



A Retrospective Cross-Sectional Study on the Effect of Socio-Cultural Factors and Education in Early Detection of Breast Cancer

Abidin Tüzün¹, Zeynep Sener Bahce¹, Erkan Dalbası¹

1 Health Sciences University Diyarbakır GaziYasargil Health Practice and Research Center, General Surgery Clinic, Diyarbakır, Turkey.

Received: 25.11.2023; Revised: 21.02.2024; Accepted: 23.02.2024

Abstract

Backgrounds: The aim of this study is to investigate the preferences of female patients regarding the choice of surgeon for breast examination and the factors impacting this preference.

Methods: A questionnaire was administered by interviewing 746 patients who applied to the General Surgery outpatient clinic with complaints of breast disease, and the results were analyzed statistically. The questionnaire form included the patient's age, marital status, hormonal status, history of delivery, complaints, factors that may impact the choice of physician, educational status, physical examination findings, and imaging results.

Results: The study group included 746 patients aged between 14 and 76 years. While 284 (38%) of our patients applied to the outpatient clinic within 7 days of their first symptoms, 462 (62%) applied more than 7 days later. Due to late admission, advanced-stage breast cancer was detected in 2.8% of the patients. The most common reason for the delay in admission was the feeling of embarrassment in females of all age groups.

Conclusion: Women with breast disease apply to the physician in the late period due to feeling embarrassed, religious beliefs, spouse pressure, and having a reservation for being examined by a male doctor. Breast diseases could be detected and treated in an earlier period, by enabling patients to apply to a physician earlier, with training, especially for women.

Keywords: breast cancer, socio-cultural factors, female surgeon

DOI: 10.5798/dicletip.1451596

Correspondence / Yazışma Adresi: Abidin Tüzün, Health Sciences University Diyarbakır GaziYasargil Health Practice and Research Center, General Surgery Clinic, Diyarbakır, Turkey.e-mail: atuzun_1@hotmail.com

Meme Kanserinin Erken Teşhisinde Sosyo-Kültürel Faktörlerin ve Eğitimin Etkisi Üzerine Retrospektif Kesitsel bir Çalışma

Öz

Giriş: Bu çalışmanın amacı kadın hastaların meme muayenesi için cerrah seçimine ilişkin tercihlerini ve bu tercihi etkileyen faktörleri araştırmaktır.

Yöntemler: Genel Cerrahi polikliniğine meme hastalığı şikayetiyle başvuran 746 hastayla görüşülerek anket uygulandı ve sonuçlar istatistiksel olarak analiz edildi. Anket formunda hastanın yaşı, medeni durumu, hormonal durumu, doğum öyküsü, şikayetleri, hekim seçimini etkileyebilecek faktörler, eğitim durumu, fizik muayene bulguları ve görüntüleme sonuçları yer aldı.

Bulgular: Çalışma grubuna yaşları 14 ile 76 arasında değişen 746 hasta dahil edildi. Hastalarımızın 284'ü (%38) ilk semptomu hissettiğinde 7 gün içinde polikliniğe başvururken, 462'si (%62) 7 günden fazla sürede başvurdu. Geç başvuru nedeniyle hastaların %2.8'inde ileri evre meme kanseri tespit edildi. Başvuruda gecikmenin en sık nedeni her yaş grubundaki kadınlarda yaşanan utanç duygusuydu.

Sonuç: Meme hastalığı olan kadınlar utanma duygusu, dini inançlar, eş baskısı, erkek doktora muayene olmak için rezervasyon yaptıрма gibi nedenlerle hekime geç dönemde başvurmaktadır. Özellikle kadınlara yönelik eğitimlerle hastaların hekime daha erken başvurmaları sağlanarak meme hastalıkları daha erken dönemde tespit edilip tedavi edilebilecek.

Anahtar kelimeler: meme kanseri, sosyo kültürel faktörler, kadın cerrah.

INTRODUCTION

In many societies, the female breast is considered an important organ regarding sexuality, attractiveness, aesthetic appearance, fertility, infant nutrition, and maintaining body integrity. Breast diseases are a considerable medical problem and one of the most common reasons for consulting a physician in Turkey as well as in Western societies. Many patients do not report their complaints due to socio-cultural factors, embarrassment, partner pressure, and religious belief, they benefit from alternative treatment methods or expect their symptoms to heal spontaneously. In some regions, the fact that talking about the breast is considered embarrassing, the physicians are mostly males, and the distance to the hospital also causes the concealment and delay of breast diseases and related delays^{1,2}. In our country, General Surgery specialists deal with breast diseases and General surgery is still a male-dominated field of expertise. Hence, women in Turkey experience challenges in applying to a doctor, specifically for problems related to the breast and perianal region and delay their

applications. In the USA, while the rate of females in surgical branches was 2% in 1989, this rate increased to 24% in 2007³. The rate of female surgeons for Australia and New Zealand was 7% for 2009. It has been found that 30% of general surgery residents currently trained in New Zealand are females⁴. In our country, 293 (7.5%) female surgeons serve in the branch of general surgery and their number is increasing day by day. The number of female patients applying to female physicians is higher. The reasons for this include the fact that female patients want the physician to allocate more time for themselves than male patients and expect more detailed explanations⁵. It is noticed that female physicians communicate differently with both adult and pediatric patients, talk more about lifestyle and social concerns, and provide abundant and more descriptive information during patient visits⁶. Studies reveal that male physicians allocate more time on technical practice behaviors, such as medical history taking and physical examination, rather than psychosocial counseling, which is more

frequently performed by female physicians⁷. Moreover, it has been demonstrated that male physicians' communication style is less patient-oriented⁸. Poor doctor-patient communication may jeopardize the compliance of the patients with the treatment and thus the outcome of the treatment. Hitherto, physician gender factor in breast diseases is a domain that has received limited attention. In this study, the preferences of female patients with breast complaints in a region of Turkey regarding the choice of surgeon for breast examination, the reasons for the delay in the application, and the impacting factors are investigated.

METHOD

This study was designed according to the Declaration of Helsinki. Since it was a retrospective study, ethics committee approval was obtained on 04.08.2023 with protocol number 518.

This study includes 746 female patients who applied to a female surgeon for breast diseases between July 2017 and January 2021. A questionnaire was administered by interviewing 746 patients and the results were analyzed statistically. The questionnaire form included the patient's age, marital status, age at first menarche, age at first childbirth, history of contraceptive use, family history, and factors such as embarrassment, partner pressure, and religious belief. Additionally, the patients' physical examination findings, complaints, and imaging findings were examined from their files. The patients were divided into 2 groups based on the time of admission. Those who applied within the first 7 days after their complaints started were analyzed as group 1 (early application), and those who applied after 7 days were included in the analysis as group 2 (late application). Findings were obtained impartially, and results were based on interview data, not investigator bias, motivation, or interest.

Statistical Methods

Analysis of variables was performed using SPSS 22.0 (IBM Corporation, Armonk, New York, United States). Categorical data are reported as n (%), and quantitative variables are reported as mean±SD (standard deviation). 95% confidence level comparison of categorical variables for Chi Square test results. Fisher's exact test was used to check whether the Chi Square test gave equivocal results. A p value of less than 0.05 was considered significant.

RESULTS

746 women were included in the study and the mean age of the participating women were 35.44±10.77 (14-76), with a median age of 34. Of the women, 477 (64%) were married and 269 (36%) were single. The mean age at first menarche of these women was 13.12±1.34 (10-16) and the mean age at first birth was 22.64±4.79 (14-40). It was determined that the number of women whose first birth age was below 20 was 142 (19%), while the number of women who were over 20 years old was 414 (55.5%). There were 9 women (1.2%) over the age of 35 who had a first birth and 181 (24.3%) women who had never given birth. 90.6% of the patients were in the premenopausal period. There were complaints in the right breast in 135 (18.1%) patients, in the left breast in 168 (22.5%) patients, and in both breasts in 443 (59.4%) patients. The mean pain score was determined to be 5.30±2.62 (0-10). Nipple discharge was detected in 33 (4.4%) patients. 155 (20.8%) of the patients were receiving oral contraceptives, while 174 (23.3%) patients were smoking. When USG findings were analyzed, it was found that of the patients, 31 (4.2%) had malignant & suspicious findings, 56 (7.5%) had mastitis, 79 (10.6%) had cysts, 53 (7.1%) had fibroadenoma, 18 (2, 4%) had ductal ectasia and 509 (68.2%) patients had normal findings. The number of biopsies performed was 86 (11.5%). Breast cancer was detected in 21 (2.8%) of the patients. 617 (82.7%) patients

had no family history of breast cancer, whereas 37 (5%) patients had first-degree relatives with breast cancer, and 92 (12.3%) patients had second-degree relatives with breast cancer. When educational status was analyzed, it was

noticed that the number of patients who did not go to school or graduated from primary school was 348 (46.6%), 211 (28.3%) with secondary and high school education, and 187 (25.1%) with a university or higher education (Table I).

Table I: Delays in Applying to a Healthcare Institution According to the Characteristics of the Patients (Demographic Information, Breast Cancer Risk Factors, and Diagnostic Characteristics)

Characteristics	Category	Delay Time (Days)						t/χ ²	p
		All		≤7 Days (n=284; 38%)		>7 Days (n=462; 62%)			
		n	%	n	%	n	%		
Age ($\bar{X} \pm SD$)	All	35.44±10.77		29.89±7.65		38.85±11.02		13.080 ^a	<0.001*
Age group	<30	229	30.7	137	59.8	92	40.2	1115.658 ^b	<0.001*
	30-39	295	39.5	120	40.7	175	59.3		
	40-49	147	19.7	26	17.7	121	82.3		
	≥50	75	10.1	1	1.3	74	98.7		
Educational Status	Primary school	348	46.6	97	27.9	251	72.1	31.407 ^b	<0.001*
	Secondary & high school	211	28.3	107	50.7	104	49.3		
	University	187	25.1	80	42.8	107	57.2		
Side with the complaint	Single breast	303	40.6	114	37.6	189	62.4	0.043 ^b	0.836
	Both breasts	443	59.4	170	38.4	273	61.6		
Family history of breast cancer	1st-degree relative	37	5.0	9	24.3	28	75.7	3.270 ^b	0.195
	2nd-degree relative	92	12.3	34	37.0	58	63.0		
	Negative	617	82.7	241	39.1	376	60.9		
Menopause status	Premenopause	676	90.6	282	41.7	394	58.3	- ^d	<0.001*
	Postmenopause	70	9.4	2	2.9	68	97.1		
Child presence	Yes	565	75.7	186	32.9	379	67.1	26.190 ^b	<0.001*
	No	181	24.3	98	54.1	83	45.9		
First delivery age	≤30	524	92.7	173	33.0	351	67.0	0.000 ^c	1.000
	>30	41	7.3	13	31.7	28	68.3		
First menstrual age	<12 yaş	72	9.7	32	44.4	40	55.6	1.374 ^b	0.241
	≥12 yaş	674	90.3	252	37.4	422	62.6		
Status for receiving hormone therapy	Yes	155	20.8	50	32.3	105	67.7	2.803 ^b	0.094
	No	591	79.2	234	39.6	357	60.4		
Nicotine use	Yes	174	23.3	53	30.5	121	69.5	5.574 ^b	0.018*
	No	572	76.7	231	40.4	341	59.6		
Nipple discharge	Yes	33	4.4	10	30.3	23	69.7	0.572 ^c	0.449
	No	713	95.6	274	38.4	439	61.6		
Palpable mass detection	Yes	186	24.9	83	44.6	103	55.4	4.514 ^b	0.034*
	No	560	75.1	201	35.9	359	64.1		
Pain	Yes	710	95.2	271	38.2	439	61.8	0.005 ^c	0.942
	No	36	4.8	13	36.1	23	63.9		
Pain level (1-10)	All	5.30±2.62		5.39±2.57		5.24±2.65		0.776 ^a	0.438
Physical examination Finding	Mass	190	25.5	84	44.2	106	55.8	4.077 ^b	0.043*
	Other findings	556	74.5	200	36.0	356	64.0		
USG finding	Normal	509	68.2	223	43.8	286	56.2	22.554 ^b	<0.001*
	Benign finding	206	27.6	54	26.2	152	73.8		
	Malignant&suspicious	31	4.2	7	22.6	24	77.4		
Mammography requirement	No	584	78.3	268	45.9	316	54.1	68.247 ^c	<0.001*
	Yes	162	21.7	16	9.9	146	90.1		
Underwent biopsy	Yes	86	11.5	26	30.2	60	69.8	2.532 ^b	0.112
	No	660	88.5	258	39.1	402	60.9		

*: p<0.05; χ²: Chi-Square Tests (b: Pearson Chi-Square Test, c: Continuity Correction, d: Fisher's Exact Test).

a (t): Independent Sample t Test; =Mean; SD= Standard Deviation

The number of women who applied to the doctor in the first 7 days after their complaints started was 284 (38%) (group 1), and the number of women who applied after 7 days was 462 (62%) (group 2). While 84% (n=388) of women expressed that they had difficulties in finding a female physician as the reason for the delay, and regarding other factors, it was determined that feeling embarrassed was the most common in 444 (96.1%) women. Whereas no factors were found in 16 women (3.5%), religious beliefs were found in 94 (20.3%) and partner pressure was found in 138 women (29.9%). All three factors were determined to be effective in 143 women (30.9%) (Table II).

Table II: Reasons for Delay Stated by Patients with a Delay of More than 7 Days in Diagnosis

Reasons for delay	n(462)	%
Feeling of embarrassment	444	96.1
Religious beliefs	94	20.3
Partner pressure	138	29.9
Other reasons	8	1.7

While embarrassment was found to be the most important factor in all age groups, the difference between age groups was not significant (p=0.184). The age group in which religious beliefs were most effective was women aged 50 and over, and the age group in which partner pressure was most effective was women between the ages of 30-39. The group in which religious beliefs and partner pressure were most effective was the group of women who had never been to school or had primary school graduates. It was found that religious beliefs and partner pressure were less effective among university graduate women. In patients who underwent a biopsy, the rate of delay due to partner pressure was significantly lower (p<0.001) (Table III).

Table III: Reasons for Delay by Age and Educational Status

		Reasons for delay			
		All	Feeling of embarrassment	Religious beliefs	Partner pressure
Characteristics	Category	n	n (%)	n (%)	n (%)
Age group	<30	92	87(94.6)	10(10.9)	21(22.8)
	30-39	175	169(96.6)	37(21.1)	59(33.7)
	40-49	121	114(94.2)	26(21.5)	39(32.2)
	≥50	74	74(100.0)	21(28.4)	19(25.7)
		Significance level		$\chi^2=4.837$; p=0.184	$\chi^2=8.210$; p=0.042*
Educational Status	Primary school	251	244(97.2)	68(27.1)	86(34.3)
	Secondary & high school	104	97(93.3)	18(17.3)	37(35.6)
	University	107	103(96.3)	8(7.5)	15(14.0)
		Significance level		$\chi^2=3.061$; p=0.216	$\chi^2=18.574$; p=<0.001*

*: p<0.05; χ^2 : Pearson Chi-Square Test

DISCUSSION

Gender is a key factor influencing interpersonal communication. Gender differences between patients and their physicians significantly impact the quality of communication during treatment. This, in turn, affects the diagnosis of the disease patients experience, the quality of

treatment, their adherence to treatment, and outcomes⁷. In cases where the sex of physician and patient are the same, typically, more satisfactory communication is established in treatment processes, especially for female patients. Moreover, female patients tend to communicate better with same-sex physicians for complaints about areas they consider

sensitive or embarrassing⁹. Yet, in some cases, female patients inevitably must refer to male physicians. This is more evident for female patients with breast and anal region diseases, especially in Turkey, where general surgery is a male-dominated specialty. Participants in this study complained of uncomfortable treatment experiences, particularly due to gender-related difficulties in communicating with male surgeons. Besides, due to reasons such as embarrassment, religious belief, and partner pressure, they experienced difficulties in the examination. The gender difference between the participants and the surgeon often caused embarrassment when talking about their symptoms during treatment. Female patients in non-Western societies are more likely to consult female physicians for diseases considered delicate^{10,11}. In studies conducted in Western societies, the sex of the physician is not important for most patients^{12,13}. In our study, 84% of our patients stated the sex of the physician as a reason for preference. Like our study, in a study carried out in England, it is seen that female surgeon preferences of young women are more prominent¹⁴. In a survey by Shin et al., more than a quarter of respondents preferred a female physician on a sensitive issue for women. In emotional situations that might accompany bad news, patients may wish to consult a physician who is akin to them and who they feel can better empathize with their feelings¹⁵. Similar statements are expressed by our patients as well. In the study conducted in the United Arab Emirates, 79.4% of the participants preferred to be examined by female physicians. This rate was 88.1%¹⁶ when the examination included abdominal and breast examination. Another study found that female patients preferred a female physician for colorectal endoscopy¹⁷.

The results of the studies indicate that the presence of a female physician is preferred in the clinical evaluation of breast diseases due to

many factors, including religious, traditional, and social factors. It has been demonstrated that Culture-specific beliefs, norms, and values influence health, disease management, and treatment¹⁸. In particular, the feeling of embarrassment may even prevent the patient from seeking treatment. In fact, in previously published articles, it is noticed that women prefer female physicians, particularly in obstetric/gynecological examinations. Yet, such studies in the field of breast examination are scarce^{1,2}. In a study by Groutz et al., 32% of women prefer female surgeons for breast examination because of feeling embarrassed¹⁹. Likewise, in our study, the feeling of embarrassment is seen as the most effective reason with a rate of 96.1%. Other studies also support that the most important factor is embarrassment^{10,11}. In our country, the majority of the society follows the religion of Islam. Islam has detailed rules and regulations for health-related decisions. Sometimes, religious regulations and social and cultural values can be intertwined and mingled. Such confusion can lead to unnecessary measures that can delay medical care. Furthermore, it might prevent physicians from making medical decisions for fear of the patient's reaction²⁰. Most of the studies published in the literature have been conducted in western countries where there is a Muslim minority from a particular cultural and social status group. In a study conducted in Saudi Arabia, a Muslim country, it was revealed that the religion factor was very effective with a rate of 94.7% for breast and genital examination²¹. In the breast examination performed in Israel, the preference for a female breast surgeon is 33% among Orthodox Jewish women²² and this rate is 44% among Muslim Israeli-Arab women¹. Religion (68.6%) is a crucial factor among Israeli Druze women². However, in our study, religious beliefs were determined to be effective at a lower rate of 20.3%. In our study, religious beliefs were the most common cause among

women aged 50 and over with 28.4%, whereas this rate was 7.5% among university graduates. As the level of education increased, the influence of the religion factor decreased. The reason for this can be found out through sociological research. Delay due to partner pressure was observed in 138 (29.9%) patients. Partner pressure was the least effective factor in our university patients (14%), whereas it was more effective in patients with low educational status (34.3%). Again, partner pressure was often higher in the 30-39 age group (33.7%). In patients who underwent a biopsy, the rate of delay due to partner pressure was significantly lower. Put it differently, women did not care about their husbands' opinions when there was a serious situation that required a biopsy. Breast cancer is a serious disease with a high prevalence all over the world and in our country and is especially common among women. Breast cancer ranks first among all cancers seen in women in our country. Prolongation of life expectancy, changes in lifestyle, diagnostic tests, screening programs, and increases in the reporting of cancer cases results in an increase in the incidence of breast cancer. Breast cancer leads to serious concerns even in healthy women since it is a common and fatal disease. The most substantial step to reduce this threat is to ensure that the female patient consults a physician. Early diagnosis in many types of cancer, such as breast cancer, is vital in the effective treatment of the disease and in prolonging human life. Cancer survivorship can increase to 95% when cancer is detected early²³. In this study, breast cancer was detected in 2.8% of our patients. In another similar study conducted in our region, the factor of not being able to reach a female surgeon was determined to be effective in 2% of patients diagnosed with breast cancer²⁴.

CONCLUSION

In conclusion, the most striking limitation of our study is that it was conducted in a private

hospital and only female patients with good financial status and above average education level could apply. Therefore, although it is not clear how effective the female surgeon factor is, we think that the number of late breast cancers is high due to the difficulties in reaching female surgeons.

Ethics Committee Approval: This study was designed according to the Declaration of Helsinki. Since it was a retrospective study, ethics committee approval was obtained on 04.08.2023 with protocol number 518.

Conflict of Interest: The authors declared no conflicts of interest.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Amir H, Tibi Y, Groutz A, Amit A, Azem F. Unpredicted gender preference of obstetricians and gynecologists by Muslim Israeli-Arab women. *Patient education and counseling*. 2012; 86:259-63.
2. Amer-Alshiek J, Alshiek T, Amir Levy YA, et al. Israeli Druze women's sex preferences when choosing obstetricians and gynecologists. *Israel Journal of Health Policy Research*. 2015;4:13.
3. Sheldon GF. Workforce issues in general surgery. *The American Surgeon*. 2007;73:100-8.
4. Raymont A, Simpson J. Surgical workforce in New Zealand: Characteristics, activities and limitations. *ANZ Journal of Surgery*. 2009; 79:230-4.
5. Lurie N, Slater J, McGovern P, et al. Preventive care for woman: Does the sex of the physician matter? *New England Journal of Medicine*. 1993;329:478.
6. Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication: a meta-analytic review. *JAMA*. 2002; 288.6:756-64.
7. Bertakis KD. The influence of gender on the doctor-patient interaction. *Patient education and counseling*. 2009; 76.3:356-60.
8. Lagro-Janssen AL. Medicine is not gender-neutral: influence of physician sex on medical care. *Nederlandsche tijdschrift voor geneeskunde*. 2008; 152.20:1141-5.

9. Waller K. Women doctors for women patients?. *British Journal of Medical Psychology*. 1988; 61.2:125–35.
10. Consedine NS, Reddig MK, Ladwig I, Broadbent EA. Gender and ethnic differences in colorectal cancer screening embarrassment and physician gender preferences. In *Oncology Nursing Forum*. 2011;38.6:409–17.
11. Shah DK, Karasek V, Gerkin RD, Ramirez FC, Young MA. Sex preferences for colonoscopists and GI physicians among patients and health care professionals. *Gastrointestinal endoscopy*. 2011; 74.1:122–7.
12. Nolen HA, Moore JX, Rodgers JB, Wang HE, Walter LA. Focus: Sex and Gender Health Patient Preference for Physician Gender in the Emergency Department. *The Yale journal of biology and medicine*. 2016;89.2:131–42.
13. Godager G. Birds of a feather flock together: a study of doctor-patient matching. *Journal of health economics*. 2012;31.1:296–305.
14. Reid I. Patients' preference for male or female breast surgeons: questionnaire study. *BMJ*. 1998;317.7165:1051-60.
15. Shin DW, Roter DL, Roh YK, et al. Physician Gender and Patient Centered Communication: the moderating effect of psychosocial and biomedical case characteristics. *Patient Education and Counseling*. 2015;98.1:55-60.
16. McLean M, Al Ahbabi S, Al Ameri M, Al Yahyaei F, Bernsen R. Muslim women and medical students in the clinical encounter. *Medical Education*. 2010;44.3:306–15.
17. Lahat A, Assouline-Dayyan Y, Katz LH, Fidler HH. The preference for an endoscopist specific sex: a link between ethnic origin, religious belief, socioeconomic status, and procedure type. *Patient preference and adherence*. 2013;7:897–903.
18. Pasick RJ, D'Onofrio CN, Otero-Sabogal R. Similarities and differences across cultures: questions to inform a third generation for health promotion research. *Health Education Quarterly*. 1996; 23.1:142–61.
19. Groutz A, Amir H, Caspi R, et al. Do women prefer a female breast surgeon? *Israel journal of health policy research*. 2016;5.1:1-6.
20. Padela AI, Killawi A, Heisler M, Demonner S, Fetters MD. The role of imams in American Muslim health: Perspectives of Muslim community leaders in Southeast Michigan. *Journal of religion and health*. 2011;50:359–73.
21. Alqufly AE, Alharbi BM, Alhatlany KK, Alhajjaj FS. Muslim female gender preference in delaying the medical care at emergency department in Qassim Region, Saudi Arabia. *Journal of family medicine and primary care*. 2019;8.5:1658–63.
22. Amir H, Hazan M, Grutz O, Amit A, Azem F. Gender preference of obstetricians and gynecologists by ultra-orthodox Jewish women. *Open Access Scientific Reports*. 2012;1.10:1–5.
23. Abghari MS, Takemoto R, Sadiq A, et al. Patient perceptions and preferences when choosing an orthopaedic surgeon. *The Iowa orthopaedic journal*. 2014;34:204-8.
24. Öner E, Girgin S, Uslukaya Ö, et al. A survey on the factors causing delayed diagnosis and treatment of breast cancer in Southeastern Anatolia. *Journal of Clinical and Experimental Investigations*. 2015;6.4:375-81.