ANXIETY AND ASSOCIATED FACTORS IN WOMEN WITH A LOW-GRADE ABNORMAL CERVICAL SMEAR TEST: A PROSPECTIVE STUDY

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SUMMARY

Objective: *The aims of the study were to quantify the levels of anxiety associated with having received a low-grade abnormal smear result, identify factors associated with increased levels of anxiety.*
Material and methods: *One hundred consecutive women referred for colposcopy for ASC-US result. Women in the study group completed prior to colposcopy the Hospital Anxiety and Depression Scale (HADS) which is a self-report inventory that consists of 14 items on two subscales. Socio-demographic and lifestyle factors associated with the psychosocial impact of the abnormal smear result were also assessed.*
Results: *Having had children was a significant predictor of high anxiety scoring. Anxiety was significantly higher in women with low educational level. Women were educated 1-8 years were significantly more likely anxious.*
Conclusion: *Interventions focus particularly on women's knowledge and understanding of smear results to reduce the adverse psychosocial impact of receiving an ASC-US cervical smear result.*

Key words: *anxiety, ASC-US, cervical smear, depression, HADS*
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LOW GRADE SMEAR SONUCU OLAN KADINLARDA ANKSİYETE VE İLİŞKİLİ FAKTÖRLER: PROSPEKTİF ÇALIŞMA

ÖZET

Amaç: *Low-grade anormal smear sonucu alan kadınlarda anksiyete düzeyini ölçmek ve artmış anksiyete ile ilişkili olabilecek faktörleri belirlemektir.*
Giriş ve yöntemler: *ASC-US smear sonucuna sahip, kolposkopi yapılmak üzere yönlendirilmiş, ardışık 100 kadın çalışmaya alındı. Kolposkopi öncesinde 14 soruluk iki alt değerlendirmesi olan Hastane Anksiyete ve Depresyon Skalası (HADS) dolduran olgular aynı zamanda anormal smear sonucu sonrası oluşabilecek psikososyal değişiklikler ile ilişkili olabilecek sosyo-demografik ve hayat tarzı faktörleri açısından değerlendirildi.*
Bulgular: *Çocuk sahibi olmak yüksek anksiyete skorları için prediktör olarak belirlendi. Anksiyete düşük eğitim düzeyine sahip kadınlarda anlamlı olarak yüksek saptandı. Bir ile 8 yıl arasında eğitim almış kadınlar daha fazla anksiyeteye sahip olarak saptandı.*
Sonuç: *ASC-US sonucuna sahip olgularda, bu nedenle oluşabilecek anksiyeteyi azaltmak için, smear sonucu konusunda olguların bilgilendirilmesine ve sonucun anlaşılır hale getirilmesine çalışılmalıdır.*

Anahtar kelimeler: *anksiyete, ASC-US, depresyon, HADS, servikal smear*
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INTRODUCTION

The abnormal cervical cytological prevalence rate in Turkey is lower than in Europe and North America. This might be due to sociocultural differences, lack of population-based screening programs, or a lower HPV prevalence rate in Turkey. Overall, the prevalence of cervical cytological abnormalities was 1.8%; the prevalence of ASCUS was 1.07%[1]. Cervical cytological screen aims to identify abnormal cells on the cervix at an early asymptomatic stage and thus, through initiating interventions, prevent the development of invasive cervical cancer. For women, receipt of an abnormal smear test result frequently leads to heightened levels of anxiety[2-4]. Women who have received an abnormal smear result have reported frequent worries and feeling worse about their body [5]. Previous studies have also shown that women referred for colposcopy after an abnormal cervical smear often exhibit an increase in anxiety and stress. Women with an abnormal smear result has a fear about cancer and concerns about infertility and worry for the gynecological examination and colposcopy[6,7]. It is important to know which women are at the greatest risk of experiencing severe anxiety in conjunction with an abnormal cervical smear and referral for colposcopy. Description of factors associated with higher levels of anxiety could be helpful for identifying particularly vulnerable subgroups of the population and targets that could be addressed in interventions aimed at helping alleviate anxiety.

The aims of the study were to quantify the levels of anxiety and depression associated with having received a low-grade abnormal smear result, identify factors associated with increased levels of anxiety.

MATERIALS AND METHODS

A total of one hundred and seven participants were consecutively asked to participate in a study after being informed of an atypical squamous cell undetermined significance (ASC-US) from February 2010 and January 2011. Seven of them declined to participate in the study. The inclusion criteria were non pregnant women aged 21-59, first time referral for colposcopy, mentally healthy and speaking and reading Turkish fluently. Participants were excluded if they were pregnant, or had previous abnormal cytology, destructive or excision treatment for proven or suspected cervical lesions.

After giving their informed consent the women were asked to fill in the forms of the Hospital Anxiety and Depression Scale (HADS). The women were given privacy to complete their forms in the examination room and were encouraged to ask questions if necessary. The examiner (S.K) waited in a room nearby and could be reached at any time. After the forms were completed, an interview (by S.K) was conducted regarding the woman's socio-demographic and lifestyle questionnaire. The socio-demographic and lifestyle questionnaire collected information including marital status, education, since leaving school, employment status, pregnancy and childbirth, smoking habits and physical activity.

The HADS is a well-validated instrument used to screen for clinically significant depression and anxiety. It is a self-report inventory that consists of 14 items on two subscales, seven items measuring anxiety and seven measuring depression. Each item is scored on a four-point scale from 0 to 3. The items are summed yielding two subscale scores each ranging from 0 to 21. Scores were categorized to indicate 'non-cases' (scores 0-7), 'possible cases' (scores 8-10) and 'probable cases' (scores of 11 or more)[8]. The reliability and validity of the Turkish version of HADS was tested by Aydemir[9].

Statistical analyses were carried out using the Statistical Package for the Social Sciences, version 15.0 (SPSS, Chicago, IL, USA). Student's t test was used for comparisons for normally distributed variables, and the Mann-Whitney U test was used for categorical variables. Factors associated with anxiety were investigated using multiple logistic regressions to compute odds ratios (OR). The binary outcome variable analysis were done using score of >10 to identify 'cases' with those scoring 10 or less classified as 'non-cases'.

RESULTS

The mean age of participants was 37.7±8.7 and most of the women (39%) were in the 40-49 year age group (Table I). The vast majority of women were married (88%), non-employee (82%) and premenopausal (86%). The most of the women reported that they had never

smoked (64%), 27% that they were current smoker and 9% that they were ex-smokers.

Table I: *Socio-demographic characteristics of respondents participating in the baseline psychological assessment.*

	n	%
Age group		
20-29 years	20	20
30-39 years	34	34
40-49 years	39	39
50-59 years	7	7
Gravida (median, range)	3 (0-11)	
Parity (median, range)	2 (0-8)	
Marital status		
Married	88	88
Single	5	5
Divorced/widowed	7	7
Employment Status		
Employee	18	18
Non-Employee	82	82
Educational Status		
1-8 years	83	83
9-12 years	10	10
> 12 years	7	7
Smoking Status		
Current smoker	27	27
Never Smoker	64	64
Menopause Status		
Menopausal	14	14
Premenapozal	86	86
Contraceptive Method		
Nothing	59	59
Condom	18	18
Introuterine device	14	14
The pill	7	7
Ligation of tubes	1	1
Hormonal implant	1	1

The means of the scores of HADS anxiety and depression were 11.4±4.8 and 9.2±4.3. Over half of the women (59%) had scores that indicated a probable clinically significant level of anxiety (scored >10 on the HADS anxiety subscale), 21% of the women were classed as being a non-case (scored <8), 20% of the cases had scores consistent with being possible cases (scored 8-10). Almost half of the women (43%) had scores that indicated a probable clinically significant level of depression (scored >10 on the HADS depression subscale), 31% of the women were classed as being a non-case (scored <8), 26% of the cases had scores consistent with being possible cases (scored 8-10). In univariate analysis, statistically significant associations were found between anxiety and ever having had a child, and educational level (Table II). This was accounted for by an increased proportion scoring >10 among those having had children (p=0.03). A higher proportion of women who had 1-8 years education scored 8-10 or >10 on the HADS anxiety subscale than women in other education level groups (p<0.0001). The associations between anxiety and ever having had a child and educational level remained in the multivariate analysis. Women who had had children were significantly more likely to be anxious than women who never had children (OR: 2.07, 95% CI: 1.8-17.3) (p= 0.04). When those scoring >10 on the HADS anxiety subscale were combined, the multivariate OR for the women who had >12 years education vs 1-8 years groups was statistically significantly less than unity (OR: 0.57 95% CI: 0.10-0.76) (p=0.007).

In univariate analysis, statistically significant associations were found between HAD depression scores and ever having had a child, employment status and educational level (p=0.03, p=0.04 and p=0.03; respectively) (Table III). The associations between depression and ever having had a child remained in the multivariate analysis. Women who had had children were significantly more likely to have >10 HAD depression score (OR: 3.29 %95 CI: 1.68-15.93).

DISCUSSION

We found that 59% of women who had recently received an ASC-US smear test result scored ≥11 on the anxiety subscale of the HADS, and a further 20% scored between 8 and 10. The frequency scoring ≥11 was substantially higher than that observed in non-clinical postmenopausal Turkish women (13.7%)[10]. Moreover our findings are higher than those from previous studies of women who had had higher grade abnormal smear results[11,12]. Recently, TOMBOLA (Trial of Management of Borderline and Other Low-grade Abnormal smears) group form UK published the results of anxiety over 3500 of women with low grade cervical cytology[12]. They reported that 23% of women who scored ≥11 on the anxiety subscale of the HADS, and a further 20% scored between 8 and 10. Our results indicated higher percentage of women who scored of anxiety ≥11 on the anxiety subscale of

Table II: *Associations between the HADS anxiety subscale and socio-demographic factors.*

	Univariate Analysis				Multivariate Analysis		
	<8 (n)	**8-10 (n)**	**>10 (n)**	**p**	**OR**	**%95 CI**	**p**
Age Groups							
20-29	7	4	9	0.27			
30-39	5	9	20				
40-49	6	6	27				
50-59	2	1	3				
>60	1	0	0				
Having Children							
No	6	3	4	**0.03**	1		
Yes	15	17	55		2.07	(1.8-17.3)	**0.04**
Marital status							
Married	17	19	52	0.11			
Single	3	1	1				
Divorced	1	0	6				
Educational status							
1-8 years	10	16	48	**0.000**	1		
9-12 years	7	1	2		3.24	(0.35-29.51)	0.29
> 12 years	4	0	3		0.57	(0.10-3.06)	0.51
Employment status							
Employee	4	3	11	0.92			
Non-employee	17	17	48				
Smoking status							
Never smoked	12	17	35	0.13			
Smokers	8	1	18				
Ex-smokers	1	2	6				
Menopausal status							
Menopause	2	2	10	0.59			
Premenopause	19	18	49				

Table III: *Associations between the HADS depression subscale and socio-demographic factors.*

	Univariate Analysis				Multivariate Analysis		
	<8 (n)	**8-10 (n)**	**>10 (n)**	**p**	**OR**	**%95 CI**	**p**
Age Groups							
20-29	8	5	7	0.19			
30-39	9	12	13				
40-49	9	8	22				
50-59	4	1	1				
>60	1	0	0				
Having Children							
No	8	2	3	**0.03**	1		
Yes	23	24	40		3.29	1.68-15.93	0.03
Marital status							
Married	27	25	36	0.26			
Single	3	0	2				
Divorced	1	1	5				
Educational Level							
1-8 years	21	24	38	**0.03**	1		
9-12 years	4	2	4		0.20	0.01-2.78	0.23
> 12 years	6	0	1		0.26	0.02-2.60	0.25
Employment status							
Employee	9	1	8	**0.04**	1		
Non-employee	22	25	35		0.72	0.20-2.54	0.61
Smokers							
Never smoke	22	20	22	0.06			
Smokers	6	3	18				
Ex-smokers	3	3	3				
Menopausal status							
Menopause	5	3	6	0.88			
Premenopause	26	23	37				

the HADS than the TOMBOLA study. It can be explained by lower sociocultural and educational level of our population compared with TOMBOLA population. Only 7% of women had a degree from collage/university and 18% of women were employee in our cohort, 25% of TOMBOLA population had a degree from collage/university and 74% of them had full time or part time paid employment. In addition to these reason; our cohort had higher depression scores compared TOMBOLA study. The latest study was reported as the vast majority of women (91%) were classed as non-cases on the HADS depression subscale but almost half of the women (43%) scored that indicated a probable clinically significant level of depression in our study. Possibly; higher percent of the women in depressive mood could affect the anxiety level of the women in our population.

Having had children was a significant predictor of scoring ≥11 on the HADS anxiety subscale. Previous study has shown that there were higher rates of psychiatric disorders in women with children, although the authors of the study have suggested that the difference was due to an effect of marriage rather than parity[15]. Our study showed that marital status was not associated with anxiety in our multivariate model.

In the current study, anxiety was significantly higher in lower educational level. Women were educated 1-8 years were significantly more likely to score ≥11 on the HADS anxiety subscale. This result could be explained by women, who have knowledge about cervical screen and possible results or have previous screen, can be less anxious than the others. This is congruent with a recent study of women who had received low grade cytological abnormal results among who were not well trained were found to be a risk factor for anxiety[12].

The HADS, which have been widely used in both clinical and non-clinical settings, was used to screen anxiety and depression in this study. In terms of classifying respondents, investigators have used a variety of schemes, including cut-offs at 8[12,13] and 11[14]. We decided to take a score of ≥11 as indicating a level of anxiety that could be considered abnormal and, therefore, may warrant intervention. This categorization was chosen because the aim of interventions would be to define the optimum number of women 'cases'.

As far as we aware; this is the only study to have focused on anxiety of women with ASC-US smears and examined a population which is lack of a National Cervical Screening Programme. The methodological strength of our study is that all women were interviewed by the same examiner, in the same way. But the study limited by low number of participants and the participants were recruited from the single center.

We have found a high prevalence of anxiety among women who have an ASC-US result, and that the proportion scoring in the abnormal range compared with previous studies. We also found that women who are at highest risk of anxiety tend to have children and have poor education. Strategies are needed to minimize the adverse effects of a low-grade smear result on women. Interventions focus particularly on women's knowledge and understanding of smear results to reduce the adverse psychosocial impact of receiving an ASC-US cervical smear result.

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