our study was the evaluation of individuals’ cancer screening status based on their own statements. This limitation can be removed using health records in future studies. Second, this study was conducted in Rize, Turkey, and the findings are valid for this city. For this reason, multicenter studies involving people living in different regions and having different sociocultural characteristics should be encouraged.

CONCLUSION

In our study, although the frequency of knowing about cancer screenings we investigated was quite high, it was observed that the screening frequency remained below the desired level. Screening frequency can increase significantly by providing more detailed information and guidance to people about cancer screenings. In this context, al-

Table 5. Colorectal cancer screenings of participants according to demographic characteristics

| | Total (n=211) | FOBT (n=46) | p | Colonoscopy (n=13) | p |
|------------------------------|---------------|-------------|--------|--------------------|-------|
| Gender | | | 0.001 | | 0.134 |
| Male | 123 (58.3) | 17 (37.0) | | 5 (38.5) | |
| Female | 88 (41.7) | 29 (63.0) | | 8 (61.5) | |
| Age groups | | | 0.926 | | 0.059 |
| 50–59 years | 118 (55.9) | 26 (56.5) | | 4 (30.8) | |
| 60–70 years | 93 (44.1) | 20 (43.5) | | 9 (69.2) | |
| Marital status | | | 0.065 | | 0.141 |
| Married | 200 (94.8) | 41 (89.1) | | 11 (84.6) | |
| Single | 11 (5.2) | 5 (10.9) | | 2 (15.4) | |
| Educational status | | | 0.247 | | 0.736 |
| Illiterate | 32 (15.2) | 8 (17.4) | | 1 (7.7) | |
| Primary school | 107 (50.7) | 28 (60.9) | | 8 (61.5) | |
| High school | 47 (22.3) | 6 (13.0) | | 2 (15.4) | |
| University | 25 (11.8) | 4 (8.7) | | 2 (15.4) | |
| Employment status | | | 0.695 | | 0.568 |
| Employee | 46 (21.8) | 11 (23.9) | | 3 (23.1) | |
| Unemployee | 165 (78.2) | 35 (76.1) | | 10 (76.9) | |
| Residence | | | 0.056 | | 0.019 |
| City center | 80 (37.9) | 23 (50.0) | | 9 (69.2) | |
| District | 131 (62.1) | 23 (50.0) | | 4 (30.8) | |
| Comorbidities | | | 0.396 | | 0.343 |
| Yes | 103 (48.8) | 25 (54.3) | | 8 (61.5) | |
| No | 108 (51.2) | 21 (45.7) | | 5 (38.5) | |
| Those who applied to “KETEM” | | | <0.001 | | 0.025 |
| Yes | 84 (39.8) | 36 (78.3) | | 9 (69.2) | |
| No | 127 (60.2) | 10 (21.7) | | 4 (30.8) | |

FOBT: Fecal occult blood test, KETEM: Cancer Early Diagnosis, Screening and Education Centers (In Turkish: Kanser Erken Teşhis, Tarama ve Eğitim Merkezleri)
Data are given as n (%).
Chi-square test.

though many elements such as health workers and media tools, are struggling, the most valuable role in raising this awareness and especially in eliminating the reservations about screening belongs to family physicians, who serve the individual and society and display a holistic and comprehensive approach.

Disclosures

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REFERENCES

1. World Health Organization. Cancer. Available at: <https://www.who.int/news-room/fact-sheets/detail/cancer>. Accessed May 10, 2022.
2. Republic of Türkiye. Ministry of Health. Cancer screenings [Article in Turkish]. Available at: <https://hsgm.saglik.gov.tr/tr/kanser-taramalari>. Accessed May 10, 2022.
3. Keskinçelik B, Gültekin M, Akaraca AS, Öztürk C, Boztaş G, Zayıfoğlu Karaca M, et al, editors. Turkey cancer control program. Ankara: Republic of Turkey, Ministry of Health; 2016.

4. Bayçeşlebi G, Aydın F, Gökosmanođlu F, Tat TS, Varım C. Awareness of cancer screening tests in Trabzon. *J Hum Rhythm [Article in Turkish]* 2015;1(3):90–4.
5. Üner S, Balçılar M, Ergüder T, editors. National household health survey – Prevalence of noncommunicable disease risk factors in Türkiye 2017 (STEPS). Ankara: World Health Organization Country Office in Türkiye; 2018.
6. Altun Y. Factors influencing women's participation in cancer screening. *TJFMPC* 2020;14(2):210–5.
7. Meydanlıođlu A, Arıkan F, Akcan A, Tardu A. Determining the awareness of 50-70 age group men living in Antalya about risk factors, symptoms and early diagnosis of cancer. *Bozok Med J [Article in Turkish]* 2021;11(1):56–62.
8. Hacer G, Avcı İA. The effect of healthy lifestyle attitudes of women who have applied to the cancer inspection center on early diagnosis knowledge and implementations. *Gumushane Univ J Health Sci [Article in Turkish]* 2015;4(2):244–58.
9. Kartal A, İnci F, Koştu N, Çınar İ. Effect of individual training given to women in the home environment on health beliefs for breast self-examination. *Pamukkale Med J [Article in Turkish]* 2017;10(1):7–13.
10. Tarı Selçuk K, Avcı D, Yılmaz Dünder G, Mercan Y. Breast cancer screening behaviors in women aged 40 years and over in a semi-urban region in Türkiye: Relationships with health beliefs. *Healthcare* 2020;8(2):171.
11. Aker S, Öz H, Kaynar Tunçel E. Practice of breast cancer early diagnosis methods among women living in Samsun, and factors associated with this practice. *J Breast Health* 2015;11(3):115–22.
12. Sohbət R, Karasu F. Investigation of the knowledge, behavior and applications of their women towards breast cancer. *Gumushane Univ J Health Sci [Article in Turkish]* 2017;6(4):113–21.
13. Duman N, Koçak D, Albayrak S, Topuz Ş, Yılmazel G. Knowledge and practices breast and cervical cancer screening among womens over age of 40. *JAREN* 2015;1(1):30–8.
14. Yoo BN, Choi KS, Jung KW, Jun JK. Awareness and practice of breast self-examination among Korean women: Results from a nationwide survey. *APJCP* 2012;13(1):123–5.
15. Baloushah S, Salisu WJ, Elsous A, Muhammad Ibrahim M, Jouda F, Elmodallal H, et al. Practice and barriers toward breast self-examination among Palestinian women in Gaza City, Palestine. *Sci World J* 2020;2020:7484631.
16. Watanabe AY, Sanvido VM, Elias S, Nazário ACP. Awareness of self-examination, screening, and risk factors for breast cancer among women awaiting care at the outpatient clinic of a mastology unit. *J Cancer Educ* 2022;37(3):829–33.
17. Dünder PE, Özmen D, Öztürk B, Haspolat G, Akyıldız F, Çoban S, et al. The knowledge and attitudes of breast self-examination and mammography in a group of women in a rural area in western Turkey. *BMC Cancer* 2006;6:43.
18. Balas N, Yun H, Jaeger BC, Aung M, Jolly PE. Factors associated with breast cancer screening behaviors in a sample of Jamaican women in 2013. *Women Health* 2020;60(9):1032–9.
19. Duong LT, Chen HM, Liu CY, Chiou PY. Factors affecting mammography screening behaviour among rural Vietnamese women. *Eur J Cancer Care* 2020;29(6):e13300.
20. Akbayram HT. Do women have sufficient awareness of cervical cancer and the Pap smear test? *Ahi Evran Med J* 2019;3(1):12–7.
21. Esin MN, Bulduk S, Ardic A. Beliefs about cervical cancer screening among Turkish married women. *J Cancer Educ* 2011;26(3):510–5.
22. Özçam H, Çimen G, Uzunçakmak C, Aydın S, Özcan T, Boran B, et al. Evaluation of the knowledge, attitude, and behavior of female health workers about breast cancer, cervical cancer, and routine screening tests. *Istanbul Med J [Article in Turkish]* 2014;15(3):154–60.
23. Akyüz A, Güvenç G, Yavan T, Çetintürk A, Kök G. Evaluation of the pap smear test status of women and of the factors affecting this status. *Gülhane Med J [Article in Turkish]* 2006;48(1):25–9.
24. Alshahrani MS, Sultan SAA. Awareness and attitude to the risk of cervical cancer and screening methods among women in the Najran Region of Southern Saudi Arabia. *IJMDC* 2020;4(12):2299–304.
25. Bakogianni GD, Goutsou SC, Liti MV, Rizopoulou SI, Nikolakopoulos KM, Nikolakopoulou NM. Knowledge, attitude, and practice of cervical cancer screening among Greek students: a short report. *Int J Adolesc Med Health* 2012;24(4):329–30.
26. Scarinci IC, Garcia FA, Kobetz E, Partridge EE, Brandt HM, Bell MC, et al. Cervical cancer prevention: New tools and old barriers. *Cancer* 2010;116(11):2531–42.
27. Benard VB, Thomas CC, King J, Massetti GM, Doria-Rose VP, Saraiya M. Vital signs: Cervical cancer incidence, mortality, and screening - United States, 2007–2012. *MMWR Morb Mortal Wkly Rep* 2014;63(44):1004–9.
28. Alduraywish SA, Altamimi LA, Almajed AA, Kokandi BA, Alqahhtani RS, Alghaihb SG, et al. Barriers of colorectal cancer screening test among adults in the Saudi Population: A cross-sectional study. *Prev Med Rep* 2020;20:101235.
29. Al-Mousa DS, Alakhras M, Hossain SZ, Al-Sa'di AG, Al Hasan M, Al-Hayek Y, et al. Knowledge, attitude and practice around breast cancer and mammography screening among Jordanian women. *Breast Cancer (Dove Med Press)* 2020;12:231–42.
30. Yakout SM, Moawed S, Gemeay EM. Cervical cancer and screening test (PAP test): knowledge and beliefs of Egyptian women. *Am J Nurs Sci* 2016;5(5):175–84.
31. Gray II DM, Emerson B, Reddy M, Zimmermann BJ, Hashi A, Shoben A, et al. A teachable moment: Colorectal cancer screening among companions waiting for outpatients undergoing a colonoscopy. *J Cancer Educ* 2021;36(6):1163–9.



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Central Retinal Vein Occlusion as a Rare Ocular Complication of Ulcerative Colitis: A Case Report

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ABSTRACT

Inflammatory bowel diseases (IBDs) have numerous extraintestinal manifestations, and ocular manifestations are one of the most common. Central retinal vein occlusion (CRVO) is a rare and serious extraintestinal manifestation. This case report presents a 53-year-old female patient with steroid-dependent ulcerative colitis who arrived at the emergency eye clinic with a 1-month history of blurred vision in her left eye. An initial fundus examination revealed a massive CRVO. Treatment with an intravitreal application of antivascular endothelial growth factor therapy with bevacizumab was started 7 months after the diagnosis. After 5 years of follow-up, no satisfactory treatment success was achieved. CRVO is a rare but very serious extraintestinal manifestation of IBD. An interdisciplinary approach is crucial for early diagnosis and the early start of treatment for a better outcome.

Keywords: Bevacizumab, central retinal vein occlusion, inflammatory bowel disease, ulcerative colitis



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INTRODUCTION

Inflammatory bowel disease (IBD) is a condition that affects the small and large intestines.^[1] Crohn's disease and ulcerative colitis (UC) are the two most common forms. IBD has numerous extraintestinal manifestations. Ophthalmological manifestations are present in about 2–5% of patients with IBD. This report presents a central retinal vein occlusion (CRVO) case as a rare and serious extraintestinal manifestation of UC.

CASE REPORT

A 53-year-old female patient was examined in the emergency eye clinic with a 1-month history of blurred vision in her left eye. A year and a half prior she was diagnosed with UC when she presented with bloody diarrhea, abdominal cramps, and tenesmus. At the initial colonoscopy, inflammatory changes were found from a cutaneous transition to the proximal part of the ascending colon. Apart from mild microcytic anemia, laboratory work-up was unremarkable. Truelove and Witts Classification of the Severity of UC classified the disease as moderate. Clinical remission was achieved using topical and systemic salicylates. A year later, the first

exacerbation of the disease occurred, which was treated with corticosteroid therapy for 2 months. After the end of the corticosteroid therapy, a second exacerbation occurred so corticosteroid therapy was reintroduced for 2 months in addition to azathioprine. When initial ophthalmologic findings were presented, the patient was in her third exacerbation despite immunosuppressive therapy, soon after steroid cessation. The patient attended a complete ophthalmological examination after a month of progressive eyesight worsening in her left eye. The best corrected visual acuity (BCVA) at the time of examination of her right eye was 6/6 in Snellen notation, and the left eye was 6/15. Anterior segment and ocular pressure findings were within normal ranges. Fundus examination of the right eye was normal, while the left eye showed a massive complete CRVO with optic disc edema, macular edema, and many splinter hemorrhages in the peripapillary and macular regions. The therapy was not started until 7 months later when the patient was referred to the university clinic, where except for the earlier findings, the cystoid macular edema was additionally found. The therapy with intravitreal application of anti-vascular endothelial growth factor (anti-VEGF) therapy with bevacizumab was started. At 5-year follow-ups, BCVA of the left eye was at 6/120 in the Snellen chart. Intraocular pressure and anterior segment findings were still within normal ranges. Fundus examination and ocular coherence tomography of the right eye showed a dry type of age-related macular dystrophy (Fig. 1) and on the left eye still

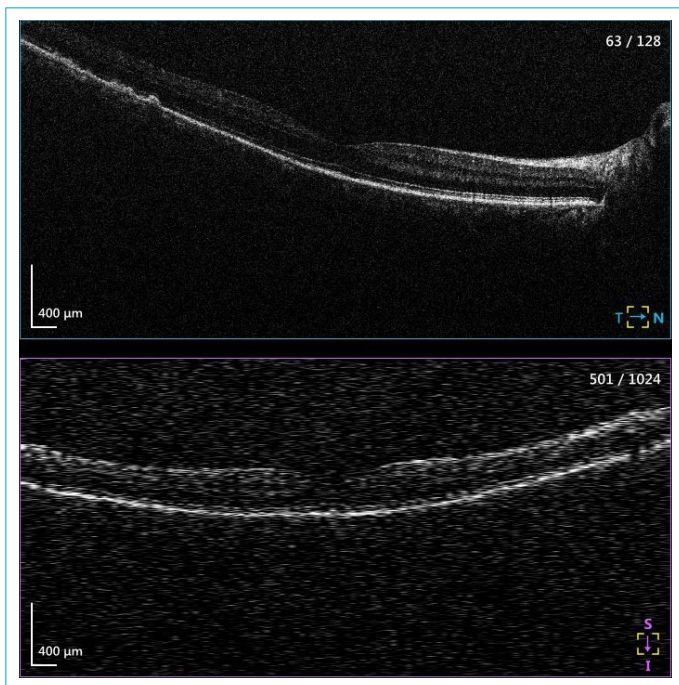


Figure 1. Ocular coherence tomography of the right eye: A dry type of age-related macular dystrophy.

present diffuse macular edema (Fig. 2). Fluorescein angiography showed few suspected ischemic areas and areas with retinal neovascularization. Further therapy with intravitreal aflibercept was planned. A diagnostic work-up for thrombophilia was performed which was negative. Since the patient had a corticosteroid-dependent UC and was treated with tumor necrosis factor inhibitors without any success, she underwent a total proctocolectomy.

DISCUSSION

IBD prothrombotic tendency for patients is noted. IBD is associated with deep vein thrombosis and pulmonary emboli, but the retinal vein is an uncommon site of thrombosis.^[2] Considering that we have excluded hereditary thrombophilia, we assume that CRVO is the result of a hypercoagulable state as a result of active IBD. The tendency to thrombosis is most likely enhanced by corticosteroids used to treat the patient's UC.^[3]

In the population-based study, the prevalence of venous thromboembolism among hospitalized UC patients undergoing elective and emergent colectomies was much higher than in medically-responsive patients.^[4] Considering that in our case, the patient underwent a colectomy, the question arises whether the occurrence of CRVO correlates with the severity of the primary disease.

The prolonged time to start the treatment, in the case of our patient, likely contributed to the resulting macular edema.

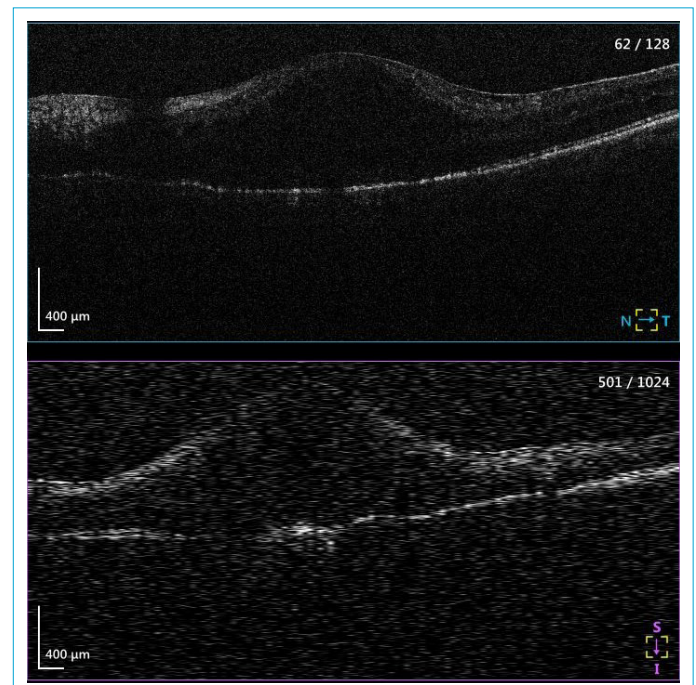


Figure 2. Ocular coherence tomography of the left eye: Diffuse macular edema.

ma not successfully resolving with intravitreal anti-VEGF injection therapy.^[5]

CONCLUSION

CRVO can be defined as a rare but very serious extraintestinal manifestation of IBD.^[6-8] Early diagnosis of CRVO and initiation of treatment are crucial for preventing or at least delaying serious eye and vision-related late complications and more rapid and better management of macular edema. Awareness of extraintestinal manifestations and interdisciplinary approach is essential for good care of patients with IBD.

Disclosures

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report.

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REFERENCES

1. Su CG, Judge TA, Lichtenstein GR. Extraintestinal manifestations of inflammatory bowel disease. *Gastroenterol Clin North Am* 2002;31(1):307–27.
2. Bernstein CN, Wajda A, Blanchard JF. The incidence of arterial thromboembolic diseases in inflammatory bowel disease: A population-based study. *Clin Gastroenterol Hepatol* 2008;6(1):41–5.
3. Solem CA, Loftus EV, Tremaine WJ, Sandborn WJ. Venous thromboembolism in inflammatory bowel disease. *Am J Gastroenterol* 2004;99(1):97–101.
4. Johannesdottir SA, Horváth-Puhó E, Dekkers OM, Cannegieter SC, Jørgensen JO, Ehrenstein V, et al. Use of glucocorticoids and risk of venous thromboembolism: A nationwide population-based case-control study. *JAMA Intern Med* 2013;173(9):743–52.
5. Kaplan GG, Lim A, Seow CH, Moran GW, Ghosh S, Leung Y, et al. Colectomy is a risk factor for venous thromboembolism in ulcerative colitis. *World J Gastroenterol* 2015;21(4):1251–60.
6. Nicholson L, Talks SJ, Amoaku W, Talks K, Sivaprasad S. Retinal vein occlusion (RVO) guideline: Executive summary. *Eye Lond* 2022;36(5):909–12.
7. Rong AJ, Swaminathan SS, Vanner EA, Parrish RK 2nd. Predictors of neovascular glaucoma in central retinal vein occlusion. *Am J Ophthalmol* 2019;204:62–9.
8. Lazić R, Boras I, Vlasić M, Gabrić N, Tomić Z. Anti-VEGF in treatment of central retinal vein occlusion. *Coll Antropol* 2010;34(Suppl 2):69–72.



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Complaint of Persistent Nausea Resulting with Superior Mesenteric Artery Syndrome Diagnosis: A Case Report

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ABSTRACT

Superior mesenteric artery syndrome (SMAS) is a rare syndrome that is generally seen in adolescents and young adults. In this case, a 22-year-old female patient applied to the outpatient clinic with complaints of persistent nausea and vomiting. After evaluation of the physical and laboratory findings of the patient, contrast-enhanced abdominal computed tomography was requested. The findings were considered as SMAS and the patient was referred to the gastroenterology clinic.

Keywords: Duodenum, gastrointestinal tract, superior mesenteric artery syndrome, Wilkie's syndrome



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INTRODUCTION

Superior mesenteric artery syndrome (SMAS), also known as Wilkie's syndrome, is a rare clinical phenomenon that occurs as a result of compression of the third part of the duodenum between the aorta and the superior mesenteric artery.^[1] The prevalence of SMAS was estimated at around 0.013–0.3% and it is seen 2 times more frequently in women than in men.^[2] It is generally seen in adolescents and young adults between the ages of 10 and 39.^[3] Patients have gastrointestinal system symptoms such as early abdominal satiety, nausea, bilious vomiting, bloating, postprandial abdominal pain, and weight loss. Since the symptoms are non-specific, they can be confused with other gastrointestinal pathologies such as ileus, gastroesophageal reflux, and pancreatitis.^[4] In this case report, a case of SMAS detected in a patient who applied to a university hospital family medicine outpatient clinic with a complaint of nausea was evaluated.

CASE REPORT

A 22-year-old female patient applied to the outpatient clinic with complaints of persistent nausea and vomiting for 6 months. When the patient's anamnesis was deepened, it was learned that nausea had been present for a long time but had worsened in the past 6 months and did not regress with antiemetics. Postprandial bilious vomiting had occurred at least 4 days a week. The patient had cramp-like pain in the left upper quadrant which was relieved when the patient pressed this area with her hand. The patient had no diarrhea or constipation and also stated that she had been at the same weight for a long time and could not gain weight. The patient, whose last menstrual period was 5 days ago, did not have a known disease and regular medication use. The patient had no past medical or surgical history. There was no feature in her family history.

Physical examination of the patient was weight 49 kg, height 168 cm, and body mass index (BMI) 17.36 kg/m² and vital signs were fever 36°C, pulse 80/min, and blood pressure 112/78 mmHg. In the abdominal examination, bowel sounds were normoactive, and there was no tenderness, defense, or rebound. No organomegaly was detected. Other system examinations were normal. Laboratory tests of the patient at the time of admission are summarized in Table 1.

Contrast-enhanced abdominal computed tomography (CT) was requested in terms of pancreatobiliary pathologies due to the presence of amylase elevation and nausea-vomiting symptoms in the patient. The abdominal CT scan of the patient is shown in Figure 1. It was reported as "aorto-mesenteric angle: 20° (normal: 28°–65°), aorto-

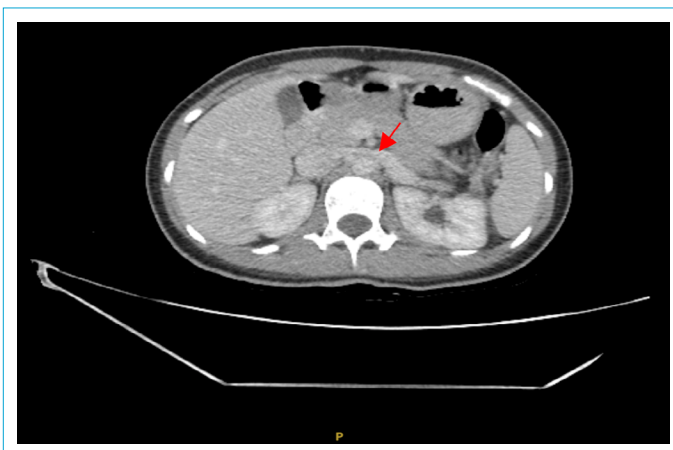


Figure 1. Abdominal computed tomography scan of the patient.

Table 1. Laboratory tests of the patient at the time of admission

| | Results | Normal Range |
|---|---------|--------------|
| Sodium (mEq/L) | 140 | 136-146 |
| Potassium (mEq/L) | 4.5 | 3.5-5.1 |
| Chlorine (mEq/L) | 106 | 101-109 |
| Fasting glucose (mg/dL) | 79 | 70-100 |
| Creatinine (mg/dL) | 0.65 | 0.51-0.95 |
| Urea nitrogen (mg/dL) | 6.3 | 6-20 |
| Estimated glomerular filtration rate (mL/min) | >60 | >60 |
| Albumin (g/dL) | 4.86 | 3.5-5.2 |
| Alanine aminotransferase (U/L) | 16 | <35 |
| Aspartate transaminase (U/L) | 18 | <35 |
| Alkaline phosphatase (U/L) | 60 | 30-120 |
| Gamaglutamyl transferase (U/L) | 13 | <38 |
| Total bilirubin (mg/dL) | 0.62 | 0-0.2 |
| Direct bilirubin (mg/dL) | 0.47 | 0-1.2 |
| Amylase (U/L) | 209 | 28-100 |
| Triglyceride (mg/dL) | 55 | <150 |
| Total cholesterol (mg/dL) | 121 | <200 |
| HDL cholesterol (mg/dL) | 43 | >50 |
| LDL cholesterol (mg/dL) | 72 | <130 |
| VLDL cholesterol (mg/dL) | 11 | <40 |
| Total calcium (mg/dL) | 10.04 | 8.8-10.6 |
| Inorganic phosphorus (mg/dL) | 3.66 | 2.5-4.5 |
| Ferritin (µg/L) | 16 | 11-307 |
| Erythrocyte (10 ⁶ /µl) | 4.88 | 3.83-5.08 |
| Hemoglobin (gr/dL) | 12.7 | 11.7-15.5 |
| Hematocrite (%) | 39.1 | 34.5-46.3 |
| Leukocyte (10 ³ /µl) | 9.2 | 4.1-11.2 |
| Platelet (10 ³ /µl) | 338 | 159-388 |

mesenteric distance: 6 mm (normal: 10–28 mm), subcutaneous and intra-abdominal fat tissue decreased and these signs are important for SMAS." Due to the clinical and imaging findings of the patient, SMAS was considered and the patient was referred to the gastroenterology clinic. Afterward, it was learned that the patient was given treatments for her symptoms by the gastroenterology department, and the patient was referred to the general surgery clinic for the operation, but the patient did not accept surgery.

DISCUSSION

Although SMAS is rare in the community, it is an entity that should be kept in mind in the differential diagnosis of patients with persistent nausea and vomiting.^[5] This patient had these symptoms for a long time. Abdominal pain seen in SMAS is usually localized above the umbilicus and to the left, and the patient is relieved when pressure is applied. In this case, the patient stated that her pain was relieved when she applied pressure to the left upper quadrant with his hand. Plain abdominal radiography, barium upper gastrointestinal system radiography, CT, CT angiography, magnetic resonance angiography, ultrasonography, and endoscopy are helpful images in the diagnosis of SMAS.^[2] Abdominal CT to rule out pancreatobiliary diseases was evaluated. Aorto-mesenteric angle and aorto-mesenteric distance were decreased in abdominal CT as expected in SMAS. Although the etiology of the disease is not known exactly, the causes may be acquired or congenital, and no cause was found in 40.4% of the cases.^[6] While anatomical variations such as the shortness of the ligament of Treitz are among congenital causes, the acquired causes include cerebral palsy, cachexia, extensive burns, dietary disorders such as anorexia nervosa leading to severe weight loss, post-operative conditions such as bariatric surgery, and surgical correction of scoliosis.^[7]

In this case, abdominal CT revealed decreased subcutaneous and intra-abdominal adipose tissue. Retroperitoneal adipose tissue and lymphatic tissue act as a cushion under the superior mesenteric artery, keeping it away from the vertebral column and thus preventing the duodenum from being compressed between the aorta and the SMA.^[8] Patients with SMAS usually have a low BMI. In a case series of 80 patients performed by Lee et al., the mean BMI of the patients was found to be 17.4 kg/m².^[9] Welsch et al. suggested that individuals with low BMI or who have lost weight are more prone to SMAS.^[2] The case was underweight too. In the treatment of acute cases, conservative treatment is applied. The target of treatment is to help the patient gain weight and to restore the loss of fatty tissue pad, which is thought to cause narrowing of the aorto-mesenteric angle. Surgical treatment is applied in cases whose complaints persist for a long time and do not respond to conservative treatments.^[10]

CONCLUSION

A family physician should have a comprehensive approach to the patient. The patient should constantly monitor the patient's complaints and be able to resolve the underlying condition by making a more detailed evaluation in cases where there is no improvement in the complaints.

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REFERENCES

1. Gustafsson L, Falk A, Lukes PJ, Gamklou R. Diagnosis and treatment of superior mesenteric artery syndrome. *Brit J Surg* 1984;71(7):499–501.
2. Welsch T, Büchler MW, Kienle P. Recalling superior mesenteric artery syndrome. *Dig Surg* 2007;24:149–56.
3. Ren PLJ, Gupta A. Adolescent with superior mesenteric artery syndrome. *J Radiol Case Rep* 2020;14(3):14–23.
4. Yılmaz TU, Güler SA, Pösteki G, Alponat A. Superior mesenteric artery syndrome-process of diagnosis and treatment of problematic cases. *Eur Arch Med Res* 2017;33(1):57–9.
5. Scandalakis JE, Gray SW. Embryology for surgeons: The embryological basis for the treatment of congenital anomalies. 2nd ed. Baltimore: Williams & Wilkins; 1994. p. 232–4.
6. Iwaoka Y, Yamada M, Takehira Y, Hanajima K, Nakamura T, Murahisa G, et al. Superior mesenteric artery syndrome in identical twin brothers. *Intern Med* 2001;40:713–5.
7. Mandarry MT, Zhao L, Zhang C, Wei ZQ. A comprehensive review of superior mesenteric artery syndrome. *Eur Surg* 2010;42:229–36.
8. Sekmenli T, Gunduz M, Hidayetoglu S, Emiroğlu HH. Is superior mesenteric artery (Wilkie) syndrome developing after voluntary weight loss: A rare case report. *J Gen Med* 2016;26:80–2.
9. Lee TH, Lee S, Jo Y, Park KS, Cheon JH, Kim YS, et al. Superior mesenteric artery syndrome: Where do we stand today? *J Gastrointest Surg* 2012;16:2203–11.
10. Elbadaway MH. Chronic superior mesenteric artery syndrome in anorexia nervosa. *Br J Psychiatry* 1992;160:552–4.



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Purple Urine in a Geriatric Patient

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ABSTRACT

In this case report, a case of purple-colored urine in a geriatric patient who presented to the emergency department with confusion related to urinary system infection was presented. Although this urine color abnormality has a good prognosis, it can sometimes be an early indicator of patient mortality.

Keywords: Geriatrics, urinary tract infections, urine

INTRODUCTION

Discoloration of urine is one of the most important findings that brings the patient to the physician.^[1] Within this color scale, “purple” is not a very common finding, and it has always been approached with interest and priority by patients and physicians. Although urinary purple bag syndrome is well-defined in the literature and is mostly seen as a benign cause, it should not be forgotten that it may also be a manifestation of severe urosepsis.^[2] A more dynamic approach may be required, especially in the geriatric group.

CASE REPORT

A 82-year-old woman was admitted to the emergency department due to confusion, deterioration in general condition. Her medical history was remarkable for hypertension, Alzheimer’s disease and diabetes mellitus. It was learned that her oral intake was not sufficient for the past 15 days, and urinary catheter was placed 10 days before the admission. Neither recent trauma, nor operation history was present. The patient had been using fosinopril and thiazide, linagliptine, iron (II)-glycine-sulfate, olanzapine, ketiapine but she could not completely swallow her drugs for the past 3 days. On physical examination, consciousness was decreased, there was no place and time orientation, arterial pressure was 126/66 mmHg, heart rate 90/min, 38.7°C, spO₂ 97%, rales at lung bases were present. Polymerase chain reaction test was negative for Coronavirus disease-19. Laboratory tests of the patient at the time of admission are summarized in Table 1. Urinalysis was as; erythrocytes+, nitrite negative, pH 7, density 1017, and leukocyte negative with cloudy appearance. Purple urine color was seen in the urinary catheter. Purple urine in the urine bag is shown in Figure 1. Urine culture was taken and intravenous saline infusion was started, along with a renal dose of empirical piperacillin-tazobactam. It was observed that the color of the morning urine of the patient returned to normal the next day. However, the patient died on the same day due to cardiopulmonary arrest. *Enterococcus fecalis* and *proteus mirabilis* growths were detected in the urine cultures that resulted after exitus.



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Table 1. Laboratory tests of the patient at the time of admission

| | Value | Normal range |
|--|-------|--------------|
| Urea (mg/dL) | 222 | 16.6–48.5 |
| Creatinine (mg/dL) | 3.26 | 0.65–1.2 |
| Glomerular filtration rate (mL/min/1.73 m ²) | 12.51 | |
| Serum albumin (g/dL) | 3.5 | 3.5–5.2 |
| Total protein (g/dL) | 7.3 | 6.4–8.3 |
| Sodium (mmol/L) | 159 | 136–145 |
| Potassium (mmol/L) | 4.08 | 3.5–5.1 |
| Uric acid (mg/dL) | 14.1 | 3.4–7 |
| C-reactive protein (mg/L) | 81.29 | 0–5 |
| Procalcitonin (ng/mL) | 0.399 | <0.05 |
| Sedimentation (mm/h) | 77 | <15 |
| White blood cells (×10 ³ /μL) | 13.6 | 4.23–9.07 |
| Neutrophil (×10 ³ /μL) | 11.96 | 1.78–5.38 |
| Hemoglobin (g/dL) | 9.6 | 12–16 |

DISCUSSION

Purple urine bag syndrome (PUBS) is a rare clinical condition that attracts attention from clinicians.^[3] Risk factors include geriatric female patient, dehydration, urinary tract infection, constipation/intestinal obstruction, indwelling urinary catheterization, alkaline urine (facilitates indoxyl oxidation but can also be seen in acidic urine), diet rich in tryptophan, and history of kidney damage. In addition, the risk is considered to be high in patients with nephrostomy and in patients undergoing urinary diversion.^[4] It is stated that the coexistence of dementia and urinary tract infection may lead to poor endpoints for PUBS. Infections caused by bacteria such as *Providencia*, *Proteus mirabilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Morganella morganii*, *Klebsiella pneumoniae*, and *Enterococcus* are included in the etiology. They cause the formation of indigo (blue) and indigo (red) pigments over indoxylsulphate (indoxylsulfatase and phosphatase-producing bacteria) which is a tryptophan metabolite (conjugated in the liver). A purple color is formed with the mixture of these in the urine bag (polyvinyl chloride). Our patient had many of the above-mentioned risk factors. First of all, it was thought to be caused by urinary tract pathogens that were accepted as potential and growth was detected in culture. Alkaline urine was not detected in our patient, and there were cases in the literature with PUBS without alkaline urine. Although PUBS is generally accepted as a benign entity, there are also reports in the literature that it may be an indicator of mortality.^[5,6]

**Figure 1.** Purple urine in the urine bag.

CONCLUSION

PUBS is a finding that should be approached carefully in patients who apply to the emergency department, and it should be kept in mind that it may be mortal because it can be an indicator of advanced infection.^[7] Maybe there is not enough evidence to generalize, but it can be an alert sign, especially when it is detected in patients with high comorbidities.

Disclosures

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report.

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REFERENCES

1. Julião M, Cruz M. The color purple: Purple urine bag syndrome: Identifying the phenomenon to ease unnecessary anxiety, fear, and distress. *Palliat Support Care* 2023;1–3.
2. Mohamad Z, Chong VH. Purple urine bag: Think of urinary tract infection. *Am J Emerg Med* 2013;31(1):265.e5–6.
3. Sabanis N, Paschou E, Papanikolaou P, Zagkotsis G. Purple urine bag syndrome: More than eyes can see. *Curr Urol* 2019;13(3):125–32.
4. Chung SD, Liao CH, Sun HD. Purple urine bag syndrome with acidic urine. *Int J Infect Dis* 2008;12:526–7.
5. Bhattarai M, Bin Mukhtar H, Davis TW, Silodia A, Nepal H. Purple urine bag syndrome may not be benign: A case report and brief review of the literature. *Case Rep Infect Dis* 2013;2013:863853.
6. Tasi YM, Huang MS, Yang CJ, Yeh SM, Liu CC. Purple urine bag syndrome, not always a benign process. *Am J Emerg Med* 2009;27(7):895–7.
7. Ficher KN, Araújo AA, Houly SG, Lins PR, Silva M Jr, Góis AF. Purple urine bag syndrome: Case report for *Streptococcus agalactiae* and literature review. *J Bras Nefrol* 2016;38(4):470–2.



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Substance Abuse of Parents and Emotional Wounds among Their Broods

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ABSTRACT

Substance abuse by parents inflicts enduring emotional wounds on their children, with repercussions stretching across family, society, and individual well-being. The profound impact of parental substance abuse on children manifests primarily as aggression but conceals a spectrum of potential behavioral disorders. Factors contributing to this aggression include neglect, strained mother-child relationships, impaired parenting, family conflicts, stress, physical abuse, and poor ego development. If these emotional struggles are not addressed, they can potentially lead to delinquent behavior, conduct disorders, and substance abuse in the future. To mitigate mental health risks in children and adolescents, preventive measures should be implemented. These measures include educating parents, providing family therapy, developing healthy coping mechanisms, offering school-based mental health services, and promoting open communication. Addressing these vulnerable children's intricate emotional challenges and ensuring their emotional well-being and future success require a collaborative effort involving parents, educators, society, and government working together in coordination.

Keywords: Behavioral disorders, emotion, parents, substance abuses



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INTRODUCTION

Substance abuse is a can of worms.^[1] It has a deleterious effect on the family, society, occupation, personal functioning, etc. The most striking effect of substance abuse is on the young minds that are on the children of substance abusers. Parenting in the early years of life determines the adult personality and emotional expression organization. Substance abuse of parents leads to hidden conflicts in the mind of children, due to which the child may not be able to express emotions in an exact way or an acceptable manner.^[2] They may exhibit aggression as a symbol of frustration due to home atmosphere such as dispute among parents, financial constraints, and social stigma due to parental drug abuse. Furthermore, various behavior disorders could develop in the offspring of substance abusers. Among these behavior disorders, aggression is just a tip of the iceberg. The studies indicated that offspring whose parents or parents indulged in substance abuse have a higher tendency for psychiatric and behavior disorders in comparison to those children whose parents are sober and the aggression was associated with parental substance abuse.^[3]

CONTRIBUTING FACTORS OF AGGRESSION

Parental substance abuse may act as poison for the child's development.^[4] The following factors may contribute to aggression outbursts as follows:

Neglect: Neglect has a deep effect on the emotional development of the child.^[5] Due to these feelings of insecurity and emotional outburst emerges. In other words, neglect ingrains the seeds for emotional turmoil as it gives the sense of unacceptability among children of substance abusers. Due to the lack of adaptive coping strategies, the child may develop aggression.

Poor Mother–child Relationship: A healthy mother–child relationship is important for developing an organized and secure personality.^[5] Suppose there is maternal deprivation due to substance abuse and conflict between mother and father. In that case, trust may not be developed in the child, laying the foundation for emotional outbursts.

Impaired Parenting: Under the effect of a substance, parent/parents may not be able to rear child as per emotional needs of wards.^[6] Moreover, lack of adequate resources such as basic physiological needs, financial resources, poor education, love, and belongingness acts as a seed for emotional insecurities.

Family Conflicts: Skewed and schisms in the family may predispose a child to have emotional outbursts.^[7] In addition to this, substance abuse has a grave effect on the environment of the family due to regular quarrel and conflicts between family members which leads to the maladjustment of children to this situation.

Stress: One episode of stress leads to change in neurons which increases the vulnerability of person to the next episodes of stress.^[8] Stress due to substance abuse in the family plays a major role in the children who are living with the parents having substance abuse. The child is always pre-occupied with parental substance abuse due to which the child may express anger.

Physical Abuse: Physical abuse leads to the development of an emotional wound that always bleeds and does not heal easily.^[9] The child may use a defense mechanism such as displacement.

Poor Ego Development: Due to poor parenting and maternal deprivation, ego may be unable to balance id and superego.^[9] This may lead to behavior problems among children living with addictive parent/parents.

PREVENTIVE MEASURES

Aggression among the heir of substance abuse may open the door for delinquent behavior, conduct disorder, and

substance abuse.^[5] The following steps may curb the menace of aggression among the broods of substance abusers.

Education to Parents: It must be given to parents that erroneous parenting leads to unorganized behavior of the child.^[5] The parents are clay potters responsible for the formation or shaping of the child's behavior. Therefore, warning signs of poor parenting must be taught to parents.

Family Therapy: Pseudo-mutual and pseudo-hostile communication must be evaluated in the family. The family must be taught about healthy interaction.^[9]

Integration of Healthy Lifestyles: Children must be educated and trained about adaptive coping styles, mature defense mechanisms, relaxation exercises, and stress reduction techniques.^[9] Thought-stopping techniques must be taught to these children.

School Mental Health Services: There must be the availability of mental health services at school so that warning signs can be easily identified.^[10] According to the need for child counseling, psychological therapy could be provided to the child.

Cultivate Open Communication: Open communication helps ventilate the child's feelings.^[10] This may prevent the chances of emotional outbursts.

CONCLUSION

Emotional problems among children of substance abusers are a Gordian knot which intensively affects the growth and development of the child.^[4] Young children are the future of the nation. These emotional problems open the doors for various psychiatric disorders, conduct disorders, and substance abuse among these children. Parents, teachers, society, and government must coordinate efforts.^[5] Intensive counseling sessions, health education, and role play must be planned to train them regarding emotional maturity and stress reduction. Helpline numbers must be available for emergency mental health services. Inclusion of parenting skills in the services or treatment of substance abusers.

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REFERENCES

1. Fincham FD, Golden J, Logsdon T. Emotional and behavioural problems of children living with drug abusing fathers: Com-

- parison with children living with alcohol abusing and non-substance abusing fathers. *J Fam Psychol* 2004;18(2):319–30.
2. Kelley ML, Braitman AL, Millettich RJ, Hollis BF, Parsons RE, White TD, et al. Acceptability of aggression among children who reside with substance-abusing parents: The influence of behavioral dysregulation, exposure to neighborhood violence, and interparental violence. *J Child Custody* 2016;13(4):250–68.
 3. Kaur C, Kaur A, Kaur G. Aggression among children of substance abusers and non-substance abusers. *Paripex Indian J Res* 2021;10(4):13–5.
 4. Geschiere ME, Spijkerman R, Glopper AD. Risk of psychological problems in children whose parents receive outpatient substance abuse treatment. *Int J Child Youth Fam Stud* 2017;8(2):11–36.
 5. Vis SA, Lauritzen C, Havnen KJS, Reedtz C, Handegard BH. Concerns of parental substance abuse and mental health problems reported to child welfare services-testing a moderated mediation model for paths from reports to substantiated concern and service provision. *Front Psychiatry* 2002;13:781–332.
 6. Bountress K, Chassin L. Risk for behavioural problems in children of parents with substance use disorders. *Am J Orthopsychiatry* 2015;85(3):275–86.
 7. Lander L, Howsare J, Byrene M. The impact of substance use disorders on families and children: From theory to practice. *Soc Work Public Health* 2013;28(3):194–205.
 8. Aria AM, Mericle AA, Rallo D, Moe J, White WL, Winters Ken C, et al. Integration of parenting skills education and interventions in addiction treatment. *J Addict Med* 2013;7(1):1–7.
 9. Destefano KR. The effects of household substance abuse on the behavioural and emotional outcomes of child witness to domestic violence [Dissertation]. Rowan Uni 2001.
 10. Kaur A, Maheshwari SK, Sharma A. Trends and patterns of drug abuse in selected population of Punjab in year 2016-2017. *Indian J Psy Nsg* 2018;15(1):13–7.