

Satisfaction of Caretakers on Community Based Newborn Care and Its Predictors in Boloso Sore District, Southern Ethiopia

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Abstract

Background: A community based newborn care was very important to the survival of newborns. The program is primarily provided by Health Extension Workers. However, the quality of the care in relation to caretakers' satisfaction has not been adequately documented. Therefore the aim of this study was to assess satisfaction of caretakers on Community-Based Newborn Care and its predictors in Boloso Sore District in South Ethiopia.

Methods: A community based cross-sectional study design was done on 426 caretakers with infants' age less than 6 months. The outcome measure was satisfaction of caretakers. Socio-demographic characteristics and service utilization of respondents, and institutional and provider-related factors were predictors of caretakers' satisfaction on the service. Structured questionnaire developed from relevant literatures and pretested before in use. The outcome was measured by using a 5-point Likert scale of seven questions (items). The seven items were also assessed for overall reliability (Chronbach's $\alpha=0.94$). A multivariate logistic regression was used to identify predictors of satisfaction of care takers by controlling potential confounders.

Results: Based on this study 48.8 % of caretakers who received the Community Based Newborn Care from health extension workers were satisfied. Factors associated with their satisfaction were, educational status (AOR: 3.38, 95%CI: 1.02-11.27), postnatal care given by HEWs (AOR: 0.61, 95%CI: 0.39-0.98), recent child birth at home (AOR: 1.95, 95%CI: 0.99-3.86).

Conclusions: More than half of caretakers who received CBNC from health extension workers in the study area were dissatisfied with the service. Public health interventions focusing on postnatal care and promoting institutional delivery might contribute to improve caretakers' satisfaction.

Background

A neonatal period is the riskiest time to survive in human life [1, 2]. In Ethiopia, neonatal mortality is unacceptably high, and a trend in reduction is slower as compared with infant and child mortality[3, 4]. In 2015 alone, 2.7 million neonates died in the world [5] which accounts to 44% of all deaths among under age 5 children. Hence, reducing neonatal mortality has remained to be a global agenda, 'the Sustainable Development Goals 3 (SDG3) [6].

About 90% of neonatal deaths in Low Income Countries (LICs) are caused by asphyxia, neonatal infections and prematurity [7–10]. Whereas, in such settings, the neediest have less access to essential newborn care augmented with community's poor health seeking practice to newborns [11–13]. Studies disclose that about 15–32% of neonatal deaths in LICs could be reduced through achieving a high coverage of a few key and essential practices [14–16]. These include hygienic cord care, thermal care, optimal breast breastfeeding, community-based newborn care (CBNC) and improved health care seeking for illnesses [17, 18].

Ethiopia is one of the six high burden countries in neonatal mortality in the World. Estimated 37 of Ethiopian newborns die out of 1,000 live births. Whereas, the SDG targets to make it lesser than 12 per 1000 live births. The SDG's target entails achieving all pregnant mothers give birth at health facilities to attain its target for the burden of neonates. Nonetheless, estimated 80% of Ethiopian babies are born at home each year [19, 20]. Accordingly, the decline in neonatal death in Ethiopia was less than 2% per annum [21].

Community Based Newborn Care (CBNC) is a national program in Ethiopia. The program was intended to improve newborn survival through the Health Extension Program (HEP). It has been implemented in Ethiopia since 2013. The approaches in the program are both preventive and curative services during antenatal, child birth and the postpartum period, for mothers and their babies. It focuses on active case identification, timely provision of care, and treatment [22, 23]. The strategy in the CBNC is integrating community based health care system as an effective approach. The preventive packages such as behavioral change communication campaigns, health education through home visits, and participatory campaigns to reduce delays in health care seeking.

Improved health care seeking for newborns is said to be beneficial for both the newborns and their mothers. Caretakers' (mainly mothers) satisfaction influences the optimal use of the services; and their experiences while obtaining the care is supposed to be an important predictor of future use of such services and thus influence care-seeking behavior among others [24, 25]. Therefore, this study was aimed to assess the level of satisfaction of caretakers on CBNC and factors associated with it among rural women in Boloso Sore District, Wolaita zone, Southern Ethiopia, 2017.

Methods

Study Setting and Study period

This study was conducted in rural Boloso Sore district in Wolaita zone administration in southern Ethiopia from August to September 2017. Boloso Sore District is one of the twelve rural districts in Wolaita Zone. The district is estimated to be 306,636 square kilometers and a projected total population of 201,334 people lives in the district in 2017. The district is located in about 329 kilometers to south direction from Addis Ababa (Ethiopia's capital) and 162 kilometers southwest of Hawassa (a regional capital for southern Ethiopia). Eight health centers and 32 HPs in the district provide primary health services to the population; of the HPs 29 are in rural settings. The CBNC services are provided in rural HPs in the study area.

Study design

A community-based cross sectional study design was conducted among mothers who received CBNC to their newborns in the last six months.

Source Population

All mothers who have infants less than 6 months of age who are registered in the CBNC log book in rural Kebeles in Boloso Sore District were included.

Study population

Mothers who received CBNC for their newborn in the last 6 months prior to the survey were included from source population until having the required sample size. We used 426 mothers who were selected through systematic random sampling from lower administrative units in Boloso Sore district as a sample population.

Sample Size Determination

The required sample size of 426 caretakers was calculated by using OpenEpi software with assumptions of a single population proportion: 10,000 minimum population size, 95% level of confidence, 50% anticipated proportion of the outcome (mothers' satisfaction) was used due to we didn't access similar study, 5% desired margin of error and 10% non-response rate.

Sampling

Twelve rural kebeles were selected out of 29 kebeles in the study district through simple random sampling by using SPSS syntax. Sub-samples were determined for each HP catchments based on proportional to size of the population of infants in the specific kebeles. Finally women with infants who received the CBNC service within the last 6-months prior to data collection period were systematically selected from the registry of each selected HPs (Table 1).

Inclusion criteria

Women/parents with infants less than 6months of age who received the service at selected kebele during the study period were included.

Exclusion criteria

Among Women/parents within the selected households who received the service within 6-months prior to the data collection, but lost their infants were excluded.

Data collection

Data was collected by 8 diploma nurses who had experience on data collection by using structured and pretested questionnaire after giving one day intensive training for the data collectors by principal investigator. The overall data collection process was supervised by two health Officers who are trained on community-based newborn care. Principal investigators frequently followed entire data collection process with taking appropriate measures when any gaps identified.

Outcome variable

The main outcome variable of interest was satisfaction of caretakers on community-based newborn care. The overall satisfaction was defined as 'proportions of caretakers who are satisfied with the variables, representing dimension of their satisfaction [38].

We adapted a Likert scale questionnaire with seven questions previously used in some studies in Ethiopia and elsewhere. Each of the questions have five response options as very satisfied, satisfied, neutral, dissatisfied and very dissatisfied in ordinal categories. We determined dichotomous categories of the outcome in such a way that very satisfied and satisfied were re-coded to satisfied group and the other three responses were coded as to "dissatisfied". People who prefer neutral response were assumed that they would not like to disclose their dissatisfaction; thus it could be unlikely for the satisfied not to disclose their feelings or experiences. The overall satisfaction was calculated by using the median of the sum of the numeric codes of logically ordered response categories; median and below were classified as dissatisfied and above the median were grouped as satisfied [39].

Exposure variables

Scheduled home visits for PNC by HEW (within a day postpartum, third day and seventh day visits) was the main exposure variable of interest.

Covariates or potential confounders

Socio-demographic factors: Household income, Age, occupation and Educational status of the respondents; *Facility related factors:* Access and cleanliness of the HPs; *Maternal Health Service related factors:* utilization of services such as ANC, PNC, institutional delivery, place and number of PNC and ANC and visiting other health facilities to get similar service.

Operational definition

Satisfied: for each responses to seven satisfaction measurement items very satisfied and satisfied considered as satisfied, and above the median of the sum of the numeric codes of logically ordered response categories were taken as *satisfied*.

Dissatisfied: median and below the median of the sum of the numeric codes of logically ordered response categories were classified as dissatisfied and for each responses on seven items, 'very dissatisfied', 'dissatisfied' and 'neutral' as *Dissatisfied*.

Data quality assurance

Sample size was checked for adequacy and it was adequate enough by having the power of 92.2% by KMO & Bartlett's test. The tool was checked for face validity by using pre-test on 22 caretakers' (5%). Throughout the progress of the data collection, interviewers were supervised at each site, regular meetings was held between the data collectors and the principal investigators together in which problematic issues arising from interviews which was conducted and mistakes found during editing was discussed and decisions was reached. The collected data was reviewed and checked for completeness before data entry; the incomplete data was discarded. Data entry format template was produced and programmed. Double entry was done on 10% questionnaires to check consistency by using Epi Data software.

Data was cleaned and coded, and entered into EpiData version 3.1 and then exported to SPSS version 20 for analysis. A standard codes were used for uniform answers such as yes, no, and not indicated by using a coding keys to make data entry more organized. The data was also checked for internal consistency by using Chronbach's alpha and was said to have the value of 0.94.

Statistical Analysis

Data analysis carried out on SPSS version 20. Descriptive statistics was used to determine satisfaction indices. Frequencies, percentages, and cross tabulations were computed. Cronbach's alpha was calculated to describe the reliability of the study tool. Exploratory analysis was done to look for loading of the seven questions to some characteristic components with a combined variance explained by the rotated components through varimax rotation (Horn's Parallel analysis). A dose response relationship of the exposure and outcome categories was assessed by using a chi-square test for trend. Multivariate logistic regression was applied to identify independent predictors for the outcome after controlling potential confounders. A summary statistics of proportions including Odds Ratios and 95% confidence intervals used, and statistical significance at p-value < 0.05.

During factor analysis, to measure the overall level of satisfaction with community based newborn care in this study, seven factors with Eigen value greater than one were entered into the model and were grouped into two components. Component one (provider-related aspect) contains four dimensions: "Care my child received from HEW", "Treatment given to my child", "Timely treatment or referral was considered by HEW", "Average time taken by HEW during assessment and treatment of newborn" and "Approach of HEW"; and institutional aspects were categorized under component two: "Working hours of HP" and

“Cleanliness of the facility”. The model showed that two components measured more than 84% of the overall satisfaction level of the respondents.

Results

Four hundred twenty-six caretakers participated in this study with overall response rate of 100%. Four hundred sixteen (97.7%) of study participants were females. The mean age of the respondents was $31.07 \pm 5.4SD$. Four hundred eight (95.8%) of the respondents were married. Three hundred forty-one (80%) were in the aged 25 –39 years. As to their educational status, 172 (40.4%) had no formal education, and the rest had some level of achieved education. With regard to occupation, 310 (72.8%) of their households live on farming as their main income (Table 2).

Health Care service Utilization

Two hundred ninety (about seventy percentages) of the mothers (respondents) had Antennal care visit (ANC) during their last pregnancy. Two hundred fifty-seven (60.3%) mothers had recent child birth in health facility and 204 (49%) reported visiting health facilities for PNC. Three hundred sixty-seven (62.7%) respondents reported that they have visited health facilities other than HPs (Table 3).

Caretakers’ Satisfaction on CBNC

Based on the factor analysis, the respondents’ satisfaction towards specific dimensions, 212 (49.8%) of the respondents were satisfied with the health care provider-related dimensions, and the rest 214 (50.2%) were dissatisfied; And 197 (46.2%) were satisfied and 229 (53.8%) were dissatisfied with facility-related factors (Figure 4 below).

Based on this study 43 (10.1%), 165 (38.7%), 34 (8%), 113 (26.5%) and 71 (16.7) of the respondents were very satisfied, satisfied, neutral, dissatisfied, and very dissatisfied in logical order respectively (Table 4 below). Thus an overall 208 (48.8%) of the respondents were satisfied in CBNC they received from HEWs (Figure 5 below).

Factors associated with caretakers’ Satisfaction on Community Based Newborn Care

During bivariate analysis, variables that were associated with satisfaction of caretakers on CBNC were educational status, place of delivery, place of PNC service, and visiting other health facilities than the HP within 6 months prior to data collection. However, during multivariate logistics analysis, educational status, place of delivery and place of PNC service were predictors of caretakers’ satisfaction.

Respondents who had educational status of secondary and above were three times (AOR = 3.38; 95% CI: 1.06–11.27) more likely to be satisfied on CBNC service compared with those who had primary level or below. Similarly, mothers who gave birth of their last child at home were 39% (AOR = 0.61, 95%CI; 0.39–0.98) less likely to be satisfied as compared to those who received institutional delivery service. This study also revealed that caretakers who received PNC service at health center were about 3.7 times (AOR = 3.71, 95% CI; 1.75–7.89) more likely to be satisfied as compared to those who received elsewhere or not (Table 5).

Discussion

The primary aim of this study was to assess the level of caretakers' satisfaction on community-based newborn care and its predictors in Boloso Sore District in Southern Ethiopia. The overall satisfaction of respondents was 48.8% (208/426). Respondents' educational status (AOR = 3.38; 95%CI (1.02–11.27)), Place of PNC after recent child birth (AOR = 3.71; 95%CI (1.75–7.89)) and place of delivery (AOR = 0.61; 95%CI (0.39–0.98)) were independent predictors for caretakers' satisfaction on CBNC.

The proportion of caretakers satisfaction in current finding was lower than many other studies in Ethiopia: four major regions (82.9%) [26], Arba Minch in south (90.2%) [29], Jimma in south west (79.4%) [40], Gamo Gofa in south (79.1%) [41], Debre Markos in North (81.7%) [42], West-Arsi in central (74.6%) [31], and Wolaita in south west (82.9%) [32]. The difference might be due to difference in sample size and study population as this study used only population at community level, and the disparities in socio-economic status of the respondents and level of health facilities. It was also lower than related studies from Pakistan (61%) [27], Iran [33], Nigeria (61.5%) [43] and Senegal (88.4%).

Educational status was one of the main predictors for caretakers' satisfaction on CBNC. Those who completed at least secondary education were more likely to be satisfied as compared to those who had lower level education or did not have formal education. This was different from other studies done in and Senegal [44], and different parts of Ethiopia [42], and in Tanzania [28] and rural Nigeria Province [43] in that educational status of respondents was not significantly associated with mothers' satisfaction. The difference might be due to the difference in methodology and disparities in socio-demographic characteristics of respondents. However, the result of this study was comparable with the other studies done in Pakistan [27], West Arsi [31], South Ethiopia [32] and Iran [33] in that the educational status of the respondents has significant association with their satisfaction. The result of current study was in contrary with to a study conducted in South West Ethiopia [44] and Ghana [45] in that mothers who had lower educational level were more likely to be satisfied compared to those with high level educated as indicated in this study. The difference might be due to inconsistency in level of facilities and quality of the services.

The result of this study shows that place of delivery was significantly associated with caretakers' satisfaction on Community-Based Newborn Care. Mothers who gave birth of their last child at home were less likely to be satisfied on the services when compared to those who had institutional delivery service.

Literature review from many studies in different parts of Ethiopia indicated that mothers were more satisfied if they are assisted by TBAs during their home delivery because they share similar culture with TBAs [36]. Similarly, study done in North West Ethiopia by Bekana Kebede, Abebaw Gebeyehu and Gashaw Andargie (2013) indicated that mothers who gave a birth of their last child at the health center were less likely to re-attend the facility for PNC follow-up. The expected reason for this, according to them, was that mothers who got institutional delivery service might not be satisfied on the services they received at health center, because their expectations on quality of care would remain unmet [37]. The results of these two were in contrary to this study result.

Current study finding also depicted that place of PNC follow-up visits was associated statistically. Caretakers who received postnatal care at health centre were more likely to be satisfied as compared to those who did not received or received elsewhere. This might be due to the respondents' expectations. This result was somewhat similar with the study in Iran [33], Nepal [34] and rural India [35].

Strength

Efforts were exerted to minimize recall bias using different mechanisms such as asking caretakers whether they got the services or not to their infants, and by reviewing from HP CBNC register, and rounding decimal numbers down during calculation to get the K-value. And, we only included those caretakers with less than 1 year infants who received the service within 6 months prior to data collection period. Attention was given to the study procedures, including the process of training the data collectors and supervisors, data cleaning and confounding factors to minimize the expected biases.

Limitation

Satisfaction was subjective to recall bias and social desirability bias due to that information was obtained from caretakers who got the services from HEWs. Mothers whose infants were with different clinical presentations might have different satisfaction rates, and also the severity of cases might influence degrees of satisfaction. It is difficult to measure causal-relationship with cross-sectional study design since data on exposure and outcome were collected simultaneously. In relation to caretakers' satisfaction, evidence based intervention can be implemented based on such assessment data. We believe that there may be potential confounding factors that we did not consider either in data collection tools preparation or in the analysis. We faced somewhat uncertainty to compare and contrast literatures because we were unable to find the literature conducted elsewhere which is directly related with our study title.

Conclusions

Less than half of the respondents participated in this study were satisfied with the services they received from health extension workers for their newborns. This result might indicate the urge the concerned

bodies to work on improving quality of service at grass root level. Mothers' education level, place of delivery, and postnatal visits at health centers were main predictors for satisfaction on CBNC.

List Of Abbreviations

ANC

Ante-Natal Care

CBNC

Community-Based Newborn care

EDHS

Ethiopian Demographic and Health Survey

FMOH

Federal Ministry of Health

HDAs

Health Development Armies

HEP

Health Extension Program

HEWs

Health Extension Workers

HP

Health post

ICCM

Integrated Community Case Management

IMR

Infant Mortality Rate

MDG

Millennium Development Goal

PHCUs

Primary Health Care Units

NGOs

Non-Governmental Organizations

NMR

Newborn Mortality Rate

PNC

Post Natal Care

MMR

Maternal Mortality Ratio

SDG

Sustainable Development Goal

SPSS

Statistical Package for Social Science

TBAs

Traditional Birth Attendants

TTBAs

Trained Traditional Birth Attendants

WHO

World Health Organization

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from Ethical Review Committee (ERC) at college of Health Sciences and Medicine in Wolaita Sodo University (WSU). This Committee works with the National Review Board for Research Ethics at Ministry of Science and Technology in Ethiopia and also in line with Ethical Committee in Health Bureau of Southern Ethiopia. An official letter confirming Ethical clearance to conduct the research was written from the Committee to Wolaita Zone Health Department and Boloso Sore Woreda Health Office to co-operate during data collection. Then, Consent was gained from each interviewee by confirming them that all the data collected would be kept confidential, and won't be used for any other purposes than the stated research objective and which was approved by the ERC.

Consent for publication: Not applicable

Availability of data and materials

The dataset analyzed for the findings of this study are available with the corresponding author and can be accessed by reasonable request.

Competing interest

The authors declare that they have no competing interests

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Wolaita Sodo University only financially supported the research, but had no role in any part of the research work like developing, collecting, analyzing and finalizing the research.

Authors' contribution

YDD: Conceived the study. YDD, TTO and BYK designed the study, performed the statistical analysis and wrote up the manuscript. All authors read and approved for correspondence to publication.

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Tables

Table 1 Systematic sampling of the respondents in Boloso Sore District in Southern Ethiopia, 2018 (n=426)

SOURCE POPULATION	STUDY POPULATION	K-VALUE	SAMPLE POPULATION
113	50	2	24
166	65	1	33
211	64	1	39
256	50	1	48
143	42	1	26
212	58	1	40
177	40	1	35
182	78	2	36
140	54	2	25
135	50	2	24
253	81	1	46
266	66	1	50
2254	698		426

Table 2 Socio-demographic characteristics of respondents and their households in Boloso Sore District, Wolaita Zone, SNNP, 2018 (N=426)

Characteristics	Categories	Frequency (%)
Age in years	<25	61(14.3)
	25-29	101(23.7)
	30-34	146(34.3)
	35-39	94(22.1)
	40+	24(5.6)
Sex	Male	10(2.3)
	Female	416(97.7)
Marital status	Single	18(4.2)
	Married	408(95.8)
Educational status	No formal education	172(40.4)
	Primary	196(46)
	Secondary & above	58(13.6)
Occupation	Farming	310(72.8)
	Merchant	94(22.1)
	Employee	6(1.4)
	Other ^a	16(3.7)
Average Monthly income	<500 birr	271(63.6)
	>=500 birr	155(36.4)
Number of under five children	One	380(89.2)
	>=two	46(10.8)

a=other includes student, housewife and petty trade

Table 3 Health Care service Utilization in Boloso Sore district in Southern Ethiopia, 2018 (N=426)

Type of service	Frequency (%)
ANC visits for recent pregnancy	
Yes	290 (69.7)
No	136 (30.3)
Number of ANC visits	
>=4 times	201(67)
3 times	51(17)
Twice	27(9)
Once	21(7)
Place of child birth	
Health facility	257(60.3)
Home	169(39.7)
PNC visits	
Yes	204(49)
No	222 (51)
Place of PNC visits (n=204)	
Health centre	50(24.5)
Health Post	84(41.2)
Home visit by HEWs	70(34.3)
Number of PNC visits (n=154)	
3 or more times	76(49.4)
2 times	86(55.8)
Once	32(20.8)
PNC visit by HEW in 24 hours after child birth (n=154)	
Yes	60(39)
No	94 (61)
PNC visits in 3rd day (n=154)	
Yes	120(77.9)
No	34 (22.1)
PNC visits in 7th day (n=154)	
Yes	113(73.4)
No	41(26.6)
Visiting other health facility within 6 months prior to data collection (n=426)	
Yes	267(62.7)
No	159 (37.3)
HP always open (24hrs/day, 7 days/week) (n=426)	
Yes	78(18.3)
No	348(81.7)

Table 4 Level of caretakers' satisfaction

Level of satisfaction	Frequency N (%)
Very dissatisfied	34 (8.0%)
Dissatisfied	113 (26.5%)
Neutral	71 (16.7%)
Satisfied	165 (38.7%)
Very satisfied	43 (10.1%)
Overall satisfaction	208 (48.8%)

Table 5 Factors associated with Caretakers' Satisfaction on CBNC in Boloso Sore District in Southern Ethiopia, 2018 (n=426)

Variable Category	Satisfied N(%)	Dissatisfied N(%)	COR; 95% CI	P-value	AOR; 95% CI
Place of current delivery					
Home	67 (32.2%)	102 (46.8%)	1.85(1.25-2.75)	0.04	0.61(0.39-0.98)
Health facility	141 (67.8%)	116 (53.2%)	1		1
Postnatal care received					
Health centre	13 (6.2%)	40 (18.3%)	3.26(1.648-6.46)	0.001	3.71(1.75-7.89)
HP	59 (28.4%)	32 (13.8%)	0.58(0.35-0.96)		0.89(0.46-1.73)
Home by HEW	30 (14.4%)	46 (21.0%)	1.63(0.95-2.78)		1.95(0.99-3.86)
None	106 (51%)	100 (48.9%)	1		1
Educational status					
Primary level	119 (57.2%)	77 (35.3%)	0.36 (0.23-0.57)	0.0001	0.37(0.21--0.64)
Secondary & above	43 (20.7%)	58 (26.6%)	0.50(0.28-0.89)	0.047	3.38(1.02-11.27)
No formal education	46 (22.1%)	83 (38.1%)	1		1
Visiting other health facility					
No	86 (41.4%)	89 (40.8%)	0.68(0.42-2.02)		0.92(0.58-1.46)
Yes	122 (58.6%)	129 (59.2%)	1		1

Figures

Caretakers satisfaction towards care dimensions

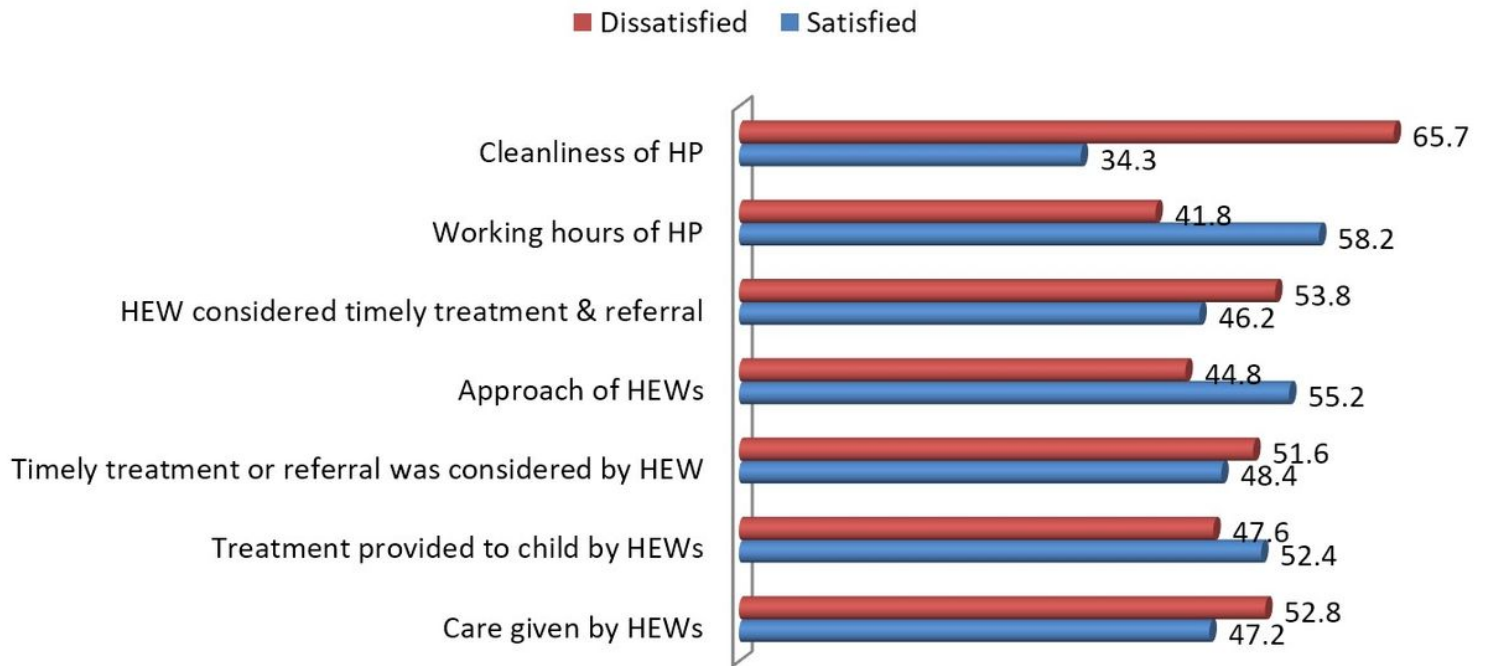


Figure 1

Satisfaction of caregivers towards care dimensions

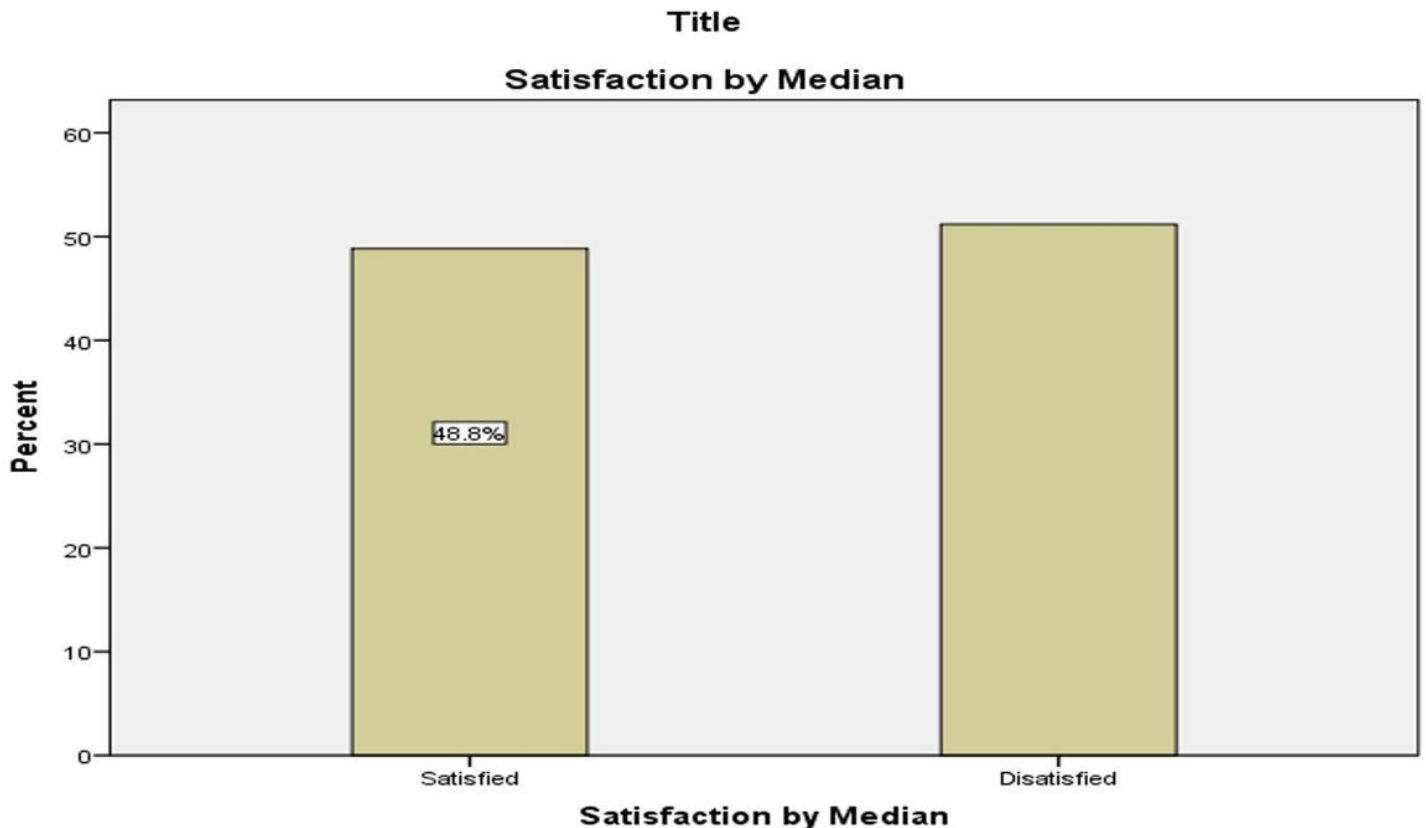


Figure 2

Shows that the median satisfaction of caregivers