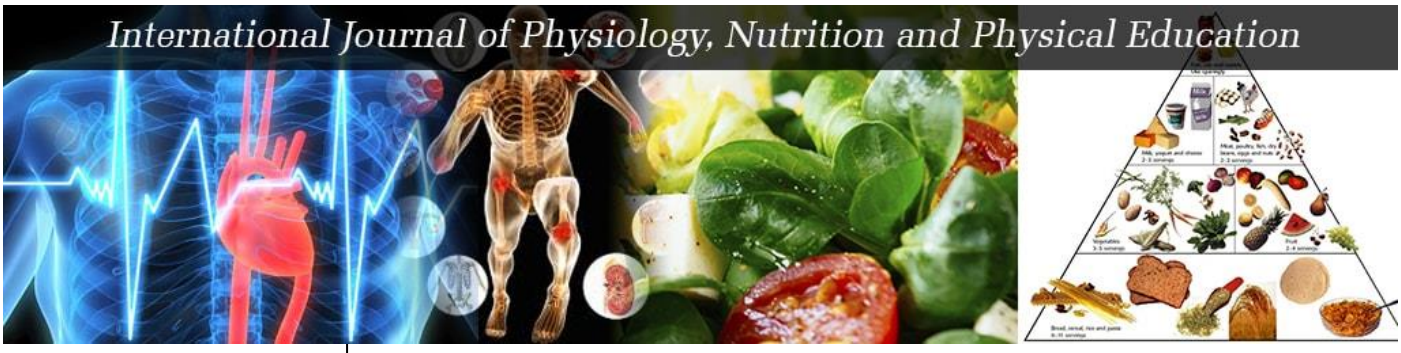

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Stress patterns among adult urban residents in Thane city, Maharashtra state

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Abstract
This cross-sectional study, using convenience sampling, was conducted among 29 females (30.20%) and 67 males (69.80%), who were residing (for at least two years preceding the study) in Thane city, Maharashtra state, Western India. Prospective respondents were explained about the study and written informed consent was obtained. The participants were administered a pre-tested and pre-validated questionnaire. The average age of females was 50.11 +/- 15.57 years while that for males was 49.18 +/- 12.83 years. The gender differences in marital status, education were not significant while there was a significant gender difference (Z=6.811; $p<0.0001$) in employment. There was no gender difference in gym-going habits and frequency of self-reported diabetes and hypertension. There was significant gender difference in tobacco use (Z=3.721; p=0.0002), alcohol use (Z=4.217; $p<0.0001$) and family-related stress (Z=2.271; p=0.023). It is necessary to comprehend the impact of various stressors on family relationships and child development over time.

Keywords: Gender difference, family, stressors

Introduction

Hans Selye, the "Father of Stress Research" [1] used the term "stress" [2] to represent the effects of anything that seriously threatens homeostasis. "Stressor" is the actual or perceived threat to an organism that can disturb homeostasis, while the response to the stressor is the "stress response". Stress responses evolved as adaptive processes, but severe, prolonged stress responses might lead to tissue damage and disease [3]. Patients suffering from chronic diseases frequently face daily stressors that may weaken various coping strategies. Psychosocial interventions have shown encouraging effects on the quality of life of such patients and favorably influence the progression of their disease [4] Such interventions decrease perceived stress, improve perceived social support, help chronic pain patients reduce their perceived pain. [5] These psychosocial interventions can also decrease patients' overuse of medications and may have a favorable influence on disease progression [4].

Coping responses are based on the evaluation of the perceived threat [6]. The central nervous system attempts to produce integrated coping responses [7]. For fight-or-flight response, mammals exhibit increased autonomic and hormonal activities that maximize the possibilities for muscular exertion [8, 9]. When an active coping response is not available, mammals may engage in a response that involves arousal of the sympathetic nervous system accompanied by an active inhibition of movement and shunting of blood away from the periphery [10]. Burnout, which is a syndrome of emotional fatigue, depersonalization and diminished personal achievement, is believed to be a consequence of long-term exposure to occupational stress [11].

Psychological stress occurs when an individual perceives that environmental demands tax or exceed his or her adaptive capacity; [12, 13] biological stress on the other hand has been defined as any change in the environment that changes or threatens to change and existing optimal steady state [14].

Stress has a direct link with immune system; chronic stress suppresses various immune system parameters. It has also been found that acute system also has an impact in immune functioning [12]. Specifically, it can trigger the production of immune system responses in the absence of an infectious agent [15]. Immune deficiency due to chronic exposure to stressors is implicated in heart and bowel disease, herpes, headaches and sleep difficulties [16, 17].

The objective of this study was to determine the socio-demographic profile of respondents and the stressors so that interventional studies can be planned.

Materials and Methods

This cross-sectional study was conducted among adult inhabitants, of either gender, who were residing (for at least two years preceding the study) in Thane city, Maharashtra state, Western India. Convenience sampling was used. Prospective respondents were explained about the study and written informed consent was obtained. The participants were administered a pre-tested and pre-validated questionnaire. The data were entered in Microsoft Excel (Microsoft Corporation, Redmond, WA, USA) and were statistically analyzed using EpiInfo Version 7.0 (public domain software package from the Centers for Disease Control and Prevention, Atlanta, GA, USA). Categorical data were presented as percentages while continuous data were presented as mean and standard deviation (SD). The 95% confidence interval (CI) was presented as: [Mean-(1.96)*Standard Error)] to [Mean+(1.96)*Standard Error)]. The standard error of difference between two means and standard error of difference between two proportions were computed. Statistical significance was determined at $p<0.05$.

Results and Discussion

In all, 96 persons - 29 females (30.20%) and 67 males (69.80%) - participated in the study.

Demographics: The average age of females (n=29) was 50.11 +/-15.57 years (95% CI: 44.44 – 55.77 years), while that for males (n=67) was 49.18 +/- 12.83 years (95% CI: 46.11 – 52.25 years). 25 (86.20%) females and 60 (89.55%) males were married, with non-significant gender difference (Z=1.490; p=0136). Among the respondents, 26 (89.65%) females and 65 (97.01%) were educated up to graduation and/or post-graduation, with no gender difference in educational status (Z=1.490; p=0.136). 08 (27.58%) females and 63 (94.02%) males were employed; exhibiting a significant gender difference (Z=6.811; p<0.0001).

Health status: The body mass index (BMI) was 26.08 +/- 6.64 kg/m^2 (95% CI: 23.67 – 28.50 kg/m^2) and 26.94 +/- 4.22 kg/m^2 (95% CI: 25.93 – 27.95 kg/m^2) for females and males, respectively. 06 (20.68%) females and 23 (34.32%) males regularly exercised, with non-significant gender difference (Z=1.336; p=0.180). Of these, 03 (10.34%) females and 06 (08.95%) males went to a gym regularly. There was no gender difference in gym-going habits (Z=0.214; p=0.833). There was significant gender difference in tobacco use (Z=3.721; p=0.0002) with 24 (35.82%) male tobacco users and no female tobacco user. Likewise, alcohol use also exhibited significant gender difference (Z=4.217; *p*<0.0001) with 03 (10.34%) and 38 (56.71%) users of alcohol among males and females, respectively. There was no significant gender difference in the frequency of self-reported diabetes and hypertension (Table-1).

Table 1: Self-reported health status

Parameter	Females (n=29)	Males (n=67)	Z value	'p' value
Diabetes	12 (41.37%)	36 (53.73%)	1.111	0.267
Hypertension	20 (68.96%)	45 (67.16%)	0.173	0.865
Tobacco use	…	24 (35.82%)	3.721	0.0002 *
Alcohol use	03 (10.34%)	38 (56.71%)	4.217	<0.0001 *
Family-related stress	19 (65.51%)	27 (40.29%)	2.271	0.023 *
Work-related stress	10 (34.48%)	21 (31.34%)	0.302	0.764
Financial stress	02 (06.89%)	12 (17.91%)	1.403	0.161

Z = Standard error of difference between two proportions; *Significant

Family-related stress: In the present study, the gender difference in family-related stress was statistically significant (Table-1). At the family level, there have been rapid fundamental changes in socio-economic and occupational domains with changes in power distribution, marital norms and role of women [18]. Surveys reveal a progressive increase in nuclear families, progressive decrease in the number of household members, a decrease in age of the house-head (implying change in power structure) and an increase in households headed by females (suggesting a change in traditional gender roles). Social and cultural changes have altered lifestyles and interpersonal relationships, increased employment of women, and employment-driven migration among the younger generation. The loss advisory roles of elderly members in the family have increased the stress and pressure on such families, leading to an increased vulnerability to emotional problems and disorders [18].

Work-related stress: In the present study, the gender difference in work-related stress was not significant (Table-1). Work-related stress is a detrimental reaction that is caused by undue pressures and demands at the workplace and can result in physical illness and psychological distress [19]. Economic recession [20-22] along with job insecurity and interpersonal conflicts and can adversely affect children's mental health through disrupted parenting [23]. Even though the pay structure is higher for software professionals, [24] work-related stress is higher because work is to be completed within strictly-enforced deadlines. Software professionals suffer from increased stress like constant change in technology, client interaction, need for constant upgrading of skills to remain employable, long working hours and lack of job security [25].

Financial stress: In the present study, the gender difference in finance-related stress was not significant (Table-1). Financial hardship at the family level leads to conflict between parents and hostile parenting behaviour which leads to behavioural problems in children [26].

Conclusion

It is necessary to comprehend the impact of family-related stress, work-related stress and financial stress (economic hardship) on family relationships and child development over time.

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