Original Article

A Study to Assess the Utilisation of Health Services by Pregnant Women in Rural Area of Vadodara District

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Abstract

Introduction: A healthy society is indicated by not merely the absence of disease or low mortality/morbidity status but rather the different dimensions of health of the population of a society. The sound maternal health status is always the intention of any nation as it reflects many dimensions of the society. However, in India, there is a huge gap in the services offered and utilised at rural and urban areas. The considerable efforts by government by which the foundation of healthcare sector of the nation be made strong cannot deliver the fruitful results. The present study aims to assess the utilisation of maternal health services and the factors associated with it. **Methodology:** The present study was undertaken in Waghodia taluka of Vadodara district. The Waghodia taluka has four primary health centres (PHCs). The duration of the study was 9 months. The proportionate stratified sampling was used to assess the utilisation of maternal health services in four PHCs. The sample of the study was 1333. The study design was a prospective cohort study as the sample were followed up to determine their category of utilisation of antenatal care services. The data were analysed using SPSS version 21. **Results:** Nearly 65.3% of the pregnant women have utilised the antenatal services in an ideal manner, 28.5% in the moderate utilisation category and 6.2% in the undesirable category. There is an association between the predisposing factors such as age of respondent, education of respondent and her husband, occupation of respondent and her husband and level of autonomy of the respondent. The need factors are also statistically significantly associated with the category of utilisation of antenatal services. The majority of the pregnant women with hypertension and diabetes are utilising the services in an ideal manner. **Conclusion:** The majority of the pregnant women in rural area of Vadodara are utilising the antenatal services in an ideal manner, but the focus should be on the pregnant women who are unable to utilise these services properly. The proper utilisation of antenatal services by the pregnant women would help in the sustainable development of our country.

Keywords: Antenatal services, factors, pregnant women, utilisation

Introduction

The sustainable development goals by the United Nation aim to reduce the maternal and infant mortality rate.[1] These sustainable development goals were formulated with an aim to A healthy society is indicated by not merely the absence of disease or low mortality/morbidity status but rather the different dimensions of health of the population of a society. The sound maternal health status is always the intention of any nation as it reflects many dimensions of the society. However, in India, there is a huge gap in the services offered and utilised at rural and urban areas. The considerable efforts by government by which the foundation of healthcare sector of the nation be made strong cannot deliver fruitful results. The universal health coverage by introducing various national health programmes such as Ayushman Bharat and National Rural Health Mission leads to the development of accessible, affordable and appropriate healthcare services.[2] There are ample evidences that show that the despite all the efforts, the utilisation of health services in rural areas is an issue.[3]

In India, the National Family Health Survey -3 data shows that the utilization of ANC and medical assistance was higher in urban areas than in rural areas. The WHO recommends that every pregnant woman should undergo at least four ANC visits and the visit should start as early as in the first trimester.[4]

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The timely and routinely visit for ANC check-ups ensure healthy pregnancy and encourage women to have skilled attendant during childbirth. The ANC providers and quality of services play an important role in the utilisation of these services.[5] A study in Nepal revealed that distance of >1 h to the maternity hospital, low education, multiple parity and ANC were associated with an increased risk of home delivery.[6,7]

In the past, there have been several studies that highlight the determinants of maternal health status, but fewer literature is available that highlights the factors affecting the utilisation of maternal health services. Andersen's behavior model of healthcare services utilization focuses on various factors that affect and determine the Utilization behavior in a population .[8-10] The present study aims to assess the utilisation of maternal health services and the factors associated with it.

Methodology

The present study was undertaken in Waghodia taluka of Vadodara district. The Waghodia taluka has four primary health centres (PHCs). The duration of the study was 9 months. The proportionate stratified sampling was used to assess the utilisation of maternal health services in the four PHCs. The sample of the study was 1333. The study design was a prospective cohort study as the sample were followed up to determine their category of utilisation of ANC services. which is classified as follows:
(1) Ideal/desirable category: women attended at least four ANC visits; they were assisted by skilled personnel; (2) moderate category: women received <4 ANC visits and (3) undesirable category: women made no ANC visits.

The data from the pregnant women were collected by a structured close-ended schedule. The schedule comprised of variables from Andersen's behavioural model and the items listed in the schedule were as follows: predisposing factors, enabling factors, health service factors and need factors.

The data collection tool was content validated by the experts.

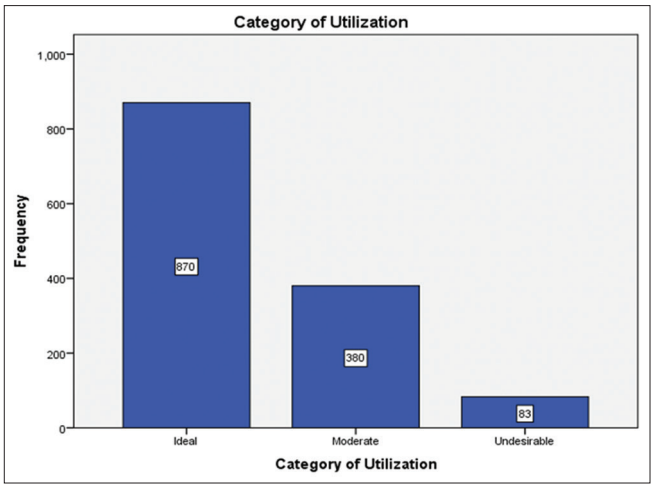
The data collected were entered into MS excel, and analysis was carried out using SPSS Version 23 (SPSS Inc., IBM SPSS Statistics for Windows, Armonk, NY:IBM corp. USA) software.

Results

The data from the sample of pregnant women visiting the four PHCs were analysed and the findings are as follows:

Graph 1 shows the frequency of pregnant women in rural area according to their utilisation of maternal health services. Majority of the pregnant women have utilised antenatal services in an ideal way and only 6.2% of the total pregnant women are in the undesirable utilisation category.

Table 1 shows that there is an association between the predisposing factors such as age of respondent, education of respondent and her husband, occupation of respondent and her husband and level of autonomy of the respondent. The



Graph 1: The frequency distribution of utilisation of services amongst pregnant women.

women who are able to utilise the antenatal services in an ideal manner were seen to be associated with these factors. The *P* value of the Chi-square test of association showed that there is an association between these factors and utilisation of antenatal services.

Table 2 shows that the enabling factors have a key role to play in the utilisation of antenatal services. The enabling factors such as cost involved availing healthcare facility, mass media availability, support by national programme and family income are statistically significantly associated with the category of utilisation of antenatal services. Nearly 65.3% of the pregnant women have utilised the antenatal services in an ideal manner, 28.5% fell in the moderate utilisation category and 6.2% fell in the undesirable category. The pregnant women with a family monthly income of > Rs. 25,000 are in the undesirable category of utilisation. The majority of the pregnant women utilising the antenatal services fell in the ideal and moderate category, wherein the cost involved in availing healthcare services is low, which is not the case with moderate cost involved.

Table 3 shows that there is a statistically significant association between the category of utilisation of antenatal services and health service factor as $P < 0.05$. The table shows that factors such as availability of doctors, nurses and skilled attendants is statistically significant with the utilisation of services. The table also shows that the majority of the pregnant women (53.3%) prefer public healthcare services, while 46.7% prefer private healthcare services, out of which majority of the pregnant women fell in ideal utilisation category who preferred public healthcare services. Amongst the 46.7% of the pregnant women who preferred private healthcare services, majority had utilised the services in the moderate category.

Table 4 shows that the need factors are also statistically significantly associated with the category of utilisation of antenatal services. The majority of the pregnant women with hypertension and diabetes are utilising the services in an ideal manner.

Table 1: The association between the predisposing factors and the utilisation category of antenatal services

Age group	Category of utilisation			Total	χ^2 (*p value*)
	Ideal	Moderate	Undesirable		
18 years of age	46 (3.5)	4 (0.3)	0 (0.0)	50 (3.8)	985.865 (<0.0001)
19–30 years of age	824 (61.8)	215 (16.1)	0 (0.0)	1039 (77.9)	
30–40 years of age	0 (0.0)	161 (12.1)	55 (4.1)	216 (16.2)	
>40 years of age	0 (0.0)	0 (0.0)	28 (2.1)	28 (2.1)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Education	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Illiterate	325 (24.4)	4 (0.3)	83 (6.2)	412 (30.9)	1597.477 (<0.0001)
10th pass	306 (23.0)	63 (4.7)	0 (0.0)	369 (27.7)	
12th pass	153 (11.5)	36 (2.7)	0 (0.0)	189 (14.2)	
Diploma	86 (6.5)	59 (4.4)	0 (0.0)	145 (10.9)	
Graduation	0 (0.0)	185 (13.9)	0 (0.0)	185 (13.9)	
Postgraduation	0 (0.0)	33 (2.5)	0 (0.0)	33 (2.5)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Education of husband	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Illiterate	267 (20.0)	4 (0.3)	0 (0.0)	271 (20.3)	1323.447 (<0.0001)
10th pass	262 (19.7)	33 (2.5)	0 (0.0)	295 (22.1)	
12th pass	247 (18.5)	62 (4.7)	0 (0.0)	309 (23.2)	
Graduation	94 (7.1)	234 (17.6)	0 (0.0)	328 (24.6)	
Postgraduation	0 (0.0)	47 (3.5)	83 (6.2)	130 (9.8)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Occupation of respondent	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Not working	805 (60.4)	105 (7.9)	0 (0.0)	910 (68.3)	1512.487 (<0.0001)
Unskilled worker	65 (4.9)	193 (14.5)	43 (3.2)	301 (22.5)	
Skilled worker non-professional	0 (0.0)	49 (3.7)	40 (3.0)	89 (6.7)	
Professional	0 (0.0)	33 (2.5)	0 (0)	43 (3.2)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Occupation of husband of respondent	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Not working	147 (11.0)	4 (0.3)	0 (0.0)	151 (11.3)	1549.832 (<0.0001)
Unskilled worker	682 (51.2)	103 (7.7)	0 (0.0)	785 (58.9)	
Skilled worker non-professional	41 (3.1)	273 (20.5)	27 (2.0)	341 (25.6)	
Professional	0 (0.0)	0 (0.0)	56 (4.2)	56 (4.2)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Level of autonomy of respondent	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
None	867 (65.0)	149 (11.2)	0 (0.0)	1016 (76.2)	1805.586 (<0.0001)
Some	3 (0.2)	231 (17.3)	11 (0.8)	245 (18.4)	
Full	0 (0.0)	0 (0.0)	72 (5.4)	72 (5.4)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	

Discussion

The present study found that there is an association between the factors affecting the utilisation of antenatal services amongst the pregnant women in rural area of Vadodara district. The predisposing factors like age, education, occupation of the woman, husband's education and occupation are the determinants that are associated with the utilization of healthcare services by a pregnant women. The age of the pregnant woman, more than 30 years, show an undesirable utilisation of antenatal services. This was also seen with respect to education indicating that the pregnant

Table 2: The association between the enabling factors and utilisation category

Family income	Category of Utilisation			Total	χ^2 (*p value*)
	Ideal	Moderate	Undesirable		
<Rs. 5000 per month	523 (39.2)	37 (2.8)	0 (0.0)	560 (42.0)	1217.163 (<0.0001)
Between Rs. 5001 and Rs. 15,000 per month	347 (26.0)	301 (22.6)	0 (0.0)	648 (48.6)	
Between Rs. 15,001 and Rs. 25,000 per month	0 (0.0)	42 (3.2)	54 (4.1)	96 (7.2)	
>Rs. 25,001 per month	0 (0.0)	0 (0.0)	29 (2.2)	29 (2.2)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Distance to healthcare	**Category of Utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
<5 km	743 (55.7)	99 (7.4)	0 (0.0)	842 (63.2)	938.210 (<0.0001)
5–10 km	127 (9.5)	173 (13.0)	0 (0.0)	300 (22.5)	
>10 km	0 (0.0)	108 (8.1)	83 (6.2)	191 (14.3)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Availability of health services	**Category of Utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
No	47 (3.5)	4 (0.3)	0 (0.0)	51 (3.8)	17.120 (<0.0001)
Yes	823 (61.7)	376 (28.2)	83 (6.2)	1282 (96.2)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Cost involved in availing health services	**Category of Utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Low	870 (65.3)	214 (16.1)	0 (0.0)	1084 (81.3)	717.582 (<0.0001)
Moderate	0 (0.0)	166 (12.5)	83 (6.2)	249 (18.7)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Support by national programme	**Category of Utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	808 (60.6)	105 (7.9)	0 (0.0)	913 (68.5)	714.066 (<0.0001)
No	62 (4.7)	275 (20.6)	83 (6.2)	420 (31.5)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Mass media availability	**Category of Utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	870 (65.3)	326 (24.5)	0 (0.0)	1196 (89.7)	830.615 (<0.0001)
No	0 (0.0)	54 (4.1)	83 (6.2)	137 (10.3)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	

women having post-graduation and residing in rural areas revealed undesirable utilisation of antenatal services. This may also have to do with their attitude towards the antenatal services available at the rural area. The utilisation of the services is also associated with the health service factors such as availability of doctors, nurses, skilled attendants and the quality of health service provided, as also seen in the study by Kkonde *et al.*[11]

The enabling factors such as monthly family income, distance to healthcare facility, availability of health services, condition of road and husband involvement were seen to have a significant association between the degree to which a pregnant women utilises the antenatal services. A similar finding was also reported by Elmusharaf *et al.*[12] and Piet-Pelon *et al.*,[13] where they discussed the importance of transport costs to distant health facility as a major barrier affecting the utilisation of services.

A similar finding in the study highlights that the support by various national or state programmes affects the utilisation of services amongst the pregnant women. The other studies by Elmusharaf *et al.*,[12] Geddam *et al.*[14] and Janani Suraksha Yojana (JSY)[15] report that the financial constraint is one of the major reasons for home deliveries, hence the Government of India launched JSY scheme on 12 April 2015, aimed to reduce neonatal and maternal mortality rates by promoting institutional delivery, indicating the support provided by the government to promote maternal health.

The need factors such as the condition of the pregnant women have also significantly affected the utilisation of the health

Table 3: The association between the health services factor and utilisation category

Access to information	Category of utilisation			Total	χ^2 (*p value*)
	Ideal	Moderate	Undesirable		
Yes	870 (65.3)	326 (24.5)	0 (0.0)	1196 (89.7)	830.615 (<0.0001)
No	0 (0.0)	54 (4.1)	83 (6.2)	137 (10.3)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Quality of healthcare services	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Poor	0 (0)	0 (0)	74 (5.6)	74 (5.6)	1193.639 (<0.0001)
Average	823 (61.7)	376 (28.2)	9 (0.7)	1208 (90.6)	
Good	47 (3.5)	4 (0.3)	0 (0.0)	51 (3.8)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Availability of doctors	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	870 (65.3)	380 (28.5)	32 (2.4)	1282 (96.2)	798.627 (<0.0001)
No	0 (0.0)	0 (0.0)	51 (3.8)	51 (3.8)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Availability of nurses	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	870 (65.3)	339 (25.4)	0 (0.0)	1209 (90.7)	899.477 (<0.0001)
No	0 (0.0)	41 (3.1)	83 (6.2)	124 (9.3)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Availability of skilled attendant	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	NA
No	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Access to health information	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	870 (65.3)	326 (24.5)	0 (0.0)	1196 (89.7)	830.615 (<0.0001)
No	0 (0.0)	54 (4.1)	83 (6.2)	137 (10.3)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
First preference of treatment	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Public	638 (47.9)	72 (5.4)	0 (0.0)	710 (53.3)	415.125 (<0.0001)
Private	232 (17.4)	308 (23.1)	83 (6.2)	623 (46.7)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	

services. However, it is the aggregate of all the factors affecting the attitude and health-seeking behaviour that lead to utilisation or no utilisation of antenatal services by the pregnant women. The similar finding was also reported by Rutaremwa *et al*.[5] In case of the Indian scenario, the religious and cultural norms affect the women's decision-making, which in addition is constrained by a lot of other factors such as the autonomy to take decision, husband's involvement, quality of health services and economic resources available, as also discussed in Singh *et al*.[3]

The government has been doing a great role in this regard. The strategies adopted by the government include home visits to involve provision of basic ANC, newborn care preparedness and home-based perinatal care by lady health worker (LHW).[16] Apart from appointing LHW by the government, the other approaches like group session by LHW, delivery of clean kits, identification of danger signs of pregnancy and promotion of health seeking behavior also helps in increasing the utilization of health services.[17] Previous studies have also reported the successful implementation and utilisation of accredited social health activist (ASHA) and Anganwadi worker (AWW) in promoting the utilisation of antenatal services.[18]

Table 4: The association between the need factors and utilisation category

Hypertension during pregnancy	Category of utilisation			Total	χ^2 (*p value*)
	Ideal	Moderate	Undesirable		
Yes	601 (45.1)	50 (3.8)	0 (0.0)	651 (48.8)	415.514 (<0.0001)
No	269 (20.2)	330 (24.8)	83 (6.2)	682 (51.2)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Diabetes during pregnancy	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	422 (31.7)	24 (1.8)	0 (0.0)	446 (33.5)	255.958 (<0.0001)
No	448 (33.6)	356 (26.7)	83 (6.2)	887 (66.5)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	
Previous preterm birth	**Category of utilisation**			**Total**	**χ^2 (*P*)**
	Ideal	**Moderate**	**Undesirable**		
Yes	448 (33.6)	35 (2.6)	0 (0.0)	483 (36.2)	254.955 (<0.0001)
No	422 (31.7)	345 (25.9)	83 (6.2)	850 (63.8)	
Total	870 (65.3)	380 (28.5)	83 (6.2)	1333 (100.0)	

Utilisation of health services can be improved by involving all the family members in the group sessions and explaining the best practices to be followed during pregnancy and motherhood. The training of the frontline workers such as ASHA, AWW and nurses will help in the delivery of the antenatal services which will compensate for the shortage of the doctors and promote the utilisation of the antenatal services. The designing of health information should involve the religious practices also and educate the family for the quality of care to be provided to the pregnant women.

Conclusion

The majority of the pregnant women in rural area of Vadodara are utilising the antenatal services in an ideal manner, but the focus should be on the pregnant women which are unable to utilise these services properly. The proper utilisation of antenatal services by the pregnant women would help in the sustainable development of our country. The study revealed the totality of the factors affecting the utilisation of the healthcare services, indicating that the policies to be framed should be specific to the various demographic factors affecting the utilisation of the services, which is the main underlying factor. The enabling factors, health services and need factors influence the decision of the pregnant women, which should also be taken into consideration.

Tt is the integral approach that decides the utilisation of services by the pregnant women. The Andersen's health behaviour model affects the utilisation of services in totality. The framing of health policies should consider this framework and understand the association of these factors in the utilisation of health services.

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Conflicts of interest

There are no conflicts of interest.

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