

Factors Associated with Health Facility Delivery in the 12th District of Kandahar City, Kandahar, Afghanistan: A Community-Based Cross-Sectional Study

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Abstract

Background: Maternal mortality and morbidity are increasing public health concerns in Afghanistan. Even more worrying is maternal death due to causes that can be prevented through maternal healthcare services utilization during pregnancy and delivery. **Objectives:** We sought to investigate the magnitude of women giving birth in a health facility and its associated factors in the 12th district of Kandahar city, Kandahar province, Afghanistan. **Materials and Methods:** A community-based cross-sectional study of women who gave birth in the last 2 years in the 12th district of Kandahar city was conducted in early 2021. We used a systematic random sampling method to enroll 850 women. We collected data on sociodemographics, reproductive characteristics, and delivery practices of respondents. Factors associated with health facility delivery were identified using a multivariable logistic regression model. **Results:** The proportion of women who gave birth at health facilities was 71.8% (confidence interval [CI]; 68.61%–74.77%). In this study, health facility delivery was associated with husbands' education (adjusted odds ratio [AOR] = 3.07, 95% CI: 1.50–6.31), antenatal care (ANC) services utilization (AOR = 17.84, 95% CI: 11.86–26.8), and history of complications in previous births (AOR = 3.65, 95% CI: 2.32–5.74). **Conclusion:** In this study, the utilization of a health facility for delivery was slightly lower than reported on the national level. Our study found potential factors such as ANC visits, husbands' education, and history of complications in previous births, for which interventions aimed at enhancing the proportion of health facility deliveries.

Keywords: Afghanistan, determinants, health facility delivery, Kandahar city

INTRODUCTION

Maternal mortality and morbidity are increasing public health concerns in Afghanistan. Even more worrying is maternal death due to causes that can be prevented through maternal healthcare services utilization during pregnancy and delivery. In Afghanistan, the maternal mortality ratio was estimated to be 638/100000 live births in 2017, considered the highest in the region.^[1]

Globally, it is estimated that in 2017, 295000 women lost their lives following pregnancy and childbirth; about 94% of these deaths occur in low-and middle-income countries.^[2] Although proven and cost-effective interventions, including family planning, antenatal care (ANC) services, skilled birth attendants, and emergency obstetric care are available to reduce maternal mortality, the utilization of these interventions is reported to be low in these settings.^[2-5]

Institutional delivery or delivering in a health facility is one of the four strategies proposed by the World Health Organization (WHO) to reduce maternal and child deaths.^[2] The services of health facility delivery include but are not limited to safe delivery practices, newborn checkups, immunizations, oral rehydration, preventive care, and other future care for the child. The proportion of births occurring in a health facility or attended by skilled health personnel varies significantly across regions. Globally, 83% of births were attended by skilled

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health professionals in 2020.^[6] It was estimated to be 99% in developed countries while it ranges from 66% to 78% in developing countries.^[6] Similarly, Afghanistan Demographic Health Survey 2015 (ADHS, 2015) found that 48% (76% urban, 40% rural) of births occurred at a health facility in Afghanistan, while it was 35.5% in Kandahar.^[1,7]

Previous researches conducted in Afghanistan indicate that diverse factors such as the wealth of households, residing <1 h from a health facility, literacy, and cultural beliefs are associated with the place of delivery.^[7,8] Different researchers from other developing countries have identified that maternal age,^[9,10] maternal education,^[9-12] maternal employment,^[11] husband education,^[11,12] household income,^[9,11] area of residence,^[10,11] media exposure,^[10,13] history of obstetric complications,^[10,12] parity,^[10,11] and ANC utilization^[10-12] are associated with health facility delivery.

Even though several approaches were employed to improve maternal health services utilization in Afghanistan, a large proportion of pregnant women still fail to deliver at a health facility. Hence, we sought to investigate the magnitude of women giving birth in a health facility and its associated factors in the 12th district of Kandahar city, Kandahar province, Afghanistan. The population in the present study can be representing a typical urban district from the south of Afghanistan in terms of sociodemographic characteristics, availability of healthcare services. Therefore, we hope of informing relevant policies and programs for urban citizens across southern Afghanistan.

MATERIALS AND METHODS

This was a community-based cross-sectional study carried out in the 12th district of Kandahar city between January and February 2021. This district houses a large number of Internally Displaced Persons besides its permanent residents. Its total population is about 900000 and has 10 villages. There are two schools, three primary healthcare centers, and one comprehensive health clinic. Sketchy maps were available for all villages, and all households within the villages were numbered. There were 9505 households in the district and a maximum of 85 households per village were surveyed, making a total of 850 households district-wide.

The total sample size was estimated to be 850 women using the single population proportion formula ($n = Z^2P [1 - P]/[d]^2$), where z was the confidence interval (95% CI, 1.96), P was the proportion of women delivering at a health facility (0.5), d was the margin of error (5%), 10% was nonresponse rate, and the design effect was 2.

We employed a stratified systematic random sampling method to select a sample of 85 households per village. To determine the interval (k) for selecting households in each village, we divided the total number of households in each village by 85. We used a simple random lottery method to select a starting household (from 1 to k th), and afterward, every k th household was included in the study.

Women who gave birth within the past 2 years in the 12th district were eligible for participation (only one woman

per household was selected at random). Women were excluded if they were absent during data collection, seriously ill, or declined to participate.

Data collection and analysis

The survey instrument was developed based on the relevant literature. It was initially drafted in English and translated to Pashtu and back to English to ensure its consistency. We pretested the questionnaire on 20 women in the 1st district of Kandahar city before starting the study. We collected respondents' socio-demographic, reproductive and delivery-related characteristics. Respondents were also interviewed on the utilization of ANC services, such as the number of ANC visits, trimester of ANC visits, and place of ANC visits.

Four trained nurses (female) and one supervisor (a health professional) consisted of our data collection team. Before the pilot study, they were provided with an 1-day intensive training session that focused on sampling methods, interview techniques, filling out questionnaires, and ethical issues during the study. All interviews were conducted by female interviewers in a private setting and were 20–25 min in duration. The supervisor monitored the data collection process through random surveys of the households. The questionnaires were verified for completion, consistency of responses, and quality daily.

Data entry and editing were accomplished in Microsoft Excel (2019) and later exported into IBM SPSS version 21 (IBM SPSS version 21 Armonk, NY: IBM Corp.) for analysis.^[14] We first analyzed potential factors associated with health facility delivery by bivariate analysis. Independent variables were retained in the multivariable analysis if they were statistically significant in bivariate analysis or had a $P < 0.25$. The $P < 0.05$ was considered statistically significant.

This study protocol received ethical clearance from the Research and Ethics Committee of Kandahar University (Letter No. 53, dated on 28/7/2019). We obtained administrative approval from the Kandahar municipality to conduct this study. In addition, after explaining the purpose of the study, informed verbal consent was obtained from all study participants.

RESULTS

A total of 893 women were approached, but this analysis involves 850 women who fulfilled the inclusion criteria (response rate, 95.1%). The mean age (\pm standard deviation) of the study participants was 28 (\pm 7.1). Nearly 82% (694) of the respondents were from the age group 20–35, 143 (16.8%) were from the age group above 35 and 13 (1.5%) were from the age group <20. The vast majority of the respondents (94.1%) had no formal education, 24 (2.8%) had primary education and only 18 (2.1%) had attained religious education. Almost all (99.5%) women were unemployed or housewives. Concerning husband education and occupation, approximately 86.1% (732) had no formal education and about 93.3% (793) were self-employed. Moreover, 81.5% (693) resided on <5 km of health facility. More than half (64%) of the respondents were living with

families having more than 12 members. Of the women interviewed, 516 (60.7%), and 334 (39.3%) women stated they had a monthly household income of 5000–10000 and >10000 Afghani, respectively.

More than half (489, 57.5%) of the respondents were married before 18 years of age. A majority of our study participants (770, 90.6%) were multiparous. For 19.6% of respondents who used contraceptives, 86 (10.1%) used oral contraceptives, 44 (5.2%) used male condoms, 16 (1.9%) used injectables and only 12 (1.4%) used IUDs. Of all participants, 760 (54.8%) of the participants had planned their previous pregnancy and 46.1% (392) faced complications in their previous pregnancy.

Out of the 850 women studied, 589 underwent one or more ANC visits and the rest (261) did not have ANC visits due to transportation problems (25.7%) followed by lack of awareness (21.8%), family (47.9%), and personal problems (4.6%). The breakup of 589 women who received ANC services as per different characteristics is given in Table 1.

A majority (815, 95.1%) of the respondents were above 18 years of age at their last delivery. About 71.8% (95% CI: 68.61%–74.77%) of the women delivered in the health facility while 28.2% (95% CI: 25.23%–31.39%) delivered at home. Prolonged labor (80, 33.3%) and transportation problems (68, 28.3%) were the principal reasons for home delivery. Other reasons included long distances to health facilities (29, 12.1%) and poor services in the health facility (36, 15%). Table 2 shows detailed delivery-related characteristics of respondents.

The multiple logistic regression revealed that the odds of delivering at the health facility were higher among women whose husbands had primary, secondary, and tertiary education (adjusted odds ratio [AOR] = 3.07, 95% CI: 1.50–6.31) to women whose husbands had no formal education. Besides, women who had visited ANC had 18 times higher odds of delivering at health facilities (AOR = 17.84, 95% CI: 11.86–26.8) than their counterparts. Furthermore, women who had complications in previous births were 3.6 times more likely to give birth at a health facility than women who had no complications in previous births (AOR = 3.65, 95% CI: 2.32–5.74). Table 3 summarizes the results of the bivariate and multivariable analysis.

DISCUSSION

This study is the first one that reports on the delivery place and its associated factors among women residing in the 12th district of Kandahar city. The results reveal that while efforts by the Afghanistan Ministry of Public Health along with its international partners to scale up maternal health services utilization resulted in moderate improvement in the number of health facility deliveries, overall, the proportion of health facility delivery is low in this urban setting.

The proportion of women who gave birth at a health facility was slightly lower (72%) than the national level (76%) reported by ADHS in 2015.^[1,3] The proportion of women who delivered

Table 1: Antenatal care services utilization and its related characteristics (n=589)

Variable	Frequency (%)
Trimester of ANC visits	
First	336 (57)
Second	199 (33.8)
Third	54 (9.2)
Total number of ANC visits	
1	243 (41.2)
2	218 (37.1)
4 and above	128 (21.7)
Place for ANC visits	
Comprehensive health clinic	347 (58.9)
Hospitals	231 (39.3)
Private clinic	11 (1.8)
ANC services awareness	
Health Institutions	153 (25.9)
Media	108 (18.4)
Family and friends	328 (55.7)
Who benefited from ANC visits?	
Mother	18 (3.1)
Child	88 (14.9)
Both	483 (82)
Health education received in each ANC visit	
Yes	528 (89.6)
No	46 (7.8)
Don't know	15 (2.6)
Behaviors of ANC provider	
Satisfactory	413 (70.1)
Unsatisfactory	176 (29.9)

ANC: Antenatal care

at a health facility in the present study is comparable to that asserted in many studies from other developing countries with similar settings, such as India,^[15] Pakistan,^[16] and Nepal.^[16] These trends epitomize many developing countries where a substantial proportion of women still give birth to a child elsewhere rather than a health facility. However, the proportion of health facility deliveries has shown to be significantly higher in developed countries. This difference might be due to better access to health services, better awareness, and other sociodemographic differences in these settings.

An important finding was that 90% of women had a positive perception of delivering at a health facility, yet 143 (18%) women failed to deliver at the recommended place in this subgroup of women. Furthermore, as we have found, up to 28% of women give birth at home. Reasons for not delivering at a health facility are multifactorial and include individual and health system-level factors. Hence, optimization of delivery practices would require multimodal approaches that are culturally appropriate and accessible in Afghanistan.

We identified several baseline factors associated with health facility delivery. ANC utilization was strongly associated with the delivery place as women who utilized ANC were 18 times more likely to deliver at a health facility than their

Table 2: Delivery related characteristics of respondents

Variable	Frequency (%)
Age at last delivery (<i>n</i> =850)	
≤18	35 (4.1)
>18	815 (95.1)
Place of last delivery (<i>n</i> =850)	
Health facility	610 (71.8)
Home	240 (28.2)
Type of health facility for delivery (<i>n</i> =610)	
Primary health center	396 (64.9)
Comprehensive health center	201 (32.9)
Private hospitals	13 (2.2)
Reasons for delivering at a health facility (<i>n</i> =610)	
Close to the place of residence	124 (20.3)
Quality delivery service	254 (41.6)
Good behavior of health workers	104 (17.0)
No cost (free)	91 (14.9)
Family pressure	13 (2.1)
Received health education	16 (2.6)
Availability of ambulance service	8 (1.3)
Means of transportation to health facilities (<i>n</i> =610)	
On foot	89 (14.6)
Ambulance	20 (3.3)
Other vehicles	501 (82.1)
Who assisted you at the health facility during delivery? (<i>n</i> =610)	
Health extension workers	40 (6.6)
Skilled health professionals	529 (86.7)
Don't know	41 (6.7)
Who assisted you at home during delivery? (<i>n</i> =240)	
Mother	24 (10)
Neighbor	80 (33.2)
Mother-in-law	86 (35.8)
Trained birth attendant	50 (20.8)
Reasons for delivering at home (<i>n</i> =240)	
Labor was too long	80 (33.3)
Transportation problem	68 (28.3)
Long-distance	29 (12.1)
Poor service in health facility	36 (15.0)
Others	27 (11.3)
Decision-making power to delivery place (<i>n</i> =850)	
Myself	113 (13.3)
Husband	428 (50.4)
Both of us	301 (35.4)
Mother-in-law	8 (0.9)
Women's perception of giving birth at a health facility (<i>n</i> =850)	
Positive	753 (88.6)
Negative	90 (10.6)
Don't know	7 (0.8)
Reasons for positive perception of health facility delivery (<i>n</i> =753)	
Clean	38 (5.0)
No bleeding	218 (29.0)
Save mothers' life	294 (39.0)
Save children's life	77 (10.2)
Shorter labor	126 (16.8)

Contd...

Table 2: Contd...

Variable	Frequency (%)
Reasons for positive perception of home delivery (<i>n</i> =90)	
Not requiring transport	14 (15.5)
No cost	40 (44.4)
Privacy	30 (33.4)
Better home ceremony	6 (6.7)

counterparts. This finding is consistent with other studies conducted in Ethiopia,^[17] Mozambique,^[18] India,^[19] Nigeria,^[20] and Pakistan.^[16] This might be explained by the fact that women who received ANC services had a chance to be counseled about the delivery place, breastfeeding practices, and newborn care.

In addition, we found that husbands' educational status was associated with the place of delivery. Women whose husbands had primary, secondary, and tertiary education had three times higher odds of delivering at a health facility than those whose husbands had no formal education. The finding of our study was supported by previous studies conducted in other developing countries.^[11,12,15] It was also revealed that husbands (50%) were the principal decision-makers in the preference of the delivery place. Thus, the involvement of husbands may be beneficial to enhance and optimize health facility delivery.

Our third important finding, and compatible with previous studies,^[10,12] was the history of complications in previous births. Women who had complications in previous births were 3.65 times more likely to deliver at a health facility than those who had no complications. This finding reveals that poor outcome in previous births compels women to deliver in a health facility.

This is the first study originating from the south of Afghanistan to identify factors associated with health facility delivery among women living in the 12th district of Kandahar city. We report several limitations of this study. The cross-sectional design of the study does not allow for casual relationships. Recall bias on the circumstances related to child delivery that happened 2 years before the study may be another potential limitation. Third, participants in this study were from a single urban area, which merely limits its generalizability. Finally, we suggest further in-depth qualitative studies to explore cultural and religious factors influencing the utilization of delivery services in these settings.

CONCLUSION

In this study, the utilization of a health facility for delivery was slightly lower than reported on the national level. Our study found potential factors such as ANC visits, husbands' education, and history of complications in previous births, for which interventions aimed at enhancing the proportion of health facility deliveries need to be bettered.

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Table 3: Factors associated with health facility delivery in the 12th district of Kandahar city, 2021; crude and adjusted odds ratio

Independent variable	Categories	Place of delivery		COR (95% CI)	AOR (95% CI)
		Health facility	Home		
Respondent's age (years)	≤35	517	190	1.46 (1.0-2.14)	-
	>35	93	50	1	-
Women's education	Educated	45	5	3.74 (1.46-9.54)	-
	Uneducated	565	235	1	-
Husband education	Educated	105	13	3.63 (1.99-6.59)	3.07 (1.50-6.31)
	Uneducated	505	227	1	1
Distance from health facility (km)	≤5	481	212	0.49 (0.31-0.76)	-
	>5	129	28	1	-
Antenatal care visits	Yes	517	72	12.97 (9.1-18.47)	17.84 (11.86-26.8)
	No	93	168	1	1
Parity	Primipara	63	17	1.51 (0.86-2.63)	-
	Multipara	547	223	1	-
History of complications preceding last pregnancy	Yes	327	65	3.11 (2.24-4.31)	3.65 (2.32-5.74)
	No	283	175	1	1
History of death child	Yes	225	67	1.5 (1.08-2.09)	-
	No	385	173	1	-

AOR: Adjusted odds ratio, COR: Crude odds ratio, CI: Confidence interval

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Conflicts of interest

There are no conflicts of interest.

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