ORIGINAL ARTICLE

COMPARISON OF DIETARY PRACTICES AND BODY MASS INDEX AMONG EDUCATED HOUSEWIVES AND WORKING WOMEN IN KARACHI

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Background: Body Mass Index (BMI) is considered as a major determinant of health. The objective of study was to find out differences between dietary practices, as well as BMI in educated housewives and working woman. It is supposed that both study groups may have difference in work pressures with resultant diverse preferences for food. This can affect health status particularly in relation to obesity in women. Furthermore, we selected participants with 14 years' education expecting basic awareness of healthful diet. **Methods**: This cross-sectional study had a convenient sampling method and sample size of 600 with 300 house wives and 300 working women, aged 35-45 years. Dietary habits were recorded by interview. Body Mass Index was calculated by standard formula, and results obtained by Chi-Square using SPSS-17. **Results:** Working women had healthier dietary practices. Number of meals, fruits, fish/ poultry and water consumption was better in working mothers with significant *p* value <0.00.1. Intake of vegetables and fast food was found similar. BMI comparison showed that majority of housewives were noted as overweight whereas working women showed normal weight (*p*-value <0.001). Most housewives responded that they have a sedentary life style as opposed to working women *p*-value <0.001. Self- assessment of diet quality was comparable as it was mentioned moderate by most of the participants, however more working females accepted that they need to improve their diet and would need expert advice. **Conclusion:** Healthier BMI, active life style and better dietary habits were witnessed in working women as compared to housewives.

Keywords: Body Mass Index (BMI); Dietary habits; Housewives; Working women

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INTRODUCTION

Being one of the two pillars of any society women have equally important roles as men. In Pakistan, it is said that 191,715,847 populations consist of females.[1] The health issues of females are largely neglected with resultant increase in obesity in all regions of the world. Furthermore, Pakistan stands at 9th position in the list of most obese countries out of 188 and one out of four persons is overweight or obese as indicated by Asian specified BMI cut-off value which is 23 kg/m^2.[2,3] More people prefer to live in urban areas, the number of individuals involved in sedentary lifestyle increases with more usage of computers in workplace and houses. Moreover, the use of cars and different vehicles for the purpose of transport also contribute to a decreased activity level. Although, the aforementioned factors contribute to the problem of excess weight but the main reason is the disproportion of calories due to high consumption.[4] It is observed in studies that women with healthy lifestyle experienced a 57% lower risk of diabetes when compared with unhealthy lifestyle behaviors.[5]

Unhealthy dietary practices, sedentary lifestyle and being inactive physically are the main threats for some health disorders in women such as obesity and long standing non-communicable diseases and therefore the reason for the increased prevalence of obesity in Pakistan.[6] Body Mass Index is considered as one of the determinants of health status. It is a ratio of weight and height, which helps to determine the category of weight. The BMI range states that; underweight: less than 18.5, normal: 18.5–25, overweight: 25–30, obese: more than 30.[2,3] and in order to maintain optimum weight and healthy BMI, we need to adopt a physically active lifestyle and consume a balanced diet.[7]

Maintenance of good health is inevitable for better performance of routine household work as a housewife as well as for office work of professional women in their relevant professions. The two groups of women selected for our study may have a different life style and work pressures and therefore might have selective preferences for food choices and time constraints. These can be a determinant of their health status, particularly in relation to obesity. Hence, this research is conducted highlighting a major concern about women's health in Pakistan, i.e., overweight/obesity as well as dietary practices. Therefore, through this study, we have tried to analyse the difference in the lifestyle precisely; diet and BMI of housewives and working women. Some

studies have been conducted in the past to observe the different life styles of these two groups of women[8,9] however, the significant factor related to our research is that we have specifically selected women who have 14 years or more education anticipating that they have the basic knowledge about dietary requirements of their age. The results of the study can be of help to formulate and organize healthy diet and fitness plans for working women and housewives belonging to the middle socioeconomic class of Karachi.

MATERIAL AND METHODS

This was a cross sectional study with convenience sampling, having two groups of participants comprising 600 females from middle socioeconomic groups with 300 each in the category of housewives and working women aged 35–45 years having 2–4 children. Sample Size was calculated through online software Open Epi version 3.02, using cross sectional sample size formula. Taken normal BMI in 37.37 % housewife and 50.15% in working women, considering 95% confidence level with 80% of Power, the total calculated sample size was 578 with 289 for each group.

We have added 4% of non-respondent and therefore roundup total sample size of 600, 300 each in the category of housewife and working women.[10] Formal approval was given by BASR of University of Karachi in the form of conversion letter of M Phil to PhD. Verbal consent from participants was taken. The working women were female teachers and doctors working at Karachi University and Dow University of Health Sciences while housewives were females with 14 years of education living in the Staff Town of Karachi University Campus and family members of employees of DUHS. The participants were interviewed face to face and dietary habits of women were recorded through a structured questionnaire.

Body Mass index was measured as weight in kg divided by the square of height in meters (kg/m2). According to WHO standards, overweight is considered as BMI more than 25 and obesity over 30. BMI within range of 18.50–24.99 is taken as normal.[2] The statistical tool used for analysis was Chi-Square. Data on all participants with complete sets of information on dietary intake and BMI was used for statistical analysis through SPSS 17. The results were considered statistically significant for *p*-value less than 0.05. The data was collected from January to April 2015 and two months' time was taken to tabulate and organize that data from April to May 2015.

RESULTS

The sociodemographic characteristics of the study groups are shown in table-1. Difference was noted in years of marriage as well as household income between the two study groups with *p*-value <0.001. The study results indicated that dietary practices had an influence on the health outcomes of the women to some extent, particularly working women. Moreover, better health as indicated by normal BMI was observed in working women. (Table-3)

The categories for which the survey was conducted were number of meals per day, consumption of vegetables, fruits, fish/ poultry and water as well as frequency of fast food intake. The women were also questioned about their own assessment of the diet, which they consume and whether they would require any help or guidance for improvement in that dimension.

The majority of working women had the practice of taking 3 meals per day in contrast to housewives. The habit of eating fruits, fish/poultry and intake of water was also not satisfactory in housewives as compared to working women who demonstrated better outcome. Vegetable consumption by both study groups was almost similar. Regarding the assessment of diet by the women, most of them considered it to be moderate with the result not being statistically significant, however working mothers wanting to take help from experts. When inquired about sedentary lifestyle, most of the housewives responded with affirmative and the result was statistically significant. (Table 2)

While looking at table-3, BMI of the two groups demonstrated that more working women were with normal weight as opposed to housewives. Likewise, in the overweight category, there were less number of working women and more housewives were observed. (Table-3).

Table-1: Demographic characteristics of 600 educated working women and housewives of middle socioeconomic class of Karachi Pakistan participating in data collection of comparison of dietary practices as well as BMI of the two focus groups

Characteristics	Housewives	Working Women	Test Statistic	*p*-value
	Mean±SD	Mean±SD		
Age	35.56±7.53	35.44±6.65	0.218	0.827
Years of Marriage	13.01±9.32	11.00±7.14	2.95	0.003
Number of Children	3.16±1.97	2.63±1.59	3.59	<0.001
Household Family Income	44393.33±21550.25	72000.00±18605.21	-16.79	<0.001

Table-2: Assessment of dietary frequency, and practices along with personal assessment of diet in educated working women and housewives of middle socioeconomic class of Karachi Pakistan participating in data collection of comparison of dietary practices as well as BMI of the two focus groups

Dietary Assessment	Housewives		Working Women		Test Statistic	*p*-value
	Frequency	Percentage	Frequency	Percentage		
Meals consumed per day					80.73	<0.001
3 meals	124	41.3	216	72.0		
2 meals or less	74	24.7	64	21.3		
no regular eating pattern	102	34.0	20	6.7		
Servings of vegetables consumed per day					0.145	0.93
3-5 servings per day	78	26.0	78	26.0		
Less than 3 servings per day	100	33.3	104	34.7		
No regular pattern	122	40.7	118	39.3		
Servings of fruits consumed per day					59.18	<0.001
2–4 servings per day	52	17.3	116	38.7		
Less than 2 servings per day	82	27.3	106	35.3		
No regular pattern	166	55.3	78	26.0		
Fish or poultry consumed per day					52.74	<0.001
more than 6oz of fish, poultry	98	32.7	78	26.0		
Less than 6oz of fish or poultry	138	46.0	210	70.0		
6 oz. 1–2 times/week	64	21.3	12	4.0		
Consumed glasses of water per day					73.82	<0.001
At least 8 glasses per day	100	33.3	196	65.3		
About 4–8 glasses per day	102	34.0%	76	25.3		
Less than 4 glasses per day	98	32.7	28	9.3		
Fast food or convenience food consumed per week					5.16	0.076
More than once per week	28	9.3	14	4.7		
Once per week	106	35.3	116	38.7		
Rarely	166	55.3	170	56.7		
Self-assessment of quality of diet					7.10	0.029
1–3 being very low quality	18	6.0	8	2.7		
4–7 moderate	226	75.3	216	72.0		
8–10 being high quality	56	18.7	76	25.3		
In need of advice or support to help the women make any changes to the quality of diet					35.18	<0.001
Yes	94	31.3	166	55.3		
No	206	68.7	134	44.7		
Is the Life style sedentary					118.71	<0.001
Yes	194	64.7	62	20.7		
No	106	35.3	238	79.3		
Hours serve to Support Household	10.66±4.39		9.31±3.62		4.10**	<0.001

Table-3: Comparison of BMI in educated working women and housewives of middle socioeconomic class of Karachi Pakistan participating in data collection of comparison of dietary practices as well as BMI of the two focus groups

BMI	Housewives		Working Women		Test statistic	*p*-value
	Frequency	Percentage	Frequency	Percentage	139.02	< 0.001
Underweight = <18.5	14	4.7	52	17.3		
Normal weight =18.5–24.9	64	21.3	170	56.		
Overweight = 25–29.9	178	59.3	62	20.7		
Obesity =BMI of 30 or greater	44	14.7	16	5.3		

DISCUSSION

According to the results obtained in our study, dietary pattern was found different between both the groups. We observed that in the category of the number of meals consumed every day the higher percentage of women consuming 3 meals were working women, whereas the majority of housewives had no regular eating pattern. (Table-2) In another study, reversed was observed as irregular habit of eating was more common in working mothers.[11] Healthier dietary habits were observed in working women in our study as far as fruits, fish/poultry and water intake is concerned. (Table-2) In other studies resembling ours, most of the participants in both groups, that is housewives and working ladies were noted as consuming the recommended quantity of vegetables and fruits[11] but poor consumption of fish and poultry was recorded in sedentary women in a study done in India.[12]

Regarding fast food consumption, our results were not significant as the responses of the majority of women in both groups were found similar. It appeared as if our study participants were

not in the habit of consuming fast food more than once a week which was a healthier sign. The results were not significant as most of the women in both groups opted for such food occasionally (Table-2). A somewhat different observation was demonstrated in a study where use of fast food was witnessed more among working females in contrast to housewives. The reasons cited in other research supporting same observation was vigorous and persistent pressure of work at home as well as at office, together with a shortage of time.[11,13]

Result regarding self- assessment of diet quality was comparable as it was mentioned moderate by most of the women in both groups, however, more working mothers accepted that they need to improve their diet and would need expert advice. (Table-2)

During the comparison of BMI of the two groups of participants it was observed that there were more working women with normal weight in contrast to housewives. Similarly, looking at the overweight category, there were less working women and more housewives. Overall more housewives were found overweight as compared to working women (Table-3). In a comparable study, it was noticed after calculation of BMI, 76.7% of the non-working mothers were obese as compared to 50% of the working mothers which is in line with our study. **[11]** In one more study done in North Bengal Province of India, results similar to ours were observed where more housewives had higher body weight and BMI, whereas better health was noted in working women.[14]

Our study findings suggest that being housewife it can be a contributing factor towards weight gain as also supported by another study, which showed greater mean of weight in housewives than working women because of less spending of calories in day to day actions as compared to working women who use more calories due to jobs.**[14]** Also, more housewives in our study responded that their lifestyle is sedentary as compared to working women. (Table-2) Comparing our research work with the other studies where the interventions aimed at improving lifestyle by increasing physical activity and encouraging healthy eating, it was witnessed that nourishment in both groups differs and overall BMI was higher in housewives that was quite similar to our study.[15]

CONCLUSION

The results exhibited that more housewives were overweight in contrast to working women whose majority showed normal weight. Also, better dietary habits were observed in working women.

The study population were not entirely representative of urban population. Study sample size was limited; therefore, its result may not be extrapolated on all communities. Additional larger community based study should be done to validate the relationship between dietary practices and health consequences. In our study, the observation of more working mothers demonstrating normal BMI as well as healthier dietary practices in contrast to housewives strongly supports that being a working lady helps a person to maintain activity level and healthy diet preferences and therefore a resulting normal BMI.

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AUTHORS' CONTRIBUTION

LR: Concept and design of study and drafting the work. Analysis and interpretation of data for the work, major contribution in writing of manuscript. TMA: Editing of manuscript, revising the work critically for important intellectual content, Collection of data. AH: Concept and design of study, revising the work critically for important intellectual content, Final approval of the version to be published.

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