

Health Risks among Doctors, Nurses and Operation Theatre Assistants Associated with Their Prolonged Standing Working Hours

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Abstract

Background: To determine the prevalence of health risks faced by the medical staff of three hospitals in Rawalpindi due to prolonged standing.

Methods: In this descriptive cross-sectional study all doctors, nurses and operation theatre assistants working in three hospitals in Rawalpindi for duration of at least 1 year were included. After taking an informed consent, information on demographic characteristics, body mass index, duration since working in hospital, average continuous standing hours/day, average total standing hours/day was recorded on a self-administered questionnaire and data was analysed using SPSS version 23.0.

Results: A total of 191 questionnaires were filled by the respondents. Out of these 80(41.8%) were males and 111(58.1%) were females. 51.8% of the participants were doctors, 36.6% nurses and 12.6% operation theatre assistants. Varicose veins were reported in 13.6% respondents. Most common symptoms however were pain in legs(67%) and low back pain(54.4%), the others being muscle stiffness(45.5%), heaviness in lower limbs(35.6%), swelling of legs(30.3%) and numbness(19.8%). Majority(74.86%) of the participants had an average total standing time of more than 6 hours per day and 84.8% had one or more of the given health problems.

Conclusion: Prolonged standing is a contributing factor in the development of varicose veins and other symptoms. People with high body mass index and older age groups are more prone to such health issues.

Key Words: Health risks, prolonged standing, varicose veins.

Introduction

Standing for prolonged periods has been found to be related to some serious health problems like pain in legs, cardiovascular and pregnancy related risks, discomfort and fatigue. Doctors and nurses have to

stand for very long durations while performing operations.¹ Regarding varicose veins among nurses standing for greater than 8 hours, 24.17% had varicose veins with female nurses showing greater prevalence.² A study conducted recently reported musculoskeletal disorders to be 31.6% prevalent among nurses. Low back was main site, other being shoulder, neck and knees. Moreover, married workers were at greater risks.³

According to a research standing for 2 hours led to development of low back pain, decreased rotation of vertebral joint and stiffness while bending laterally.⁴ Surgeons performing laparoscopic procedure must stand in exhausting positions without moving. An analysis on gynaecologists and surgeons showed pain to be the most common complain, fatigue and stiffness followed.⁵ The risk factors involved in jobs requiring prolonged standing include standing period, muscle activity, posture, vibration of body and the air quality inside.⁶ Using anti fatigue mats, sit/stand chairs and appropriate foot wear which is supportive, help in alleviating the stresses due to prolonged standing.⁷ A research like this has not been conducted in the hospitals of Rawalpindi and Islamabad including public and private sectors both. Moreover, it is crucial to know the health problems, doctors and the medical staff suffers from due to their hectic duty hours so that appropriate measures can be taken to relieve them of their physical stress and exhaustion during work.

Methods and Materials

This descriptive cross-sectional study was conducted in three hospitals of Rawalpindi i.e. Holy Family Hospital, Benazir Bhutto Hospital and District Headquarter Hospital for a duration of 1 month i.e. from 2nd May, 2017 to 1st June, 2017. All doctors, nurses and operation theatre assistants working in these hospitals for at least 01 year were included in the study. Exclusion criteria were all those who did not consent, who had undergone previous lower limb or spine surgery or who were paralysed. After taking an informed consent, information was recorded on a printed questionnaire. Information regarding age,

gender, body mass index (BMI), duration since working in hospital, average total standing hours per day, average continuous standing hours per day, comorbidities like diabetes mellitus, hypertension, cardiac history, chronic obstructive pulmonary disease(COPD), were noted. Data was analysed using SPSS version 23.0.

Results

The total number of respondents in our study who filled the complete questionnaire were 191. Out of these, 40.8% were working in holy family hospital, 41.4% in Benazir Bhutto Hospital and 17.8% in District Head Quarters Hospital, Rawalpindi.

TABLE I: Demographic and work related information

Variable	Value
Age	
15-25	23(12.0%)
26-35	117(61.3%)
36-45	26(13.6%)
46-55	17(8.9%)
56-65	8(4.2%)
Gender	
Male	80(41.9%)
Female	111(58.1%)
Marital Status	
Married	131(68.6%)
Unmarried	60(31.4%)
Occupation	
Doctors	99(51.8%)
Nurses	68(35.6%)
Operation theatre assistants	24(12.6%)
Working Department	
General Surgery	70(36.6%)
Medicine	53(27.7%)
Gynaecology	14(7.3%)
Operation theatre	47(24.6%)
Orthopedics	7(3.7%)
Duration since working in hospital	
<2 years	22(11.7%)
2-5 years	55(28.8%)
6-10 years	46(24.1%)
11-15 years	23(12.0%)
16-20 years	13(6.8%)
>20 years	32(16.8%)

Demographic details and work profile of the participants are described in TABLE I. Majority(61.3%) of the respondents belonged to the age group of 26-35 years. Among the doctors, 63.6% were postgraduate trainees, 11.1% were medical officers, 19.1% were

senior registrars, 4% were assistant professors and 2% were professors. Among the nurses, student nurses were 8.8% and qualified nurses were 91.7%. Of those participating in the study, 16.8% had at least one health issue, hypertension was the most common (10.5%), others being diabetes (6.3%), asthma (5.8%) and cardiac disease (3.1%). BMI characterized as <18 (underweight), 18-25 (normal), 26-30 (overweight) and >30 (morbidly obese) was 2.6%, 55.5%, 34% and 7.9% respectively.

TABLE II: Symptoms and their prevalence in general

Symptoms	Percentage%
Cramps/pain in legs	67
Low back pain	54.4
Muscle stiffness	45.5
Heaviness of lower limbs	35.6
Swelling of legs/feet	30.3
Numbness in legs	19.8
Visible dilated tortuous veins	13.6
Skin changes	9.4

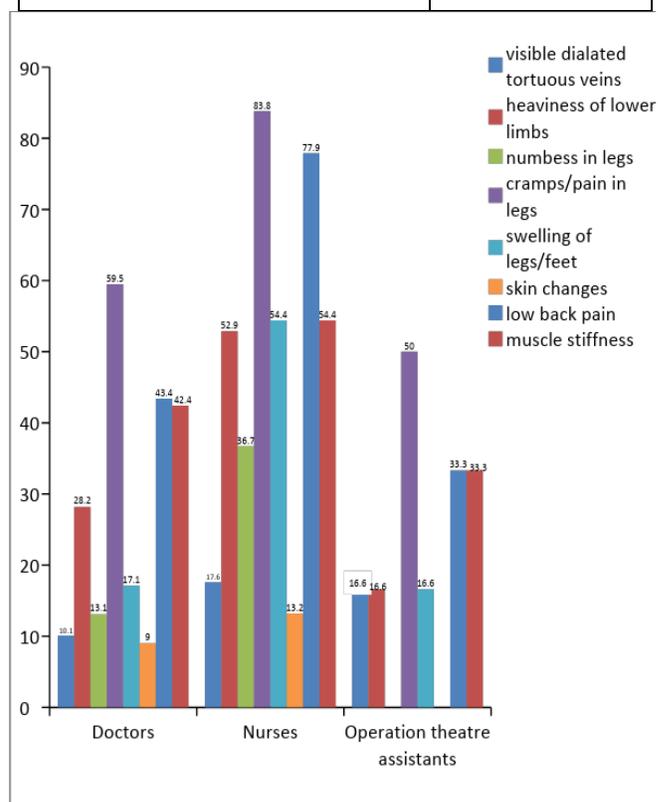


Figure I: Occupational distribution of symptoms

Greater number of the respondents (74.86%) had an average total standing time of more than 6 hours per day. Average continuous standing time per day of most of the doctors (52.5%) and nurses (44.1%) was reported to be 1-3 hours and that of operation theatre assistants (66.6%) was 3-6 hours. Out of all the participants, 84.8% had one or more of the symptoms mentioned in FIGURE I along with their frequencies and percentages. Prevalence of these symptoms among doctors, nurses and operation theatre assistants is given in TABLE II.

Discussion

In current study, it was recorded that the hospital staff including nurses, doctors and operation theatre assistants who stood for >3 hours had an increased risk of varicose veins (18%) compared to those who stood for 1-3 hours (16.8%). The results are consistent with a study that documented a greater risk of varicose veins with increased standing time, the odds of developing varicose veins were 2.34 times higher in those who stood for >3 hours.⁸ In present study 22.9% of the respondents with body mass index in the range of 18-30 had varicose veins while 40% of those with body mass index greater than 30 had varicose veins. These results are comparable with those in another study that reported an increased risk of varicose veins with high body mass index among women.⁹ This shows that obesity has an association with varicose veins as it puts excess pressure on leg veins. Moreover, obese people have little physical activity. However, contrary to this, a study by Tabatabaefan S et al showed no significant association of body mass index with varicose veins.¹⁰ In our study, varicose veins were found to be in 13.6% of the respondents, its prevalence being higher in women as compared to men (15.3% vs 11.2%). A similar study conducted among nurses showed that female sex was at greater risk of developing varicose veins than male sex, the percentage being 77.9% in women and 56.9% in men.¹¹ The considerable low prevalence in our study might be due to difference in the participants and their lifestyles as we included doctors and operation theatre assistants along with nurses. Doctors tend to be more knowledgeable and thus are more cautious about such health problems.

We also observed that those who stood greater than 3 hours per day had 1.33 times greater prevalence of muscle fatigue and discomfort than those who stood less than 3 hours per day. Our results are similar to a number of other studies which showed that people who were exposed to tasks requiring prolonged

standing were more prone to develop physical fatigue and discomfort in different regions of the body.^{12 13 14} In our study, more women (93.6%) were reported to have at least one of these symptoms particularly heaviness in lower limbs, swelling, pain and muscle cramps after standing than men (72.5%) and the prevalence increased with increasing age. In literature, similar results can be found which showed a prevalence of 63% and 48.7% of one or more of these symptoms in women and men respectively. The relation with age was also in accordance with our study.¹⁵

We found that overall prevalence of low back pain was 54.5%. In males it was 37.5% and 66.6% in females. Highest prevalence was found among nurses (77.9%), followed by doctors (43.4%) and operation theatre assistants (33.3%). We can compare these statistics to a study by Bin Homaid M et al in which low back pain was reported to be 72.4% collectively among all respondents, 69.7% in males and 87.1% in females. While in surgeons, nurses and operation theatre assistants the prevalence of low back pain was recorded as 70.5%, 76.5% and 60% respectively.¹⁶ The high prevalence in nurses may be attributed to their nature of work as they have to make patients sit and change their sides in bed, sometimes lift heavy objects like instrument trays in operation rooms. In our study, low back pain was more prevalent among older age groups. It was found that 49.5% of the people belonging to the age group of 26-35 years and 58.8% of the people belonging to the age group of 46-55 years had low back pain. This age correlation is similar with a study conducted by Sikiru L et al which documented that 6.3% of the people who were less than 35 years of age while 66.7% of the people who were greater than 46 years of age developed low back pain.¹⁷ These results show, however, that participants in our study had significantly higher prevalence of low back pain which might be due to difference in lifestyles, dietary habits, working hours and work settings of the participants in two studies.

Conclusion

Nurses were reported to have the highest prevalence of the health risks. The most common symptoms identified were pain in legs and lower back. Prolonged standing was a contributing factor in the development of varicose veins and other symptoms. This suggests that these are all preventable symptoms. Increasing awareness by arranging workshops and seminars and using preventive interventions such as floor mats, sit

stand chairs, comfortable shoes can help in reducing the occurrence rate of such health problems.

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