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Validation of Food Frequency Questionnaire with 24 Hour Dietary Recall for Assessing Caloric Intake among Pregnant Women (15-49 Years) of Karachi, Pakistan

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Introduction: Demand for nutritious food and caloric intake naturally increases during pregnancy. Low birth weight (LBW) occurs because of poor maternal health and nutrition. About 18 million low birth-weight babies are born every year, accounting to 14 per cent of all live births. During pregnancy, diet is a relevant predictor of maternal and fetal outcomes and also child development later in life. Recommended caloric intake of women with normal body mass index (BMI) is 2000 calories per day. When a woman conceives, her caloric requirements increase to 2500 calories per day. Calorie intake among pregnant women has not been assessed robustly in Pakistan. One of the reasons for this dearth of information is that there is no validated tool available for this assessment. In Pakistan, there are very few studies regarding validation of food frequency questionnaire. The aim of this study was to validate food frequency questionnaire with 24-hour dietary recall among pregnant women (15-49 years of age) of Bin Qasim Town, Karachi.

Methodology: This cross sectional study was conducted at four sites in Bin Qasim Town, Karachi: Cattle Colony, Ali Akber Shah, Ibrahim Hyderi, Ibrahim Hyderi Extension. Data was collected from May 2015 to Jan 2016. A total of 300 pregnant women of 15-49 years were selected using purposive sampling from ongoing surveillance of pregnant women organized by pediatric department of Aga Khan University, Karachi in Bin Qasim town. All pregnant women were eligible for the study except those with co morbid conditions of hypertension, diabetes and asthma and also women with multiple pregnancies were excluded. Socio-demographic questionnaire and a structured validated food frequency questionnaire (FFQ) were administered on the first day to the pregnant women. 24-hours dietary recall questionnaire were administered twice with fifteen days apart for validating the food frequency questionnaire. Height and weight of pregnant women was taken to determine their BMI. Univariate and multivariate linear regression was done between mean of two days 24-hours dietary recall and socio-demographic variables. Pearson's correlation was done between FFQ and 24-hour dietary recall for validation of food frequency questionnaire (FFQ).

Results: Being Sindhi speaking or other minorities were taking less calories compared to Urdu speaking community [β=-0.14 (95%CI: -0.30 to -0.03)]. Low income households (less than 10,000PKR) were taking less calories [β=-0.13 (95% CI: -0.33 to -0.03)] compared to those having income greater than 10,000PKR. Women with unwanted pregnancy had lower caloric intake [β=-0.17 (95% CI: -0.40 to -0.09)]. Pearson's correlation coefficient (r) between two 24-hour dietary recall was 0.54 and between total calories of FFQ and mean of two days 24-hr dietary recall was 0.57, at p value<0.05.

Conclusion: The Food Frequency Questionnaire is a useful tool to determine the calorie intake among pregnant women of Pakistan, where mother nutrition is a neglected issue. Recognition of the nutrition status may help in raising awareness and mainstreaming the maternal health as a public health concern at the national level.

Keywords: Validation; food frequency questionnaire; maternal nutrition; pregnant women; calorie; Pakistan.

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