COMPARATIVE STUDY OF BLOOD PRESSURE, BLOOD GLUCOSE AND STRESS LEVELS IN WORKING WOMEN AND HOMEMAKERS

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ABSTRACT

Background: Working women today have dual responsibility to be fulfilled at both workplace and home. Homemakers also have a high responsibility to look after home and children. Stress may be common factor in both groups.

Aim: To record blood pressure (B.P.), estimate random blood glucose (R.B.S.) and score the stress levels in working women and homemakers and to compare the said data in the two groups to evaluate risk levels.

Materials and methods: The study was conducted on 80 females, 40 working in banks and 40 homemakers, aged between 20-40 yrs. Subjects were chosen based on inclusion-exclusion criteria and after taking informed consent, B.P., R.B.S., and stress score data were collected.

Statistical Analysis used: Student t test (two tailed, independent), Leven1s test, Chi-square/ Fisher Exact test Pearson correlation test.

Results and conclusions: On comparing above mentioned parameters, D.B.P. was significantly increased in homemakers (P = 0.048*). 10% homemakers had RBS > 140 mg% while working women had values within normal limits. Homemakers had a higher mean score of Perceived Stress Score (15.95±3.76) than working women (15.70±4.98) though statistically insignificant. It can be concluded that homemakers are at higher health risk than working women. This can be attributed to various factors like rearing more number of children than working women, feeling of worthlessness due to financial dependence and confinement at home in homemakers.

Keywords – blood pressure, stress, BMI, obesity.

INTRODUCTION

Working women today have dual responsibility to be fulfilled at both workplace and home. Homemakers also have a high responsibility to look after home and children. Stress may be common factor in both groups. Depression can result when stress crosses a threshold level, [¹]. Obesity can result from stress-induced eating, [²]. This study has been done to compare three health parameters between working women and homemakers by recording blood pressure (B.P.), random blood sugar (R.B.S) and scoring of stress levels.

MATERIALS AND METHODS

A comparative study was done among 80 females, aged 20-40 years, of whom 40 were homemakers and 40 were working in banks. Inclusion criteria was – those who gave informed consent, middle socio-economic status. Exclusion criteria was – age > 40 years, pregnancy, premenstrual phase, known case of diabetes / hypertension / mental disorders/endocrine disorders.

After taking informed consent, a questionnaire was given to each subject to get information regarding their age, address, education, occupation, income, last menstrual period. Taking necessary precautions, blood pressure was measured in sitting position on both arms twice. Under aseptic precautions, random blood sugar level was noted using OneTouch SelectSimple Blood Glucose Monitoring System [LifeScan Europe Division of Cilag GmbH International 6300 Zug Switzerland © 2010 Lifescan, Inc.Rev. date: 09/2010]. Then the Perceived stress score, [³] questionnaire was given to each subject to be read thoroughly and marked.

STATISTICS [⁴,⁵,⁶,⁷]

Student t test (two tailed, independent) has been used to find the significance of study parameters on continuous scale between two groups (Inter group analysis) on metric parameters. Leven1s test for homogeneity of variance has been performed to assess the homogeneity.
of variance. Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups. Pearson correlation between PSS and study variables is performed to assess the correlation.

Statistical software: The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used.

RESULTS
In table 1, the mean PSS scores are compared between working women and homemakers. Mean PSS scoring was higher for homemakers (15.95±3.76) than working women (15.70±4.98) but not significant. In table 2, the mean stress levels are compared between homemakers and working women. The values are statistically similar with P = 0.591. However, 30% homemakers had average stress levels and 45% had high stress levels as compared to working women of whom 17.5% had average stress and 42.5% had high stress levels. Also percent of homemakers with low to very low stress levels were more than working women. These findings suggest that homemakers are more stressed than working women.

In table 3, BMI distribution in both groups is studied. It shows a mean BMI of 24.10±3.39 in working women and 28.89±8.94 in homemakers. Mean BMI is significantly more in Non-Working women with P = 0.002**. Homemakers appear to have greater tendency of having higher BMI levels.

In table 4, mean RBS in both groups is compared. The mean RBS in working women is 115.05±16.65 and 115.85±21.10 in homemakers. Mean RBS is statistically similar in two groups with P=0.851, but mean value is higher for non-working women. Though statistically insignificant, 10% homemakers had RBS > 140 mg%.

In table 5, mean SBP of working women is 123.25±12.68 and that of homemakers is 127.75±12.50. Mean DBP of working women is 77.25±7.55 and that of homemakers is 80.45±6.65. The mean DBP is significant in homemakers with P = 0.048.
Table 4: Comparison of Levels of RBS in two groups studied

<table>
<thead>
<tr>
<th>BP</th>
<th>Working</th>
<th>Non working</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBP (mm Hg)</td>
<td>123.25±12.68</td>
<td>127.75±12.50</td>
<td>0.114</td>
</tr>
<tr>
<td>DBP (mm Hg)</td>
<td>77.25±7.55</td>
<td>80.45±6.65</td>
<td>0.048*</td>
</tr>
</tbody>
</table>

Mean DBP is significantly increased in homemakers with P = 0.048*.

**DISCUSSION**

Homemakers had higher mean perceived stress score (15.95±3.76) than working women (15.70±4.98).

Stress can be defined as neurological and physiological reactions that serves as an adaptive function for the environmental, social, and cultural values and structures within which the individual acts upon, [8]. Stress can lead to distress with crises in life, since it varies from person to person or event to event, [9]. Doing household work is considered to be of low status and esteem, [10]. There is a tendency among full time housewives to be less happy with their lives and in turn more depressed than working women, [10]. Their confinement in the house is considered the major factor, [10]. Working women have less children than housewives, [1]. Having more children among housewives is a cause of depression among housewives because they have the burden of handling more babies alone as compared to working women who have supporting hand for this purpose, [1]. It has been reported that non-working Pakistani women (full time housewives) are more depressed than working women, [11].

Working women have the feeling of being a Super Woman, although they have a lot of work pressure both at home and at job place. This has a good impact on mental health of working women, [12]. Working women develop new skills, have enhanced self-esteem, and increased feelings of competence and self-efficiency, [10]. The capability of raising children, doing household work, entertaining guests and at the same time, sharing the husband’s financial responsibilities appears to be greater in working women, [10]. There is in turn an enhanced satisfaction and less depression in working women, [10].

**Mean BMI is significantly more in Non-Working women with P = 0.002**.

Mean DBP is significantly increased in homemakers with P = 0.048*.

10% of homemakers had RBS > 140 mg% while all working women had RBS within normal limits.

Metabolic syndrome is a cluster of coronary heart disease risk factors, of which increased body weight is a major risk factor, [13]. Working women are aware of the fact that balanced or good diet is necessary, both for mental as well as physical health because they are more educated than homemakers, [14].

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**Mean BMI is significantly more in Non-Working women with P = 0.002**.

Stress can influence behaviors and health especially when an individual faces challenges that surpass his or her coping skills, [14]. Obesity is a well-established risk factor for major causes of morbidity and mortality such as cardiovascular disease, hypertension, stroke, type 2 diabetes and certain forms of cancer, [15,16,17,18]. Stress may change overall food intake, and lead to, under- or overeating, [2]. Chronic psychosocial stress has many physiological effects, such as excess cortisol secretion, or can cause obesity through an association with poorer behavioral risk factors, increased caloric intake and sedentary lifestyle, [19]. Carbohydrate consumption is found to relieve depressive moods, [20]. A part of the causal link for developing obesity is increased carbohydrate consumption, [21]. Food consumption is increased in certain individuals and in some, food choices are changed from lower fat to higher fat foods, [22].

Limitations of the study are small sample size, short period for the study, lesser accuracy of tests like RBS estimation.

**CONCLUSION**

Homemakers are at higher health risk than working women. Homemakers are more prone to depression which leads to obesity and in turn higher DBP levels and RBS levels in them. This can be attributed to various
factors like rearing more number of children than working women, feeling of worthlessness due to financial dependence and confinement at home among homemakers.

REFERENCES
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