

The knowledge and attitudes of Palestinian women towards different childbirth delivery options

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Purpose: To evaluate the knowledge and attitudes of Palestinian women toward cesarean and vaginal deliveries in public, private and charitable hospitals. **Methods:** A cross-sectional survey using face-to-face interviews with a sample of 372 pregnant women at 20 and above weeks of pregnancy selected randomly and in proportion to the monthly average antenatal visits to each hospital. Data analysis included descriptive statistics, analysis of variance tests and chi-square tests. **Results:** The majority of participants 250 (67%) were younger than 29 years old. Most participants 325 (87%) interviewed were aware that pain and muscle weakness are greater after cesarean delivery and as much as 341 (91%) of them knew that a cesarean section (CS) is required if a baby is in the breech position. The results also showed a significant association between women's knowledge scores and educational level, occupation and income across all 3 types of hospital. Furthermore, most women indicated that they thought it was not a women's right to request a cesarean and that the decision to deliver by cesarean should rest with the doctors. **Conclusion:** Approximately 1 in every 4 births was delivered by cesarean among primiparous women (26%). Despite the high cesarean section rates seen in Palestinian hospitals, women in Ramallah predominantly prefer vaginal delivery.

Keywords

Modes of delivery; Cesarean section; Attitude; Knowledge; Palestine

1. Background

One of the most frequently performed surgical operations in modern obstetrics is a Cesarean Section (CS) [1–3]; the procedure itself represents a contentious issue among health care administrators and the medical community across the world [2, 4]. Cesarean delivery rates are reported to have increased to 'epidemic proportions' [5], exceeding the World Health Organization's (WHO) recommended expected level of 10-15% of the population. This phenomenon continues to be observed across the globe in most countries: for example, in Brazil and China CS rates are over 50% while in 2014, in Italy and the United States CS rates were respectively 32.8% and 38.1% [6]. In neighboring countries like Egypt the rate in 2014 was 52% [7] and in Jordan in 2017 the rate was 29.1% [8]. In Palestine, according to the Palestinian Ministry of Health (PMoH) [9], the CS rate hovers around 32% and in

2018 was distributed between public and private hospitals at 27% and 36.7%, respectively. (This figure covers only the area of the West Bank currently under the direct control of the Palestinian Authority; the Gaza strip region is not included.) The current CS rate constitutes a five-fold increase from the rate recorded in 1996 of 6%.

Numerous studies attribute the increasing cesarean delivery rates to various contributing factors including for example; medical, institutional, legal, psychological and socio-demographic factors, all of which have been shown to play a role in birthing choices. For example, in South American countries, a correlation was found between the rate of CS in private hospitals and GNP per capita: in Brazil in 1998 the rate of CS in private hospitals reached 70%, which was twice that recorded in public hospitals [6]. Another example relates maternal knowledge and education as being contributory factors; a study targeting women obstetricians found that 31% of respondents had opted for an elective cesarean delivery [2], suggesting that expert knowledge of childbirth might favor choice of a cesarean delivery. In contrast, a study conducted in Nagpur, India, concluded that maternal knowledge could help lower the rates of cesarean delivery [7].

Since the beginning of the 21st century, maternity care has become increasingly women centered the world over. Due to the higher degree of patient involvement in clinical decision making the knowledge and attitudes of women concerning cesarean and vaginal modes of delivery are important as they have a direct bearing on the choice of delivery method and consequently on aftercare well-being. Several studies have concluded that the higher the degree of a women's involvement in decisions about their choice of delivery, the higher their level of satisfaction [1, 8], and the lower the risk of legal action [9]. In this important respect, unfortunately, the number of studies that have been conducted on CS prevalence in Middle Eastern countries is limited.

In order to address this deficit, we choose to examine the level of knowledge and attitudes of Palestinian pregnant women visiting the antenatal clinics about cesarean and vaginal modes of delivery in three administratively different types

Table 1. Characteristics of hospitals.

Hospital characteristics	Public hospital ^a	Charity hospital ^a	Private hospital ^a	National ^b
Number of total beds	248	68	37	6,440
Maternity beds	24	16	6	-
Total number of employees	757	356	191	-
Number of doctors	199	31	32	13,884
Number of nurses	318	85	50	11,459
Number of administrators	190	205	90	-
Specialized departments	18	21	17	-
Total number of births	5,241	2,829	1,870	118,811
Number of CS cases (%)	1,491 (28)	767 (27)	706 (38)	34,422 (29)
Mortality rate (% from discharge)	1.2	-	0.1	-

^{a,b}Individual hospital and national figures were obtained from the Palestinian Ministry of Health website www.moh.ps, Health Annual Report 2018; as well as directly from the management in each hospital.

of hospitals including, public, private, and charity-based, in the district of Ramallah, Palestine.

2. Methods

A cross-sectional survey was carried out on 372 pregnant women attending the antenatal clinics of three different hospitals in the Palestinian city of Ramallah, 10 km north of Jerusalem, between March 17 and May 30, 2019 (Table 1 gives a brief description of the three hospitals). Prior to fieldwork, formal ethical approvals for the research protocol was granted by the PMoH Research Unit as well as the respective scientific committees of the participating hospitals.

Using a stratified sampling technique, the sample size for each hospital was determined based on the average monthly antenatal attendance. Thus, the proportional sample size from each hospital type were as follows: 202 women from the public hospital, 70 women from the private hospital, and 100 women from the charity-based hospital. The pregnant women were chosen randomly from the daily appointment log available at each clinic, after which only those women who met the following inclusion criteria were interviewed: (i) Those being 20 weeks or above of gestational age, (ii) those having no medical condition requiring a cesarean delivery and (iii) those having provided their verbal consent.

Data were collected through interviews using a structured questionnaire adapted from previous studies [2–4]. The questionnaire was provided in Arabic (translated from English), after having had its content validity, comprehensibility and wording checked and approved by three obstetric specialists. A final version of the questionnaire was completed after it was tested for comprehensibility using 15 selected women who met the study criteria but were not included in the final study dataset. The questionnaire had four sections: the first one asked the participants about their current and previous pregnancies; secondly, the participants were asked to provide information about themselves; and the final remaining two sections inquired about the participants' knowledge of several medical and nonmedical complications arising from cesarean and vaginal modes of delivery, and their attitude toward cesarean delivery. All interviews were conducted by either one of two qualified female field researchers.

The analysis of the data was performed using SPSS version 20. In addition to descriptive statistics, analysis of variance and chi-square tests were used to compare the groups. *P*-values lower than 0.05 were deemed significant. For scoring participants' knowledge responses, one point was given for every correct answer and zero points for incorrect and 'don't know' answers. Women's knowledge scores were categorized as poor (0-5), intermediate (6-11) and good (12-17).

3. Results

Table 2 shows the socio-demographic characteristics of the women who participated in this study and compares them across the three different hospitals: public; charitable and private. The majority of the participants (67% or 250 women) were younger than 29 years old. While 72% (268/372) of them had a previous experience of childbirth, the results further indicated that 93 or 25% of them had delivered their babies by cesarean, with the highest CS rate of 28.7% (58/202) found in the public hospital. In addition, regarding the participants' level of education and employment status, 55% or 206 of them had a post-secondary qualification, and 91 (25%) were engaged in some kind of a paid work.

The results concerning the women's level of knowledge are presented in Table 3. The majority of the women participating in this study were aware of the varied complications of CS delivery, however, there were some inconsistencies worth mentioning. For example, although 325 or 87% of them knew that pain and muscle weakness are greater after a CS and 325 (58%) were aware of the possibility of uterine scar rupture in future pregnancies, only 82 (22%) knew that CS is linked to higher maternal mortality. Another example was shown in the wide majority 341 (91%) of the women who knew that a CS is required if the fetus is in a breech position, yet only 56 (15%) realized that bleeding is more severe after a CS. Moreover, the results showed that while a clear majority of the participants were largely aware of the complications of normal delivery (ND) a relatively small percentage were aware about the increased risk of complications following ND after a previous CS (37% or 138) and how ND may increase the risk of urinary incontinence (37.6% or 140).

Table 2. Sociodemographic and maternal characteristics of women participants (n = 372) according to type of hospital (%).

Characteristics	Public hospital (n = 202)	Charity hospital (n = 100)	Private hospital (n = 70)	Total (n = 372)
Age ***				
18 - 29	56.9	88.0	67.1	67.2
30 - 45	43.1	12.0	32.9	32.8
Education level				
Primary	11.9	7.0	7.1	9.7
Secondary	40.6	30.0	25.7	34.9
College or above	47.5	63.0	67.1	55.4
Occupation				
Homemaker	59.4	61.0	61.4	60.2
Student	8.4	7.0	12.9	8.9
Employed	23.3	26.0	25.7	24.5
Unemployed	8.9	6.0	-	6.5
Monthly household income (Israeli Shekels) *				
< 3,000	46.0	31.0	32.9	39.5
3,000 - 7,000	44.6	56.0	61.4	50.8
> 7,000	7.4	5.0	4.3	6.2
Unknown	2.0	8.0	1.4	3.5
Community ***				
City	41.6	42.0	32.9	40.3
Village	53.4	41.0	67.1	53.0
Camp	5.0	15.0	-	6.7
Type of insurance ***				
Government	82.7	20.0	30.0	55.9
Private	2.5	10.0	28.6	9.4
UNRWA	3.0	44.0	-	13.4
No insurance	11.9	26.0	41.4	21.2
Parity ***				
Nulliparous (no previous delivery)	21.8	35.0	32.9	27.4
Primiparous (one previous delivery)	16.8	28.0	24.3	21.5
Multiparous (two or more previous deliveries)	61.4	37.0	42.9	51.3
Previous delivery				
Vaginal delivery	48.5	46.0	42.9	46.8
Cesarean delivery	28.7	19.0	22.9	25.0
CSMR	-	-	1.4	0.3

* P value < 0.05, *** P value < 0.001. Data were analyzed with χ^2 test.

UNRWA, United Nations Relief and Works Agency for Palestine Refugee. CSMR, Cesarean section on maternal request.

The knowledge scores of women toward different modes of delivery are shown in Table 4. Overall, 88 (24%) of the women had good scores, 253 (68%) intermediate scores and the remaining 31 (8%) had poor scores. When these scores were analyzed across the three different hospitals, no significant difference in the mean knowledge score was found. Table 5, moreover, shows the three knowledge score categories according to various sociodemographic characteristics of the participants in this study. Unsurprisingly, the results showed that there was a statistically significant association ($P < 0.05$) between the women's levels of education and their knowledge scores; they further revealed that a statistically significant association existed between knowledge scores on one hand, and occupation and monthly household income on the other; that is, those whose income was higher and those who were employed tended to score better.

The mean scores on the attitude scale toward different modes of delivery are presented in Table 6; overall they indi-

cated relatively unfavorable attitudes towards having a CS delivery. The majority of the women in this study indicated that the reason for delivering a baby by cesarean section should be the 'doctor's recommendation', which was found to be consistent with their responses on other reasons, most notably 'to specify a date of birth' and 'CS is a modern and better method than ND'. When the women were asked about whether they believed that choosing CS should be a women's right, even in the absence of medical reasons, most of them disagreed with a mean score 4.23. Additionally, the study examined whether women with CS history had different attitudes from nulliparous women, and whether women's attitudes varied by type of insurance; both of which had insignificant results.

4. Discussion

To the best of our knowledge, the present study is the first to document the knowledge and attitudes of pregnant Palestinian women (fetal age 20 weeks and above) towards

Table 3. Maternal knowledge of childbirth delivery options (%).

Knowledge Questions	Yes	No	Don't Know
<i>Knowledge of Cesarean Delivery</i>			
Maternal mortality is higher in CS	22.0	19.1	58.9
Higher chance of acquiring an infection after a CS	48.9	17.7	33.3
Higher risk of developing neonatal respiratory disorders after a CS	30.6	26.1	43.3
Bleeding is much more severe after a CS	15.1	62.9	22.0
CS is typically inadvisable more than three times	40.1	44.9	15.1
Feeling pain and muscle weakness are complications of CS	87.4	3.2	9.4
Uterine rupture in future pregnancy is a potential complication of CS	58.6	19.6	21.8
Adhesions of the internal organs is a potential complication of CS	42.7	12.6	44.6
CS is required if the fetus is in the breech position	91.7	3.2	5.1
<i>Knowledge of Normal Delivery</i>			
Pain is less severe after ND	74.5	4.0	21.5
Chances of a CS are higher in pregnant women with diabetes or HTN	44.9	20.4	34.7
ND may be riskier after a previous CS	37.1	51.1	11.8
ND stimulates breastfeeding	80.4	15.6	4.0
ND may cause a vaginal rupture	62.1	17.2	20.4
ND may cause urinary incontinence	37.6	28.0	34.4
ND have shorter hospital stay and recovery	96.5	2.4	1.1
ND enhances the baby's immune system	66.1	12.1	21.8

Table 4. Knowledge scores from all three hospitals (%).

Knowledge scores	Public hospital	Charity hospital	Private hospital	Total	P value
Poor	8.4	9.0	7.0	8.0	0.89
Intermediate	66.8	71.0	67.0	68.0	
Good	24.8	20.0	26.0	24.0	

Data were analyzed with χ^2 test.

Table 5. Distribution of women according to selected sociodemographic characteristics and knowledge scores (%).

Characteristics	Poor (n = 31)	Intermediate (n = 253)	Good (n = 88)
Age			
18 - 29	9.6	68.7	21.7
30 - 45	4.9	67.2	27.9
Education level *			
Primary	11.4	74.3	14.3
Secondary	8.5	74.6	16.9
College or above	6.8	63.4	29.8
Occupation *			
Homemaker	9.4	69.6	21.0
Student	15.2	78.5	9.1
Employed	3.3	61.1	35.6
Unemployed	4.2	70.8	25.0
Monthly household income (Israeli Shekels) *			
< 3,000	11.6	71.9	16.4
3,000 - 7,000	5.3	66.7	28.0
> 7,000	-	6.9	39.1
Unknown	23.1	61.5	15.4
Community			
City	6.1	66.2	27.7
Village	10.2	67.8	22
Camp	4.0	80.0	16.0
Parity			
Nulliparous	13.7	65.7	20.6
Primiparous	7.7	71.8	20.5
Multiparous	5.2	68.2	26.7

* P value < 0.05. Data were analyzed with χ^2 test.

Table 6. Women's attitude towards mode of delivery according to type of hospital (μ).

Attitudinal statements	Public hospital	Charity hospital	Private hospital
CS is a modern and better method than ND	3.87	3.96	4.11
ND creates bonding between mother and baby	2.30	2.20	2.25
Babies delivered normally are healthier	2.67	2.74	2.59
Affluent pregnant women may choose CS	4.12	4.22	3.73
In the absence of medical reasons women have the right to choose CS	4.27	4.26	4.16
CS lacks sensation and pleasure associated with the ND	2.68	2.55	2.54
CS is safer for the mother and the baby than ND	3.75	3.79	3.73
CS is preformed based on the doctor's recommendation	1.64	1.54	1.89
CS is chosen to avoid labor pains associated with ND	4.12	4.19	3.71
CS is chosen to specify a date of birth	4.60	4.44	4.00
CS is chosen to help maintain women's sexual pleasure	3.44	3.52	3.20
Tendency towards CS is stronger with available health insurance	3.78	3.86	3.73
As women age the likelihood of performing a CS increases	2.80	3.06	2.67
CS is chosen as a result of past stressful normal labor	3.02	3.42	3.16
CS is chosen because of high anxiety and low confidence in ND	3.04	3.39	3.13
CS has become a routine procedure in private hospitals	2.31	2.36	2.34
CS indicates a weakness in woman's fertility capability	3.11	2.96	2.96
CS may be avoided for religious reasons	3.89	3.88	4.17
If costs of CS decreases it will be chosen as a method of delivery	3.81	3.60	2.73

Mean scores were calculated using 5-item scale: 1 = strongly agree, 2 = agree, 3 = cannot decide, 4 = disagree, 5 = strongly disagree.

modes of delivery using a survey-based approach. As previously mentioned in the introduction, the rate of CS deliveries, according to the PMoH, is well above that which the WHO recommends, with high CS rates observed across all types of hospitals globally; a trend that is also apparent in countries neighboring Palestine [8, 10, 11].

In this study, the results indicated that, despite the high CS rate [9, 15], the majority of Palestinian women receiving antenatal care demonstrated a significant awareness of CS and its possible complications. The overwhelming majority of respondents across all types of hospitals (public, charitable and private) preferred a normal vaginal delivery; most respondents demonstrated an above average level of knowledge concerning modes of deliveries. These outcomes paralleled those of comparable studies performed in other countries. For example, in Brazil preferences concerning childbirth delivery options were similar in public and private hospitals and strongly favored vaginal births, above 70% in both sectors [12]. In Tehran, Iran, a study of public and private hospitals found that although mothers demonstrated poor levels of knowledge about the risks and benefits of different modes of delivery, they still preferred vaginal birth to other delivery options (74%) and there was no significant difference among the participants in public and private hospitals in their preference of vaginal births [1]. Similar results were generated by studies among Iraqi mothers attending antenatal clinics in Baghdad [4], and Nepali women whose knowledge of the mode of delivery was medium had a strongly positive preference for a vaginal delivery birthing choice (93%) [13]. In other countries including Italy, Scotland and South Korea similar results were observed; for instance, 95% of women in South Korea showed a preference for choosing ND rather

than CS [3].

Our data showed that an overwhelming majority of respondents did not believe that it is their right to request a CS even in the absence of medical reasons, which sharply differs from a Singaporean study in which 71% of women believed they had a right to demand an elective CS [2]. In contrast the women in our study strongly believed that physicians should determine the mode of delivery. This popular belief among Palestinian women is also held by Iranian women (70.9%) [1].

Furthermore, our results indicated that women with higher levels of education and relatively higher income showed higher levels of knowledge and a disinclination toward CS. This specific result is concordant with that of a Brazilian study that also showed that middle and higher class women do not want to deliver by CS [12]. A similar finding was also reported in a study carried out in Nagpur, India [14]. The present study further revealed that women's knowledge and attitudes towards modes of delivery was not influenced by an urban as opposed to rural place of residence. This result contrasted to that of a large study across 18 Arab countries (including Palestine [15]) which found CS rates were higher among urban residents [16].

Although the majority of women in this study expressed a preference for vaginal delivery, CS deliveries continue to rise in Palestine. In this respect, there could be several possible explanations that might account for the difference between women's expressed preference and the actual outcomes recorded. Firstly, according to several studies [8, 10, 12, 16], physicians constitute an integral part of the process of childbirth delivery and, therefore, should share some of the responsibility for increased CS rates. Secondly, the increased medicalization of birth, manifested in the rapid growth of

healthcare facilities and health insurance, might have contributed to increased CS rates [3]. Thirdly, the growing privatization of healthcare and the consequent emphasis on economic incentives, according to some observers, may have also encouraged an increase in CS [17].

To the best of our knowledge our study was the first to address Palestinian women's knowledge and attitudes towards childbirth delivery options, however there were several limitations in the study's design. Firstly, the sole reliance in this study on a cross-sectional survey methodology did not allow for collection of data that could shed light on the possible causes for the observed CS rates and their differences among the different types of women studied. The preferred mode of delivery expressed by the women whom we interviewed in antenatal clinics may not correspond to their actual birthing choice at the time of their delivery. Secondly, while we have made effort to ensure a systematic sampling process, the generalizability of the results to other Palestinian cities, particularly Gaza, should be made with caution due to large differences in socio-economic conditions. Finally, while our study was primarily developed to examine the question of modes of birth delivery options and how they might be affected by factors thought to influence knowledge and attitudes, the study is limited in terms of the information collected regarding how these women have formed and developed their perceptions and preferences.

Author contributions

All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

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Conflict of interest

The authors declare no competing interests.

References

- [1] Ghotbi F, Sene AA, Azargashb E, Shiva F, Mohtadi M, Zadehmodares S, *et al.* Women's knowledge and attitude towards mode of delivery and frequency of cesarean section on mother's request in six public and private hospitals in Tehran, Iran 2012. *Journal of Obstetrics and Gynaecology Research.* 2014; 40: 1257-1266.
- [2] Chong ESY, Mongelli M. Attitudes of Singapore women toward cesarean and vaginal deliveries. *International Journal of Gynecology and Obstetrics.* 2003; 80: 189-194.
- [3] Lee SI, Khang YH, Lee MS. Women's attitudes toward mode of delivery in South Korea—a society with high cesarean section rates. *Birth.* 2004; 31: 108-116.
- [4] Nadia NA, Amir H. Knowledge and attitude of pregnant women towards modes of delivery in an antenatal care clinic in Baghdad. *Journal of the Faculty of Medicine Baghdad.* 2017; 59: 25-30.
- [5] Betran AP, Torloni MR, Zhang JJ, Gülmezoglu AM, Section WHOGoC. WHO statement on cesarean section rates. *An International Journal of Obstetrics and Gynaecology.* 2016; 123: 667-670.
- [6] Betran AP, Ye J, Moller AB, Zhang J, Gulmezoglu AM, Torloni MR. The increasing trend in cesarean section rates: global regional and national estimates: 1990-2014. *PLoS ONE.* 2016; 11: e0148343.
- [7] Ministry of Health and Population E-Z, and ICF International. Egypt demographic and health survey 2014. Rockville: Ministry of Health and Population and ICF International. 2015. Available at: <https://dhsprogram.com/pubs/pdf/fr302/fr302.pdf> (Accessed: 17 October 2019).
- [8] Batiha AM, Al-Daradkah SA, Khader YS, Basha A, Sabet F, Athamneh TZ, *et al.* Cesarean section: incidence, causes, associated factors and outcomes: a national prospective study from Jordan. *Gynecologic Oncology Case Reports.* 2017; 3: 55.
- [9] Palestinian Ministry of Health. Health annual report Palestine 2018. 2019. Available at: <https://site.moh.ps/index/Books/Book Type/2/Language/ar> (Accessed: 7 August 2019).
- [10] Khawaja M, Rozet J, Kabakian-khosholian T. Rising trends in cesarean section rates in Egypt. *Birth.* 2004; 31: 12-15.
- [11] Huster KM, Patterson N, Schilperoord M, Spiegel P. Cesarean sections among Syrian refugees in Lebanon from December 2012/January 2013 to June 2013: probable causes and recommendations. *Yale Journal of Biology and Medicine.* 2014; 87: 269-88.
- [12] Potter JE, Berquo E, Perpetuo IHO, Leal OF, Hopkins K, Souza MR, *et al.* Unwanted cesarean sections among public and private patients in Brazil: prospective study. *British Medical Journal.* 2001; 323: 1155-1158.
- [13] Anshumala J, Thapa M, Panta OB. Maternal attitude and knowledge towards modes of delivery. *Journal of Nepal Health Research Council.* 2018; 14: 209-214.
- [14] Ajeet S, Jaydeep N, Nandkishore K, Nisha R. Women's knowledge, perceptions and potential demand towards cesarean section. *National Journal of Community Medicine.* 2011; 2: 244-248.
- [15] Abdul-Rahim HF, Abu-Rmeileh N, Wick L. Cesarean section deliveries in the occupied Palestinian territory (oPt): an analysis of the 2006 Palestinian family health survey. *Health Policy.* 2009; 93: 151-156.
- [16] Khawaja M, Choueiry N, Jurdi R. Hospital-based cesarean section in the Arab region: an overview. *Eastern Mediterranean Health Journal.* 2009; 15: 458-469.
- [17] Organization for Economic Co-operation and Development. Review of the Korean health care system. Paris: Author. 2002.