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METABOLIC SYNDROME AND ITS ASSOCIATION WITH ANXIETY AND DEPRESSION AMONG NURSING PERSONNEL

Dr. Muhammad Maqsood[1], Umar Ejaz[1], Marryam Khalid[1], Rizwan Ahmad[1], Azhar Hussain[2]

[1]Department of Medicine, Lahore General Hospital, Lahore, Pakistan
[2]Ameer Ud Din Medical College, Lahore

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Abstract:

Metabolic syndrome is the condition that includes hypertension, increased blood sugar level, dyslipidaemia, fats around abdominal organs in abdominal cavity. In our study we conducted a survey to find out "pervasiveness of metabolic syndrome among Nurses and its alliance with anxiety as well as depression" in General hospital of Lahore City. Research design (survey & questionnaire) was based on quantitative and descriptive cross-sectional correlations. Samples were 100 percent of female nurses of Lahore general hospital Lahore. SPSS version 21 was used for data analysis. Demographic and descriptive analyses were carried out. This study suggested a weak alliance between variables of metabolic syndrome and anxiety as well as the variables of depression. This study suggests that there is need of adopting better strategies for providing better occupational health to nursing personnel's in hospitals.

Corresponding author:
Azhar Hussain,
Ameer Ud Din Medical College
Lahore, Pakistan
E-mail Address: azharhussain0139@gmail.com

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INTRODUCTION:

Metabolic syndrome (MetS) can also be defined in terms of imbalance between energy intake and energy storage and usage that leads to deposition of lipids in visceral organs, muscles of skeleton, liver and β cells of pancreas. So, risk of diabetes and coronary heart disease can be correlated to metabolic syndrome (Smith, 2012). Chances of developing metabolic syndrome increases in people having central obesity, strong family history of diabetes or having certain ethnic background. Several health problems arises in individuals suffering from metabolic syndrome that include damage to lining of arteries and coronary lining, reduced ability of kidney to remove salts, stroke, cardiovascular disease and elevated blood pressure. Blood clots can also form in blood of individuals suffering from metabolic syndrome (cleveland clinic, 2016). Metabolic syndrome effects badly to work and life quality. It is believed that working conditions (like improper eating habits, erroneous mealtime, night duties, physiological and physical burdens related to taking care of patients family members and risk of patients death) of nursing teams can lead to development of metabolic syndrome. Physical and mental illnesses are triggered by occupational stress. Workers facing severe stress have greater chances of developing metabolic syndrome, disorders of sleeping, severe fatigue, burnout syndrome and diabetes. Stress and anxiety development is contributed by several factors that include: inadequate planning of material and human resources, working environment of nurses etc. (Ribeiro *et al*, 2015). Dispute also exists in literature about correlation of anxiety with metabolic syndrome (Michael, 2017). Metabolic syndrome can be used as inexpensive tool for screening of patients who have probability of developing diabetes, coronary heart diseases and especially the individuals who do not comes under traditional risk categories. To define etiology of metabolic syndrome more research is needed in this area (Smith, 2012).

LITERATURE REVIEW

Metabolic syndrome is considered as one of the worldwide health problems. Its prevalence is increasing in different countries among health workers. Different abnormalities occur in metabolic syndrome that include obesity, increase in blood pressure, high sugar level, high level of triglycerols in body, and reduced level of high-density lipoproteins in body. These abnormalities can lead to cardiovascular disorders and diabetes. Proved risk factors for MetS are obesity, aging, sedentary mode of lifestyle, habit of smoking, intake of soft drinks and high carbohydrate containing food and low income. But hospital personnel's like nurses also appear to be at the risk of developing MetS because of several reasons that include: heavy workloads, hectic working hours and shift duties. Previous studies have proven that obesity and MetS are prevalent in workers of hospitals (Yeh *et al*., 2018). Just few studies were carried out for finding alliance of metabolic syndrome along with anxiety and depression. To find this relevance a study was carried out in Iran in which it was concluded that no significant correlation exists between depression, anxiety and metabolic syndrome (Akbari *et al*., 2017). Another study suggested that might be there is no direct correlation between MetS and depression in terms of diagnostic taxonomy. But lifestyle, environment of personnel's can be common factor that can connect these two diseases. Thus, a good lifestyle can maintain health both physiologically and psychologically (Chang *et al.*, 2017). A study in America about prevalence of MetS among nursing personnel's and its correlation with anxiety, depression and stress was carried out. From a teaching hospital, they carried out co-relational study by taking data from 226 nurses (Ribeiro *et al*., 2015). A study was carried out in Malaysia in which it was determined that nurses who works as shift workers are at higher risk of coronary heart diseases (Shafei *et al*., 2011). According to a study carried out in London, there was a strong correlation in chronic stress at workplace and metabolic syndrome among British workers (Marmot MG & Brunner E, 2005). Relationship between stress at work and hypertension has been reported in Brazil but they have not determined association of stress, depression and anxiety at workplace with metabolic syndrome among nursing members (Alves *et al.,* 2004; Ribeiro *et al*., 2011).

METHODOLOGY:

Research design based on quantitative and descriptive cross-sectional correlations for assessment of the "pervasiveness of metabolic syndrome among Nurses and its alliance with anxiety as well as depression" among nurses of Lahore general hospital Lahore was used. Setting of the study was Lahore general hospital Lahore Ferozepur Road Lahore. The target population was the nurses of Lahore general hospital Lahore. Female participants were included in this study who belonged to different socioeconomic level and different demographical backgrounds.

Collection of information was carried out by simple random sampling method. Sample size for this study was 105 which were calculated by the ***Slovins formula of sampling***. Questionnaire contained three sections, (A Section) composed of demographic information which consist of gender, organization, marital status, Age group,

designation, qualification (B Section) composed of the questions regarding the standard for clinical diagnosis of the metabolic syndrome by different definitions 06 question adopted from (definition and diagnosis of diabetes mellitus and intermediate hyperglycemia, 2006) all participants can respond these questions by nominal scale (Yes/No). The last (C section) consisted of 14 questions about the Hospital Anxiety and Depression Scale adopted from (Zigmond & Snaith, 1983) SPSS version 21 was used for data analysis that is statistical computer software for data analysis.

RESULTS:

Data was analyzed by SPSS software. From the selected participants 41.9% of females were married while remaining were single and their age was between 23-25 years and their percentage was 61.9% and 36.2% were 18-25 age group only 1% were above 50 age group and 1% above 35-50%. 75.2% have qualification level upto nursing diploma while 24.2% were qualified upto Post-RN level. 74.3 % participants have less than 30KG/m^2 BM1. Maximum participants are not suffering from high blood pressure during duty time and their percentage is 81.9%. Maximum participants were not having higher level of HDL-cholesterol levels and their percentage was 83.8%. Triglyceride level of maximum participants was less than 150mg/dl and their percentage is 87.6%. Most of the participants having fasting glucose levels not more than 100mg/dl and their percentage was 85.7%. It was clear that only 9.5% participants were suffering from metabolic syndrome while remaining was healthy. Results indicated that 57.1% participants feel tense occasionally and 4.8% feel tensed most of the time.

48.6% participants did not feel frightened at all on duty while 33.3% get frightened occasionally Maximum percentages (40%) of participants did not get worried due to awful feelings while 4.8% get worried badly due to awful feelings. Maximum 41.0% of participants did not felt restless on duty at all. These results also demonstrated that worrying thoughts going through minds of 43.8 participants but not too often. Most of the participants 39.0% did not felt panic in most of the times. These results indicated that 44.8% of the participants always felt relaxed on duty while 42.9 % usually felt relaxed and only 1% do not feel relaxed at all. From this data table results it was clear that only 28.6% participants were suffering from Borderline hospital anxiety while remaining were healthy and their percentage was 70.5%. These results indicated that 60% participants feel slowed down sometimes and 3.8% feel slowed down usually all the time. This data table indicated that 48.6% participants enjoy the things definitely as much and 2.9% enjoy the things hardly at all. This data table indicated that 41.0% participants have not take quite as much care and interest for their appearance and 6.7% have definitely lost interest in their appearance. These results indicated that 43.8% participants can laugh and see the humorous side of things As much as they always do and 2.9% Not at all. 48.6% participants contemplate themselves with enjoyment to things as much as they always do and 3.8% rarely at all. 55.2% participants feel cheerful Most of the time and 1.0% not at all. 51.4% participants can enjoy to read good book or listening radio or TV program intermittently and 4.8% Very seldomly. From this data table results it was clear that only 16.2% participants were suffering from Borderline hospital depression 4.8% abnormal level of depression while remaining were healthy and their percentage was 79.0%.

The value of chronbach's alpha for metabolic syndrome, hospital anxiety and hospital depression is 0.682 thus results meets the standard requirement of reliability and this study variables are reliable. Instrument was consisting of 1 independent variable (prevalence of metabolic syndrome) and dependent variable (association of hospital anxiety and depression) table shows the KMO value is above .50 and barlett's test must be significant ($p<0.05$). So, the whole criterion was fulfilled and instrument of this study are valid.

Metabolic syndrome has weak positive relationship with total HAS with Pearson correlation value of 0.071 with p value of 0.473 and weak negative relationship with HDS pearson correlation value of -0.087 with p value of 0.380. Total HAS has strong positive relationship with total HDS with Pearson correlation value of 0.658 with p value of 0 .001 as shown in table 1.

Table 1. showing correlations of metabolic syndrome with total HAS and total HDS (n=105)

		Metabolic syndrome	Total_HAS	Total_HDS
Metabolic syndrome	Pearson Correlation	1	.071	-.087
	Sig. (2-tailed)		.473	.380
	N	105	105	105
Total_HAS	Pearson Correlation	.071	1	.658**
	Sig. (2-tailed)	.473		.000
	N	105	105	105

Significant value of correlation is at the 0.01 level (2-tailed).

DISCUSSION:

For demographic analysis only female participants were selected. In one study it was confirmed that both women and men were suffering from depression, but metabolic syndrome was higher in females as compare to males. This was supposed to be due to stressful lifestyle of females like anger feelings, hostility which have significant correlation with hyperinsulinemia (excess levels of insulin), hyperglycemia (excess of glucose in the bloodstream), dyslipidaemia (an abnormal amount of lipids), hypertension (abnormally high blood pressure), and central obesity which confirmed that metabolic syndrome was affected by psychological risk factors. While age of workers was between 23-66 years range. In one study quality of life of nursing personnel was analyzed.

Among the 10 (9.5%) workers with MetS, the ages were 25-35. While in another study participants age with metabolic syndrome was 58.3 years old. These data confirm that the workers having metabolic syndrome at younger *age*. Researchers have identified that metabolic syndrome can be an inducing factor for the depression development. It was also analyzed that individuals having depression symptoms show high lipoprotein density, triglyceride increment and increase in circumference of abdomen. Generally, 4% to 7% of population is affected by depression and links of depression with other illnesses like metabolic syndrome has also been investigated due to which misbalance in body occurs like gain in body weight, increase insulin resistance. Anxiety and depression can lead to Mets and they are also linked with high risk of cardiovascular diseases.
The results obtained in this study showed a weak alliance between variables of metabolic syndrome and anxiety as well as the variables of depression and metabolic syndrome.

An Australian study suggested correlation between Mets and depression but no correlation of anxiety with MetS. While depression leads to increase in blood pressure, intolerance to glucose, high level of blood cortisol and increase in body weight. Some studies also suggested that these conditions of abnormality lead to greater ingestion of carbohydrates. Person suffering from depression feels difficulty in exercise takes unhealthy diet and they suffer from obesity and glucose intolerance.

The present study's results indicate that there is a weak alliance (significant value p=0.473) between anxiety and Mets, and weak alliance (significant value p= 0.380) between depression and MetS. Although this study's objectives have been attained, limitations were noted.

The outcome of this study is to contributing in advancing scientific knowledge in occupational health and for nursing also, and that it supports the undertaking of future studies (ribeiro *et al*., 2015).

CONCLUSION:

Metabolic syndrome has weak positive relationship with total HAS with Pearson correlation value of 0.071 with p value of 0.473 and weak negative relationship with HDS pearson correlation value of -0.087 with p value of 0.380. Total HAS has strong positive relationship with total HDS with Pearson correlation value of 0.658 with p value of 0 .001.
The outcome of this study is to contributing in advancing scientific knowledge in occupational health and for nursing also, and that it supports the undertaking of future. This study suggests that there is need of adopting better strategies for providing better occupational health to nursing personnel's in hospitals.

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