

Pattern and Factors Affecting Utilization of Child Curative Health Services in the State of Bahrain

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Objective: 1) To determine pattern and extent of utilization of preschool primary health care curative services. 2) To determine factors influencing the utilization of these services.

Methods: This is a retrospective study. Study population consists of mothers and their children under five years of age who were registered in primary health care centers.

Outcome measure: Number of child's illness visit to the primary health care center in the previous 12 months was determined.

Results: The mean number of visits to PHC center was (5.87 /12 months) for urban children and (5.89 /12 months) for rural ones (a visit every 2 months). About 91% of urban children and 99% of rural children had visited at least one time PHC center for curative services. About three quarters of children in urban and rural areas were either regular or high users of curative services of PHC centers. Significant factors affecting utilization of curative care are child health status, age and sex of child mother own use of health center, parent education, mother health perception, mother psychological distress, satisfaction with health care services, mother familiarity with management of illness.

Conclusions: The study showed that there was relatively high utilization of curative care services.

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Access to and utilization of health services is one of the important parameters which policy makers and planners try to improve¹. It is important to have data about utilization as low utilization may reflect low satisfaction of patients with health services. In addition inappropriate utilization (low or high) may put great obstacles in provision of health services which are planned and budgeted on basis of average utilization². This study is part of a larger study of utilization of child health services in Bahrain (preventive and curative care).

METHODS

This is a combined cross-sectional and retrospective study. This study conducted in 1993. Study population consists of mothers and their children under five years of age who were registered in primary health care center.

Criteria for inclusion: Bahraini mothers with at least one child below five years of age and above 12 months. If mothers had more than one child below five years of age then one child is selected randomly.

Sampling technique: Primary health care centers were divided into two strata: urban and rural health centers according to the definition of urban and rural areas in

Bahrain³. One urban and one rural health centers were selected using a simple random technique and the study conducted in the related catchment areas. Mothers with children under five were selected by a systematic sampling technique of the family records in each health center.

Sample size: Sample size was calculated using the formula given by Lwanga for two sample situation⁴.

$$n = z^2 [P_1(1-P_1) + P_2(1-P_2)] / d^2$$

n – sample size

z = 1.96, desired confidence interval (95%)

d = 0.10 desired radius of interval and indicate degree of precision.

P₁ and P₂ = anticipated population proportions (50%, 50%)

A sample size of 193 children was needed from each health center giving a total sample of 386 children.

Definition of utilization: Utilization was defined in terms of number of times mother brought her child to the health center for an illness visit in the previous 12 months.

Model used to study utilization of health services: Anderson's model was used as a basis for studying variables included in this study^{1,5}.

Socioeconomic status: Families were classified into three

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levels of socioeconomic statuses (upper, middle and lower) according to education of father, occupation of father and family income⁶.

Measurement of mother's psychological distress: Mother's psychological distress was measured using the five-item version of the Mental Health Inventory⁷. Two items which detect anxiety and depression were selected.

Methods of data collection: Data were collected through the use of questionnaires and reviewing family records in the health centers. Records were checked for number of illness visits in the previous 12 months.

Data analysis: Data were analysed using SPSS and EPI INFO computer programs. First, bivariate analysis was done between the dependent variable (number of visits) and other independent variables. Second, those variables which were found significant in the bivariate analysis were entered into regression analysis to find out the most predictable variables affecting the use of child health services.

RESULTS

Table 1 shows some of sociodemographic features of urban and rural families.

Table 1. A comparison between sociodemographic characteristics of urban and rural families.

Variables	Urban	Rural	P-value
Mean age of child in months	39.5 sd=13	36.5 sd=14	.033
Mean age of mother	31.6 sd=5.5	31.8 sd=5.9	.729
Mean age of father	37.4 sd=7.7	38.5 sd=10	.268
Education of mother (median)	secondary	illiterate	.000
Education of father (median)	secondary	Primary	.000
Family size (no. of children)	3.8 sd=2	6.1 sd=3.2	.000
Social class (median)	middle	lower	.000

Table 1 shows that rural children are younger in age compared with urban ones. Urban parents, as expected, had higher education level compared with rural ones. In addition, urban families are of higher social class compared with rural ones.

Mean annual number of visits of children to curative health services and pattern of utilization: The mean number of visits to PHC center was found to be (5.87/12 months) for urban children and (5.89/12 months) for rural ones (a visit every 2 months). This difference was not statistically significant. About 91% of urban children and 99% of rural children had visited at least one time PHC center for curative services. The overall utilization percentage of curative services in both urban and rural areas was high.

Classification of children according to their frequency of visits to PHC center: Children were classified into three groups according to their frequency of visits: low, regular and high users of curative services. According to the average annual number of visits found in this study and the average standard deviation of visits between urban and rural children the following classification was designed:

Low use = 0-2 visits/year

Regular users = 3-10 visits/year

High users = more than 10 visits/year

Table 2 shows the distribution of children according to their frequency of visits into low, regular and high users of curative services of PHC center.

Table 2. Distribution of children according to their category of use of curative services in urban and rural areas.

Category of (children)	Urban	Rural	P
Low users	51 (26.4%)	41 (21.2%)	
Regular users	114 (59.1%)	130 (67.4%)	.254
High users	28 (14.5%)	22 (11.4%)	$X^2=2.7$
Total	193 (100%)	193 (100%)	

Table (2) shows that about three quarters of children in urban and rural areas were either regular or high users of curative services of PHC centers. This also reflects high utilization of curative services compared to the literature and could be attributed the same factors discussed earlier.

Tables (3, 4) shows the significant factors found in bivariate analysis affecting utilization of curative care in rural and urban areas.

Table 3. Significant factors affecting the frequency of children visits to primary care curative services in rural area

Variables	Positive association	Negative association	P
Age of the child	younger age (r=.21)	older age	.002
Sex of the child	male (mean=6.4)	female (mean=5.2)	.046
Education of Mother	literate (mean=6.4)	illiterate (mean=6.4)	.077
Duration of Residency	longer (r=.14)	shorter	.04
Presence of chronic illness in child	present (mean=9)	absent (mean=5.4)	.012
Presence of chronic illness in mother	present (mean=7.4)	absent (mean=5.3)	.026
Child health as perceived by mothers	fair/poor (mean=5.7)	excellent/good (mean=9.5)	.023
Mothers' health perception	fair/poor (mean=5.3)	excellent/good (mean=7.9)	.018
Knowledge score	high score (r=.15)	low score	.035
Mothers' first preference place for treating children	PHC center (mean=6.0)	Private clinic (mean=1.6)	.001
Mothers' use of health services	high use (r=.30)	low use	.000
Mothers' psychological distress score	high distress score (r=.16)	low distress score	.024

Table 4. Significant factors affecting the frequency of children visits to primary care curative services in urban area

Variables	Positive association	Negative association	P
State of ownership	rented houses (mean=7.2)	owned houses (mean=5.3)	.015
Occupation of father	skilled, soldiers (means=8.1, 6.4)	administrative (mean=3.1)	.006
Satisfaction with personal care of patient	high satisfaction (r=.16)	low satisfaction	.020
Mothers' first preference for treating children	PHC center (mean=6.5)	Private clinic (mean=4.2)	.01
Familiarity with management of common childhood ailments	low familiarity score (r=.23)	high familiarity score	.001
Growth charts being explained to mothers	explained (mean=7.7)	not explained (mean=5.4)	.049
Mother's use of health services	high use (r=.42)	low use	.000

From tables (3,4) it is clear that factors affecting utilization of curative services are somewhat different between urban and rural areas on bivariate analysis.

Predicting important variables affecting the utilization of curative child health services: In order to find the most important variables predicting the use of child health services among the significant variables found earlier in the bivariate analysis, multiple regression analysis was used.

Tables (5,6) present the most predicting factors in urban and rural areas.

Table 5. Regression analysis of number of children's visits to the PHC center in urban area on the significant independent variables.

Variables	Beta	T	P
Number of mother visits	.33	5.01	.000
PHC center as first preference	.19	2.93	.003
Health staff ever talked about growth chart	-.16	-2.63	.009
State of ownership	-.12	-1.99	.047
Familiarity score	-.11	-1.86	.063
Constant	9.54		
R square	.26		

Table 6. Regression analysis of number of children's visits to the PHC center in rural area on the significant independent variables.

Variables	Beta	T	P
Presence of chronic illness in child	-.215	-3.30	.001
Number of mother visits	.211	3.15	.002
Age of child	-.17	-2.66	.008
PHC center as first preference	.17	2.67	.008
Residency duration	.15	2.37	.018
Mother's health perception	.13	1.97	.050
Constant	5.43		
R square	.23		

Beta = Standardized Beta coefficient, T = Partial F-statistic for regression coefficients, R square = Coefficient of multiple determination.

Table (5) shows that the most predicting variables associated with high use of curative care in the urban area were: mother's high use of services, health center as a preference place for treatment, growth chart ever explained to mother, living in rented houses and high mother's familiarity score.

Table (6) shows that the most predicting variables associated with high use of curative care in the rural area were: presence of chronic illness in the child, high mother's use of health services, younger child, health center as a preference place for treatment, longer residency duration in the area and poor mother's health perception.

DISCUSSION

The annual mean number of visits is a useful measure which describes the overall utilization of health services². It can be used for comparative and planning purposes. It may reflect children's health status in the community, health seeking behaviour, parents' attitude to health services and accessibility to health services. The annual mean number of visits found in this study (about 6 visits per year) and the percentage of utilization are somewhat higher than that reported in the literature. Newacheck⁸ in USA in 1988 in a nationwide study found that the average contacts with child health services was 3 visits per year. Tessler and Mechanic¹² in USA in 1973 found that mean number of visits of children to a general practice was 1.49 during a 12-month prospective study. Starfield reported that the average physician's visit per child per year in the United States in 1975 was 4.2 visits². Horwitz et al¹³ in New Haven in 1985 found that the average visit for below five year-old children to curative child health services was 3.3 visits per year. These differences in results may be due to difference in methods, cultures, attitudes towards health services, health perception, parents' psychology or could be due to real difference in health status and illness patterns. The proportion of utilization of curative services in our study is somewhat higher than those obtained by Khedr in Egypt¹⁴ and Woodward in Canada¹⁵. Newacheck in USA in 1988⁸ found higher utilization rate than the rate in our study.

He found in his nationwide study that 91% of children below the age of five years were either moderate or high users of health services in one year period. Factors predicting the use of curative services in our study were different between urban and rural areas. The most predictable factors of utilization in both urban and rural areas were mother's own use of health services and health status of the child. This agrees with the findings obtained by other researchers^{8,11,12,16}. This indicates that mother's health seeking behavior may be passed on to their children. Children with chronic illnesses as expected used curative care more frequently than healthy ones. Interestingly, explanation of growth charts to mothers was associated with high use of curative services in the urban area. Ghamdi in Saudi Arabia also found similar results¹⁷. Mothers who were more familiar with management of common childhood ailments brought their children less frequently to the curative care than those who were less familiar. This finding goes with the results obtained by Horwitz et al¹³. Younger children used curative care more frequently compared with older ones in the rural area. This is expected as the child in his early life tends to

get more frequent illness episodes than in later life. Tables (5) and (6) shows that R square ranges from 0.26 in the urban area to 0.23 in the rural area. This means that the model variables explain only 23% - 26% of total variation in the frequency of childrens' curative visits to the primary health care services. This indicates that there are still other factors affecting the frequency of curative care use which were not included in the model. This percentage, however, is close to most figures reported in the literature^{18,8,11,2}. It is postulated that the low R square found in most studies is due to missing of some important variables influencing the use of health services and large degrees of randomness which are inherent in the utilization of these services. In addition, the model used to explain variation in the use of health services is still to be designed adequately⁸.

CONCLUSIONS AND RECOMMENDATIONS

The study showed that there was relatively high utilization of curative care services. The most predicting variables influencing the use of curative services are mother's own use of health services and health status of the child. This implies that educating mothers about management of common childhood illnesses may reduce unnecessary visits to curative care and reduce the burden and expenses on the health care system.

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