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ORIGINAL RESEARCH ARTICLE

Satisfaction of maternal and pediatrics clinical service in Woldia General Hospital, North Wollo Zone, Amhara Region, Ethiopia.

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ABSTRACT

Maternal and pediatrics was the health and medical care of infant and children and pediatric means healer of children. Health care satisfaction was emotional interaction between their expectation regarding ideal nursing care and perceptions of actual nursing care. The study was assessing satisfaction of maternal and pediatrics health care and identifies the determinant factors affecting the satisfaction. The study was conducted in Woldia General Hospital in 2013E.C (2020/21).The study was hospital based descriptive cross-sectional study carried out for three months (October to December 2020). In this study, all cases were confirmed by sample of 330 child birth women selected by simple random sampling and the data collected by questionnaire. The data analyzed by chi-square and logistic regression using SPSS software. According to the results, 78.8% did unsatisfied and 21.2% were getting satisfaction indicates most of mothers were unsatisfied in service. From the outputs satisfaction of modern maternal pediatrics health care delivery in service total of 330 respondents' equipment and satisfaction of respondents who respond their medium (41.4%) was more satisfied than those who equipment fulfils (30%) and low (28.6%) means most of child birth women's whose equipment medium from the hospital were more satisfied by the maternal pediatrics health care in the hospital. In conclusion, unsatisfied maternal and pediatrics health care happened due to employed health professionals' lack of Punctuality and cleanliness were reasons according to logistic regression analysis. In addition, lack of Professional ethics from health professionals. Moreover, the study recommended that give attention about general hospitals maternity care like referral hospitals with even fill the equipment.

Key words: Maternal and pediatrics, health of children, logistic regression, Ethiopia

Background

Pediatrics is branch of medicine dealing with the health and medical care of infant and children and the word pediatric means "healer of children" (Schrier et al., 2020). Pediatrics is concerned not only about immediate management of ill child but also long-term effects on quality of life, disability and survival (Aspesberroet al., 2015). Health care satisfaction means emotional reaction as a result of interaction between their expectation regarding ideal nursing care and their perceptions of actual nursing care (Johansson, 2002). According to international pediatrics association, pediatrics health refers to the health of children during after pregnancy and the postpartum period (Chaudron et al., 2004).Recognition since the international conference on population and development in Cairo, the utilization of maternal pediatrics health care is one important factor to reduce the incidence of child mortality (Ochako et al., 2011).

Africa health association pediatrics is legally defined any individuals' age between birth and puberty and stage of children years on the country and culture. The level of patient satisfaction with nursing care is an important indicator of quality of care provided in hospitals (Lyu et al., 2013).Availability, quality and affordability of maternal pediatrics health care services for sure influence use of the services especially by women, even under same circumstances some women use the services more than the others(Walsh et al., 1994).

According to Ethiopia context pediatrics health care user's satisfaction some time treated as an outcome measure of health care providers. A satisfied health care user is more willing to recommend the hospital to provide his or her care to others (Fatima et al., 2018).

In young children and infants this should start from the pregnancy, and include details of the delivery and neonatal period, including any feeding, growth or early development problems. Ask about all illnesses and hospital attendances, including accidents (Hockenberry and Wilson, 2018).We can determine quality care of one hospital by the health care user's satisfaction. Parental satisfaction with a pediatric day center is essential for the medical treatment of children, since it is closely related to compliance (Weissenstein, 2011).The importance of satisfaction of maternal pediatrics health care in clinical services reducing child mortality and infant morbidity has received increasing (Victora et al., 2011).This study was designed to assess the satisfaction of mother's pediatrics clinical service in and to know the relationship between satisfaction and explanatory variables and to identify significant effects on satisfaction of maternal pediatrics health care in clinical service.

Materials and Methods

Study design

This study was a hospital based descriptive cross-sectional study carried out from the month of October to December 2020.

Study Area

This study was conducted at Woldia general hospital in North Wollo which is located in Amhara region at 521 km from Addis Ababa, 360 km from Bahir Dar and 120 km from South Wollo Desie from Ethiopia.

Study Population and the sample

All child birth women pediatrics treatment from Woldia general hospital was investigated in the study. All those who have pediatrics treatment were included.

Inclusion criteria

All confirmed cases of women pediatrics treatment from Woldia general hospital admitted and managed in Woldia General Hospital during the study period with complete data in files.

Exclusion criteria

All cases were not pediatrics treatment criteria were excluded.

Data collection

We used primary source of data collection used to collect raw data from respondent through observation, personal interview, designed questionnaires so on and in the study, we were used cross sectional data collection method.

The study variables

The response variable in current study was mother's satisfaction which is categorized as whether mothers were satisfied or not satisfied in Woldia general hospital. The response variable dichotomous category, thus coded as, the mothers get satisfied 1 or not satisfied 0.

The predictor variables in the study were religion, marital status, educational level, occupation, income, cleanliness of hospital, distance, professional ethics, and equipment's of hospital, waiting time, payment status and punctuality.

Sampling Design and Techniques

The sampling method we used in this study was a simple random sampling procedure (West, 2016). We used the cross-sectional sample design to know the factor that affects mothers' pediatrics satisfaction in Woldia General Hospital.

Sample size determination

Sample size determination is one of the first considerations in planning sample survey. The total number of households (entries population) were 2347. The estimated proportion those are low and high attitude on clinical service was equal (0.5). The level of significance and margin of error assume d^2 was 0.05.The Sample size ***n*** was determined by proportional sampling by using their formula (Dell et al., 2002).

$$n = \frac{z^2_{\frac{\alpha}{2}} * p * q}{d^2}$$

$= (1.96)^2(0.5)\ (0.5)/0.05*0.05$

$= 329.16 \sim 330$ for large sample size ***n***.

Data entry and Analysis

After the data collected, the next step was editing, analyzing and summarizing the data in appropriate manner and also the available data would be transformed in to reliable and useful information with the help of statistical analysis procedure by using SPSS version 25. Descriptive statistics is to provide over view of the information collected. It was used during the calculation of the frequency, percentage, and table. Inferential statistics was making inference or conclusion about population based on data obtained from a limited number of observations that come from population. Inferential statistics of estimation include chi-square test and logistic regression model under consideration.

Chi-square test

This test was applied when we have two or more categorical variables from single population. The test was used to determine where there is a significant difference between the dependent variable and independent variable. It required sufficiently large expected frequency for each cell. The data are obtained from a random sample and the sample size is large. The population must be normally distributed for the variable under study. The sample must express in original units rather than in percentage or ratio (Lancaster and Seneta, 2005).

Binary Logistic Regression

We applied binary logistic regression in the study. Hence, the dependent variable is dichotomous and the independent variables are either continuous or categorical variables.The dependent variable in this case is dummy variable, which take the value of one for satisfied and zero for not satisfied. (Park, 2013).

Odds Ratio

We applied Logistic regressions in this study was work with odds. Consider collection of independent variables would be denoted by the vector. (Bland and Altman, 2000).

Parameter Estimation for Logistic Regression

The maximum likelihood was most computing estimation methods used in fitting logistic regression model (Dijkstra, 1983).

Goodness of Fit

Analyzing goodness of fit involves investigating how close values predicted by the model with that of observed values (Zeileis and Hothorn, 2002). The likelihood ratio test statistic was assessing the overall fit of the logistic regression model (Young, 1981). The

Wald statistic was test the significance of individual logistic regression coefficients for each independent variable (Park, 2013).

Model Diagnostics

After fitting a model, it is important to determine whether the necessary model assumptions are valid before performing inference (Sarkar et al., 2010). The appropriate model diagnostics prior to studying the residuals it is common to standardize them to compensate for differences in leverage (Zeileis and Hothorn, 2002).

Result

The data were collected on satisfaction of child birth women treatment from Woldia general hospital. The sample size determined for this study was 330 mothers from 2347 total number of population, there for all respondents could respond to the questionnaire. So, the analysis was based on information and data obtained from 330 respondents

Table 1 Descriptive statistics of maternal and pediatrics clinical service in Woldia General Hospital, North Wollo Zone, Amhara region, Ethiopia.

		Satisfaction			
		NO		Yes	
Explanatory variables and Category		Frequency	Percent	Frequency	Percent
		260	78.8	70	21.2
Marital status	Married	164	63.1	31	44.3
	Divorced	40	15.3	24	34.3
	Windowed	48	18.5	12	17.1
	Single	8	3.1	3	4.3
Occupation	House wife	120	46.2	35	50
	Own business	31	11.9	4	5.7
	Private employee	57	21.9	14	20
	Public employee	52	20	17	24.3
Income	<3000	187	71.9	27	38.6
	3000-5000	55	21.2	36	51.4
	>5000	18	6.9	7	10
Religion	Muslim	137	52.6	38	54.3
	Orthodox	73	28.1	21	30
	Protestant	8	3.1	3	4.3
	Catholic	42	16.2	8	11.4
Cleanness of the hospital	Clean	60	23.1	25	35.7
	Medium	133	51.2	19	27.1
	Not clean	67	25.7	16	37.2
Educational level	Illiteracy	107	41.2	24	34.3
	Primary	130	50	36	51.4
	>Secondary	23	8.8	10	14.3

Table 1. continued ...

Explanatory variables and Category		Satisfaction			
		NO		Yes	
		Frequency	Percent	Frequency	Percent
		260	78.8	70	21.2
Distance	<10km	150	57.7	23	32.8
	10km-100km	74	28.5	27	38.6
	>100 km	36	13.8	20	28.6
Professional ethics	High	94	36.2	20	28.6
	Medium	106	40.7	35	50
	Low	60	23.1	15	21.4
Equipment	Fulfill	87	33.5	21	30
	Medium	116	44.6	29	41.4
	Low	57	21.9	20	28.6
Waiting time	>24 hrs	85	32.7	32	45.7
	11-24 hrs	89	34.2	29	41.4
	<10 hrs	86	33.1	9	12.9
Payment status	Expensive	109	41.9	31	44.3
	Medium	102	39.2	29	41.4
	Cheap	49	18.9	10	14.3
Punctuality	Good (Punctual)	100	38.5	34	48.6
	Medium	85	32.7	24	34.3
	Low (Not Punctual)	75	28.8	12	17.1

According to the output of satisfaction of maternal and pediatrics marital status of patients was married, divorced, windowed and single 44.3%, 34.3%, 17.1%, 4.3% and 63.1%, 15.3%, 18.5%, 3.1% were satisfied and unsatisfied respectively by the maternal and pediatrics health care delivery Woldia general hospital. When the woman's have no occupation house wife, own business, private and public 46.2%, 11.9%, 21.9%, 20% were unsatisfied and 50%, 5.7%, 20% and 24.3% were satisfied respectively by the maternal and pediatrics health care delivery of Woldia general hospital health so on. The woman's have payment status expensive, medium and Cheap 41.9%, 39.2%, and 18.9% were unsatisfied and 44.3%, 41.4%, and 14.3% were satisfied the maternal and pediatrics health care delivery of Woldia general hospital health so on. From 330 child birth women considered in the analysis, 78.8% were unsatisfied and 21.2% were satisfied at the time of data collection. That means majority of women were unsatisfied.

Table 2. Cross tabulation and chi-square of maternal and pediatrics clinical service in Woldia General Hospital, North Wollo Zone, Amhara region, Ethiopia.

Explanatory variables	Pearson chi-square	Likelihood ratio	Df	Sig.
Income	7.900	7.222	3	0.048
Cleanness of the hospital	3.630	3.009	1	0.037
Educational level	2.604	2.578	2	0.002
Professional ethics	10.628	9.004	2	0.005
Equipment's	8.163	8.543	2	0.017
Waiting time	1.969	1.546	2	0.024
Payment status	3.171	2.658	2	0.015
Punctuality	6.024	5.454	2	0.049

According to the cross tabulation output the chi-square test between satisfaction and income, educational level, Cleanness of the hospital, waiting time, professional ethics, punctuality, equipment's, payment status are significant because the p-values are less than 0.05 which is less than α level of significance of 0.05 indicating that those variables have significant association with satisfaction. Pearson Chi-Square with different degree of freedom shows that there is significant association between satisfaction and Income, Cleanness of the hospital, educational level, Professional ethics, waiting time, Payment status, Punctuality and reasons of no satisfaction in mothers are the same likelihood ratio test and rejection of null hypothesis significantly affects satisfaction of maternal pediatrics. So that, p-values are less than 0.05 shows that were association between satisfaction of maternal and pediatrics and explanatory variables.

Model Diagnostics

The change in deviance plot helps us to identify cases that are poorly fit by the model. Larger changes in deviance indicate poorer fits.

Table 3. Goodness-of-Fit of the model of maternal and pediatrics clinical service in Woldia General Hospital, North Wollo Zone, Amhara region, Ethiopia.

	Goodness-of-Fit test	
Residuals	Chi-Square	Sig.
Pearson	2.746	0.878
Deviance	6.325	0.758

The SPSS output was insignificant p-value shows that there is a good fit of the model between the predictor variables and satisfaction. That means p-value greater than 5% in deviance and Pearson chi square are adequately fits the model.

Binary logistic regression analysis

A forward binary logistic regression analysis was carried out to select the most important covariates among the 12 covariates provided from the bivariate analyses. As a result, 8 of the variables are found to be significant using the forward selection likelihood ratio test of the binary logistic regressions procedure at significance level of 0.05.

Logistic Regression Model

The binary logistic regression is constructed in order to examine whether the satisfaction of patients from healthcare depends on our independent variables. The log odds of respondents who said health care's providers Punctuality medium and punctuality low are 9.57 and 2.44 respectively times less likely to be satisfied than those respondents who said the Punctuality full.

Table 4. Variables in the Equation of maternal and pediatrics clinical service in Woldia General Hospital, North Wollo Zone, Amhara region, Ethiopia.

Explanatory Variables	B	S.E.	Wald	Df	Sig.	Exp (B)	95% C.I for EXP (B)	
							Lower	Upper
Punctuality(full)			17.70	2	0.00			
Punctuality(med)	2.26	0.54	17.32	1	0.00	9.57	3.30	27.71
Punctuality (low)	0.89	0.45	3.97	1	0.05	2.44	1.01	5.84
Cleanness (clean)			11.30	2	0.004			
cleanness (medium)	1.89	0.58	10.52	1	0.001	6.61	2.11	20.70
cleanness(not)	0.95	0.38	6.13	1	0.013	2.59	1.22	5.49
Professional ethics			6.38	2	0.041			
(full)	1.17	0.55	4.52	1	0.033	3.22	1.10	9.47
ethics(medium)	1.10	0.45	5.84	1	0.016	2.99	1.23	7.27
ethics(no)								
Constant	-1.81	0.80	5.05	1	0.025	0.164		

At the 95% confidence interval the odds of the satisfaction of maternal and pediatrics who were the health care's Punctuality medium is 3.3times as low and 27.7times more than who were the health care's Punctuality full and the odds of the satisfaction of maternal and pediatrics who were the health care's punctuality no is 1.01times as low and 5.84 times more than who were the health care's Punctuality full. The odds ratio of respondents who respond the cleanliness medium and cleanliness not is 6.6 and 2.6 respectively times less likely to be satisfied than those respondents who were cleanness clean. The odds of the satisfaction of maternal and pediatrics who were the cleanness medium is 2.11times as low and 20.7 times more than who were the cleanness clean. The log odds of respondents who respond the Professional ethics (medium), Professional ethics (no) of health care providers is medium is 3.22 and 2.99 respectively times less likely to be satisfied than those respondents who respond its Professional ethics full. The odds of the satisfaction of maternal and pediatrics who were Professional ethics medium is 1.10 times as low and 9.47 times more than patients who were Professional ethics full and the odds of the satisfaction of participants who were Professional ethics no is 1.23 times as low and 7.27times more than patients who were the Professional ethics full. According to the logistic regression model Logit $\Pi(x) = -1.81+2.3$ Punctuality (med) $+0.9$Punctuality (low) $+1.9$cleanness (med) $+0.95$cleanness (not) $+ 1.2$ethics (med) $+ 1.1$ethics (no). For one unit change the variables punctuality (medium and low) the logit units of satisfaction of maternal pediatrics change by 2.3 and 0.9 units respectively. For one unit change the variables cleanness (medium and low) the logit units of satisfaction of maternal pediatrics change by 1.9and 0.95units respectively. For one unit change the variables professional ethics (medium and low) the logit units of satisfaction of maternal pediatrics change by 1.2 and 1.1 units respectively.

Discussions

The previous paper in the study were estimated the level of satisfaction maternal pediatrics care with Bahirdar Felgahiwot, Gondar and Dessie referral hospitals' in Amhara Region of Ethiopia (Tayelgn *et al.,* 2011). The overall proportion of mothers who were satisfied with delivery care in this study was 61.9% (Tayelgn *et al.,* 2011).Patient satisfaction is an attribute of quality, without patient satisfaction there could not be good care (Weissenstein, A., 2011). That was the reason why it was very important, apart from a good professional

medical care, that parents of children visiting a pediatric practice were satisfied in general (Weissenstein, A., 2011). There were many factors that determine whether the parents were satisfied after their visit to the pediatric day center (Weissenstein, A., 2011). The doctors' ability to communicate adequately, listen carefully or spend sufficient time with the parents essential for a high satisfaction of maternal and pediatrics, but also other factors as décor of the waiting area, adequate consultation hours and a short waiting period were factors affecting satisfaction maternal and pediatrics clinical service. Parent satisfaction with the pediatric day center visit is significantly negatively related to wait times (Weissenstein, A., 2011). That means waiting period was 13.74minutes, which was a very good value in contrast to the average calculated waiting time of 28minutes for pediatric day centers (Weissenstein, A., 2011). Therefore, we would have expected an even higher rate of satisfaction of maternal and pediatrics clinical service. A possible explanation could be that the majority of parents (84%) tend to overestimate their waiting time (Weissenstein, A., 2011). A high percent waiting time was a negative correlation to overall satisfaction of maternal and pediatrics service (Weissenstein, A., 2011). Even more important and leading to higher levels of satisfaction of maternal and pediatrics clinical service was the relationship between the parents and their doctor (Weissenstein, A., 2011). For the parents as well as for patients, it was very important that the doctor listens carefully, they feel understood and proposed therapy (Weissenstein, A., 2011, Victora, C.G., et al., 2011). For the doctor on the other hand, a satisfied parent was very important, since there was significant relation between patients, parents', satisfaction of maternal and pediatrics clinical service and compliance (Weissenstein, A., 2011, Victora, C.G., et al., 2011). Then, good compliance was essential for a successful treatment (Weissenstein, A., 2011, Victora, C.G., et al., 2011).

In the past three decades, infant mortality rates have reduced substantially, decreasing by 5·5% a year in the 1980s and 1990s, and by 4·4% a year since 2000 to reach 20 deaths per 1000 live births in 2008 (Victora, C.G., et al., 2011). The median duration of breastfeeding increased from 2·5 months in the 1970s to 14 months by 2006–07 (Victora, C.G., et al., 2011). Official statistics show stable maternal mortality ratios during the past 10 years, but modeled data indicate a yearly decrease of 4%, a trend which might not have been noticeable in official reports because of improvements in death registration and the increased number of investigations into deaths of women of reproductive age (Victora, C.G., et al., 2011).

According to the results, about 78.8% were not getting satisfaction of maternal and pediatrics and 21.2% were getting satisfaction of maternal and pediatrics clinical service. This indicates that most of maternal and pediatrics were unsatisfied in Woldia general service. So that, from the results obtained from referral hospitals and general hospital were almost inverse in their maternity services. Due to this reason maternal pediatrics health healthcare were preferable in referral hospitals'. The most important significant variables identified in the binary logistic regression were Punctuality, cleanness, Professional ethics are reasons for absence of satisfaction of maternal and pediatrics from 13 explanatory variables.

Conclusions

Maternity healthcare treatment was given great attention in Ethiopia since it was identified that without women and child, there were no life continuity. Continuous monitoring and tracking are required to secure an in-depth understanding of the maternity healthcare by providing an improved evidentiary basis for standardizing the diagnosis and treatment of child birth women. The main objective of this research was assessing the satisfaction of modern maternal pediatrics health care and to identify the determinant factors (variables) affecting the satisfaction. From the outputs we can conclude that satisfaction of modern maternal pediatrics healthcare delivery of Woldia general hospital from the total 330 respondents 48.6% good punctuality, 34.3% medium punctuality and 17.1% low punctuality were satisfied indicates most of child birth women's who get treatment from good punctually from the hospital were satisfied by the modern maternal

pediatrics health care delivery of the hospital. The variables which have a determinate factor on satisfaction of modern maternal pediatrics health care are Payment status, Punctuality, waiting time, cleanness of hospital, Professional ethics has a significant effect on the satisfaction of the modern maternal delivery of Woldia general hospital. The relationship between cleanliness and satisfaction and the respondent and who respond the hospital is not clean and medium are less satisfied than those who respond it is clean. The relationship between professional ethics and satisfaction of respondents who respond their professional ethics is very good are more satisfied than those who said their professional ethics is medium and low. The relationship between punctuality and satisfaction is health care provider's punctuality is full and are more satisfied than who respond their punctuality is medium and low. The relationship between waiting time and satisfaction is health care waiting time (11 -24hrs) and (>24hrs) are less likely to be satisfied than those respondents who respond the waiting time is less than 10hrs.The relationship between payment status and satisfaction is payment status is less likely to be satisfied than those respondents who respond is cheapest. The researcher were recommended that most of the respondents' satisfaction of maternal and pediatrics were affected by the health care providers' lack of professional ethics. So that, the hospital needs to work hard to improve its workers professional ethics by given them training about how to manage patients by being professionally ethics. Some respondents are not satisfied by the hospitals cleanliness so that the hospital needs to work strongly on cleanliness of the hospital. The other factor that affects the satisfaction of the respondents is the punctuality of the health care providers. The hospital should give much attention on the punctuality of the health care providers and have to check their punctuality frequently.

Competing interests

The authors declare that there were no competing interests.

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