



STRESS IN FEMALE MEDICAL DOCTORS; A CROSS-SECTIONAL STUDY AT TERTIARY CARE HOSPITALS OF KARACHI

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ABSTRACT... In present era stress remains a favorite subject of research especially in medical profession because with high competitive roles and responsibilities, this profession serves the need of mankind. **Objective:** Assessment of professional stress in female medical doctors employed at different tertiary care hospitals of Karachi, Pakistan. **Study Design:** The cross-sectional non-experimental survey. **Setting:** Different tertiary care hospitals of Karachi. **Period:** November, 2012 to July, 2013. **Methodology:** Internationally validated and standardized questionnaire was used as survey tool for present research. It was distributed to total two hundred and twenty eight 228 female medical doctors. **Results:** Total 191 respondents filled the research survey. 64.39% were MBBS, 20.42% were BDS and 15.18% were postgraduate respondents. Cronbach's alpha was 73.60%. Mean age of respondents was 29.32 ± 6.96 years, average stress score was 12.09 ± 4.33 with average years of experience were 4.58 ± 5.57 years. Stress scores on the basis of demographic variables like age groups, experience, qualification and marital status showed average scores in range between 10-12 units. However, high frequency of respondents scored moderate to severe stress when probed on the basis of levels of stress they have possess. Categorizing the equation for stress scores observed in the present survey as, MBBS respondents showed more stress units i.e., 12.50, BDS doctors have had 11.50 units stress and postgraduate respondents had 10 units stress scores. **Conclusions:** Results concluded that stress in female medical professionals is never underestimated as it is clearly indicated through present survey that all female respondents possess average job stress which need to address.

Key words: Cross-sectional, Cronbach's alpha, female, questionnaire, stress.

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INTRODUCTION

Human nature is blessed with the habit of pursuing or achieving goals. Social or biological intrusion in the achievement of these strategic goals may contribute incompatibility, which generally describes Stress. Word 'stress' generally refers the un-avoidable and inescapable circumstances exist when one cannot fulfill its own or others' demand, despite of available capabilities or skills. Human stress normally reflects the inequity to respond for a challenge or scenario¹ which usually oriented from physiological, psychological and behavioral stress response(s).^{2,3} World Healthcare organization (WHO) categorizes stress as "worldwide epidemic",⁴ which not only affects the population of developing countries but also to the developed countries.^{5,6} Principally

life of every individual is overwhelm with three main sources of stress as personal, social and professional stress.¹ Among which professional stress is classified as the primary stress source present in every level of the employment and has greater tendency to affects both the personal and social life easily.⁷ Researches focus the relation of professional stress on the performance of employees as well as organization, which conclude stress as biological hazard⁸ which not only affects the employee's efficiency to manage pressure at job, but equally to the organizational work strength or productiveness.⁷⁻⁹

Nowadays, every profession is well-found with the highest levels of work assignment that engages employee's attentions towards

fulfillments of professional's responsibilities and timely completion of their associated task.^{9,10} Especially in medical profession highest magnitude of professional stress was found and reported from last several decades.^{9,11} Stressors like heavy workload, low structure or underpaid salaries, pressure of performance appraisal, increased working hours, multitasking or lack of defined role, job in-security, etc was previously well indicated in this profession.^{9,13} In medical profession, doctors received stress inheritably, which as a result has undesirable impacts on human health like increased depression, anxiety, and other psychologically related problems.^{10,11} Direct association of chronic stress with multiple health ailments like cardiac vascular problems,¹⁴ musculo-skeletal complications¹⁵, malfunctions of glucose metabolism,¹⁶ blood pressure,¹⁷ have been reported.^{4,7}

According to the American Psychological Association (APA), women are more likely to have affected from stress related symptoms while stress developing magnitude in females professionals are more prominent as compared to male¹⁸. Factors causing stress in women are more likely related to the professional or gender discrimination, workload imbalance, management style and policies, lack of inspiration, insufficient training or career developmental programs, lack of respect, sexual harassment, etc.⁴

Assessment of professional stress among medical professionals has received greater attention with the passage of time. Persistency of professional stress in medical professionals decreases the quality of work which ultimately decreases the quality of services to mankind.¹⁹ The significance for evaluating professional stress in the field of healthcare science holds a prominent position because without behavioral assessment it remains incomplete to assess the performance of this profession. It was well documented that the health of women reflects the health of nation.²⁰ Pakistan also facing the issue of gender differentiation in medical profession, where women are more linked with this profession. Karachi is the highly populated industrial metropolitan city in South

Asia where high flux of medical doctors from all across the country is available. Therefore, present study deals the assessment of professional stress in female medical professionals employed at different tertiary hospitals of Karachi, Pakistan.

METHODS

Study design of present research survey was cross-sectional and non-experimental. The data were collected from the female medical doctors employed in different tertiary care hospitals of Karachi. Participants were chosen irrespective of their occupational affiliations, age, marital status, academic qualification and race. Present study was completed in duration from November 2012 to July 2013. Participant represents graduated and post graduated female medical doctors, employed in different tertiary care hospitals of Karachi.

ETHICS STATEMENT

Before handing over the survey instrument informed verbal consent was obtained from study participants, with principal assurance for confidentiality of information and their professional affiliation. In every step of this survey the identity of participants remain anonymous.

SAMPLE SIZE

Sample size was calculated through online open EPI sample size calculator. Sample size was computed on the basis of earlier reported stress prevalence (i.e., 70%) in Pakistan based study²¹. Adjusted the margin of error (d) at 6.5% and confidence of interval on 95%, the minimum sample size was equal to 190 participants as minimum target. Adding 20% non-response rate, the sample size was augmented up to 228 respondents.

STUDY INSTRUMENT

The survey was entirely based on the pre-tested, validated and standardized questionnaire for the assessment of stress levels. Before the start of present research survey special permission has been taken from the International Stress Management Association (ISMA) officials for its present use. The research questionnaire consists

of total twenty five (25) variables/ questions. Responses to all items were equally considered as YES or NO. The prescribed criteria by ISMA were used as it is as all YES marks was scored 1 (one) while all NO options were designated as zero (0) score. After completion of each questionnaire the total aggregated score of every participant was computed out of twenty five. The scale to assess stress was also provided with this questionnaire by ISMA as; the total score of 4 points or less describes the individual is least likely to suffer from stress-related illness. Secondly, the total scores of 5 - 13 points categorizes the individual is more likely to experience stress related ill health either mental, physical or both. Finally, the total scores of 14 points or more describes the individual is the most prone to stress showing a great many traits or characteristics that are creating un-healthy behaviors. All the subjects were assessed for the socio-demographic characteristics like age, experience, qualification and marital status.

PARTICIPANTS' ENROLLMENT

Total 228 female professionals were approached to fill the present research survey. It was also assured before handing over the questionnaire Performa that only those subjects were included as respondents which had spent more than two year in the same profession. One hundred and ninety one (191) female respondents completely filled the questionnaire. Twenty (20) female medical doctors had regretted there availability while seventeen (17) participants did not report their response completely on provided instrument. Overall thirty seven (37) female medical doctors were excluded as study participants. Therefore, an approximate of 83.77% was the total rate of return of research questionnaire for present research. Due to the differences in stressors related to the variable job responsibilities, those study subjects that were also linked with top management positions were excluded.

STATISTICAL ANALYSIS

Data were entered and analyzed in Statistical Package for Social Sciences (SPSS version 16.0) software. Mean \pm Standard Deviation (SD) were computed for measurement of stress scores.

Frequencies and percentages of respondents were computed for categorical variables like age, academic qualification, marital status, and stress level. Cronbach's Alpha was also calculated for the detection of consistency among the responses against 25 items of present stress instrument. According to present survey instrument the scores of each respondent were divided into three (03) categories of stress (i.e., 1. least stress, 2. Moderate stress, 3. Severe stress). Independent sample t-test was used to compare the mean values of demographic variables. Gamma statistic and chi square test of independence was computed to measure degree of strength of such association. All the significant values were tested at 5% or 0.05 level of significance.

RESULTS

Total 191 females completed the questionnaire, among them 123 (64.39%) were M.B.B.S doctors, 39 (20.42%) were B.D.S., doctors and 29 (15.18%) have obtained postgraduate qualification. The mean age of the participants was 29.32 ± 6.96 years. The mean stress score was 12.09 ± 4.33 with an average year of experience of participants was 4.58 ± 5.57 years. The value of the Cronbach's Alpha was 73.60%, which depicts the high reliability impact of responses obtained from respondents.

Females participants that have age less than and equal to 35 years were 169 (88.48%) while age range above than 35 years have 22 (11.52%) participants. Females which have single marital status was 99 (51.83%) while married females were 92 (48.17%) in count. Postgraduate females were 29 (15.18%) whereas graduated females were 162 (84.82%) in numbers. Professional experience less than and equal to 5 years were 145 (75.92%) while those have above than 5 years' experience were 46 (24.08%) in number (Figure 1).

Stratification of participant into three above stress categories and its comparison with the demographic variables, revealed some noteworthy aspects (Table-II). Especially when categorizing the age groups into two range i.e., ≤ 35 years and

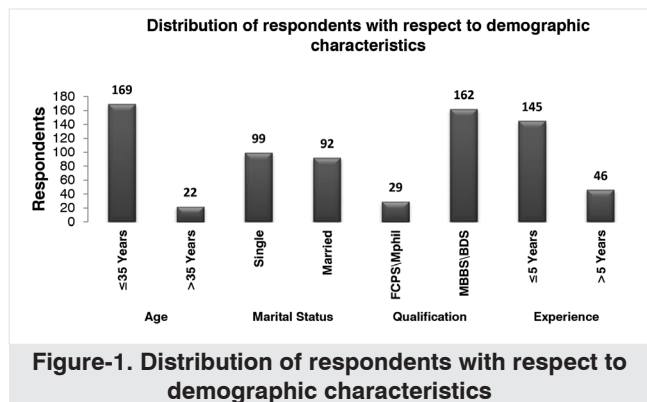


Figure-1. Distribution of respondents with respect to demographic characteristics

age more than 35 years, where both the group have least numbers of participants which scored least stress. Whereas, age range ≤ 35 years have maximum number of participants which scored moderate to maximum stress i.e., 45.55% and 38.21%, respectively. However, a least proportion of respondents (7.85% & 3.66%) had age limit more than 35 years have scored stress moderate to severe, respectively. The second demographic variable was professional experience. This factor reveals important information when stress scores were compared on the basis of professional experience ≤ 5 years and more than 5 years. Almost same frequency of respondents reported the least stress in both range of experience, while big proportion of respondents in experience range of ≤ 5 years reported moderate to severe stress, i.e., 40.31% & 32.98%. Beside this, least proportion of respondents i.e., 2.09%, 13.09% & 8.9% scored stress least to severe respectively in professional experience range of greater than 5

years. The qualification status i.e., graduate and post graduate also revealed the same pattern of responses as few number of respondents (2.62%) of graduate scored least stress. Similarly the highest range of respondents i.e., 45.03% & 37.17% scored stress in range from moderate to severe, respectively. The postgraduate respondents i.e., 2.09%, 8.38% & 4.71% scored stress from least to severe range respectively. Next demographic variable of respondents was marital status which reflects a mix distribution of respondents on the basis of stress scores. Considerable frequency (26.18% & 21.99) of single female respondents have scored stress moderate to high respectively, while few (3.66%) number of single respondents scored least stress. Moreover, married respondents also show same distribution pattern as in case of single respondents, where only 1.05% respondents scored least stress, 27.23% married females scored moderate stress and 19.90% married respondents scored severe stress. Among the two distinct qualifications status (graduate & postgraduate) of respondents, level of significance (p < 0.05) was also observed (Table-II). Mean stress scores of respondents with respect to qualification status showed the level of stress with respect to sub-classification of respondents as MBBS graduate have score of stress 12.70 ± 3.91, BDS graduates have stress scores 11.53 ± 4.97 and the postgraduate respondents scored stress with average of 10.20 ± 4.90 (Figure 2).

Demographic Characteristics		Respondent (N)	Stress Scores			Cronbach's alpha
			Mean	Standard deviation	p-value	
Age	≤ 35 Years	169	12.1598	4.48455	0.388	73.6% (0.736)
	> 35 Years	22	11.5455	2.87398		
Experience	≤ 5 Years	145	12.2621	4.30281	0.328	
	> 5 Years	46	11.5435	4.41063		
Qualification	Graduate	162	12.4259	4.14460	0.011*	
	Postgraduate	29	10.2069	4.90174		
Marital Status	Single	99	12.0505	4.64313	0.899	
	Married	92	12.1304	3.98684		
*p < 0.05 considered as significant using independent sample t-test						

Table-I. Distribution of participants with respect to different demographic characteristics and stress scores

Demographic Characteristics		Levels of Stress			p-value	Gamma
		Least stress (4 points of less)	More likely to Experience Stress (5-13 points)	Severely prone to stress (14 points or more)		
Age	≤ 35 Years	9 (4.71%)	87 (45.55%)	73 (38.21%)	0.248	-0.15
	> 35 Years	-	15 (7.85%)	7 (3.66%)		
Experience	≤ 5 Years	5 (2.62%)	77 (40.31%)	63 (32.98%)	0.301	-0.169
	> 5 Years	4 (2.09%)	25 (13.09%)	17 (8.9%)		
Qualification	Graduate	5 (2.62%)	86 (45.03%)	71 (37.17%)	0.031*	-0.32
	Postgraduate	4 (2.09%)	16 (8.38%)	9 (4.71%)		
Marital Status	Single	7 (3.66%)	50 (26.18%)	42 (21.99%)	0.251	0.03
	Married	2 (1.05%)	52 (27.23%)	38 (19.90%)		

*p < 0.05 considered as significant using chi square test of independence

Table-II. Association of stress scores with demographic characteristics of respondents

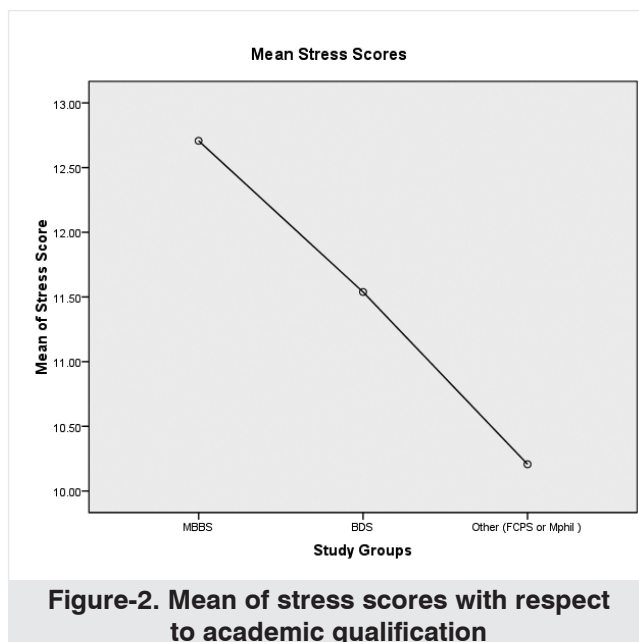


Figure-2. Mean of stress scores with respect to academic qualification

DISCUSSIONS

Professional stress reflects the substantial consequences of harmful (both physical and emotional) impact observed when efforts at job do not equate with competence, resources, and financial or personal expectations of the employee^{3, 10}. Today global modifications in workplace along with day by day increment in economic recession foster the existence with enhancement of professional stress⁹. Harmful impacts of stress on human health were emphasized as severe disturbance producer in daily life routine which ultimately disturbs both social as well as personal association^{4, 7}. In Pakistan, generally least facilities and resources are provided to the healthcare

sector, hence medical profession is characterized as one of the heavily work occupied profession with least or moderate incentives for healthcare providers. Therefore, present effort targeted the female medical professionals acquainted with different hospitals of Karachi on the basis of the stress severities. The preliminary focus was to achieve highest number of response from study population and it was achieved more than 80% for this study. High reliability of results was analyzed similar to high response rate, through the determination of Cronbach's alpha which was determined i.e., 73.6%.

In modern era, people experience various levels of deadlines, hassles, demands etc in routine business which represents certain magnitude of stress²². Stress as factor comes from social or professional medium of today's well occupied life, and plays key role in the distraction of homeostatic equilibrium of the individual. Interestingly, the outcome of stress related illness was also addressed by the World Health Organization (WHO) in its Global Burden of Disease Survey which forecasted high prevalence of stress-related mental health conditions and it will be estimated with highest increment by the year 2020²³. The age groups of present study reflects the higher proportions of respondents have age less than 35 years were more willing to participate and know the level of stress they have possess. It may be a society based impact especially the countries like Pakistan, where qualified and experienced female physicians are less in number and same

was observed in the present study (Figure 1).

Mean stress scores was observed in all selected demographic variables between the range of 10 – 12, as no big variation was observed in stress scores (Table-I). Prescribed guidelines explain these scores as the female doctor were more likely to experience stress related ailments, which may include mental, physical or both. This noteworthy matter also highlight the future severity of present average stress, as if remains unmanaged it may easily transformed into a situation where majority of respondents have severe stress scores magnitude. Relationship of stress and professional task performances was earlier mentioned as the presence of least to reasonable magnitude of stress has positive association with performance of employee²². Persistency of average to high magnitude of stress has linked with negative impact on the employee's performance as highest the stress accumulation, the extent of physiological involvement increases, which ultimately drops the individual's attention²². The chronic appearance of high stress accumulation in professionals make them more divergent psychologically, thereby increase in probability of overlooking significant and routine tasks, hence performance levels goes down gradually.^{4, 7-9}

Comparing the qualification based stress scores, postgraduate females have had just 2 units lesser stress scores as compared to graduate female physicians. Researchers described that as higher professional qualifications have higher earnings, which reduce the professional stress upto greater extent⁹. However, this was not generally the case observed from present study. Through present outcome it may be concluded that now a days above impact is change as highly qualified professionals have highest levels of job responsibilities. Whereas day by day increasing of global inflation disturbs the living structure of high earning professionals also, hence, this may be a key reason to correlate and justified the existence of almost same kind of stress scores in both qualification groups of present study. It was also supported by a past Chinese study in 2010, which reported the presence of 3

times more stress with increase in qualification pattern²⁴. Another Norway based 5 years cohort research study reported the increment of 2.71% more stress when change in higher status of job position was observed.²⁵

Further probe and comparison on the computed stress scores with respect to least, moderate and severe stress, between age group, experience and qualification parameters explains the presence of more moderate to highest stress scores in young female professionals (having lesser age group with experience as well as graduate qualification) (Table-II). Similar findings was also reported in 2011 as well as 2013 by Pakistan based studies on nurses and medical doctors respectively, which proven the prevalence of highest level of stress in both male and female young nurses and doctors.⁸⁻⁹ It may be correlated that many factors faced by young doctors like extraordinary workloads and under-supported professional environment gradually accumulated the stress which on the other hand easily diminished professional satisfaction^{9, 11}. Moreover, existence of the similar situation over a longer period may produces negative implication of stress on patients care and raise in workplace accidents.⁸⁻⁹

Contrary to this scenario, least stress scores have been computed in very lesser female doctors, while on the basis of marital status a highest frequency of both married and single female doctor's scored moderate to severe stress. Finding based on 2013 survey research on female medical house officers with same setting concluded the 8 units more stress in married females as compared to unmarried ones⁴. In present research, it was observed equally conversed to the above scenario as the similar proportion of both females groups scored same stress score i.e., moderate to severe stress (Table-II). Hence this situation may be due to the difficult or less supportive work environment for both married and unmarried females. In last, representation of stress levels in female medical graduates represents a highest score in MBBS female, average stress in BDS female graduates while third ranked was observed in postgraduate

females of this research.

Therefore from present findings, it has been suggested that focus on the elimination of professional stressors in medical profession is the need of the day and the utmost responsibility of all key stake holders of this profession.

CONCLUSIONS

Results from the present survey concluded that stress in female medical professionals is never underestimated as it is clearly indicated through present effort that all female respondents more likely experience professional stress.

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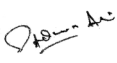

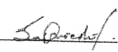
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PREVIOUS RELATED STUDY

Farah Rashid Siddiqui, Fazaila Sahib, Khalid Farooq Danish, M. Ayaz Bhatti. STRESS; A CROSS SECTIONAL STUDY AT ISLAMIC INTERNATIONAL MEDICAL COLLEGE (IIMC), RAWALPINDI. (Original) Prof Med Jour 16(3) 395-399 Jul, Aug, Sep, 2009.

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Sign.
1	Muhammad Bilal Azmi	Substantial contribution to the conception design of present work. Drafting present work. Final approval of the version to be published; AND accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.	
2	Syed Adnan Ali	Involved in acquisition, analysis and interpretation of data for the present study. Contribute in drafting the present study	
3	Sarah Shamim Azmi	Contribute m data collection, design of work. Contribute in drafting the paper	
4	Shamim A. Qureshi	Contribute in drafting as well as revising it critically for important intellectual content	
5	Arisha Sohail	Involved in drafting the paper. Contribute in bibliographic designing and provide literaiure review	