Client perceived quality of postnatal care following a normal delivery provided by public sector specialized care institutions in Sri Lanka: A cross sectional study

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Abstract

Background

Majority of the maternal and neonatal adverse events take place during the postnatal period. Provision of high-quality care during this period can minimize these events. Assessment of mothers’ perceptions of the quality of care received by them provides valuable feedback to improve the care and ultimately outcomes.

Methods

A cross sectional survey was conducted in specialized institutions of Colombo district, Sri Lanka, to assess the maternal perceptions of the quality of regular postnatal care and its correlations, using an interviewer administered questionnaire. Descriptive statistics were used to assess the perceptions and multivariate analysis was conducted to assess the significant correlates of positive perceptions.

Results

The median score obtained for the questionnaire was 108, (96-114). The median scores of the technical care and information domain, interpersonal care domain and ward facilities and cleanliness domain were 43 (38-45), 33 (30-35) and 32 (28-35) respectively. Attending teaching/ specialized hospitals (1.6, p<0.001), 20-35 age group (aOR=1.8, p=0.024), and services such as initiation of breast feeding within one hour of delivery (2.1, p=0.009), pain relief during episiotomy suturing (2.2, p<0.001), practicing KMC (1.4, p=0.035), receiving health advices by doctors or midwives (2.1, p<0.001) were significant correlates of positive perceptions.

Conclusions

Majority of mothers had favourable perceptions of the quality of care received by them. However, the ward facilities and environment domain has obtained lower ratings compared to technical and interpersonal care domains. Several services were significantly associated with favourable perceptions. Authorities should consider these findings when attempting to improve care quality. Further, this assessment should be carried out regularly to obtain more current data.

Background

The first few weeks after delivery is a crucial period for both mother and the newborn as a majority of
maternal and newborn adverse outcomes takes place in this period (1–3). Immediate postnatal period or the first 24 hours after delivery is the most crucial period, where more than half of the postpartum maternal deaths (4) and 25%–45% of the newborn deaths occur (5). Provision of evidence-based care with adequate quality during this period is vital to ensure a smooth recovery of the mother and the baby.

Quality of health care is now considered an essential component of health services (6). It ensures that services are effective, efficient, patient centered, cost effective and safe (4). Further it should be regularly monitored and upgraded to ensure best outcomes. Assessment of client experiences and perceptions of care is increasingly being considered as a useful monitoring measure (7–10). Client perceived quality is defined as “subjective and dynamic perception of the extent to which expected health care is received by a person” (11). It provides health workers and authorities with valuable information to improve the service quality and render it patient-centered. Client perceptions of the quality of service received by them will also determine their level of satisfaction with the services. It is known that unsatisfied clients may not return to the same facility even during an emergency even if the facility provides state of the art care (6,10).

In Sri Lanka, around 99.9% women receive institutional postnatal care, and a clear majority of them (94.6%) receive care from public sector institutions (12). Evidence based practices are implemented in these institutions through national guidelines, and regular supervision is aimed to maintain the highest standards of care. However, client perceived quality is not a popular measure of quality in this context. Further, though studies have assessed mothers’ perceptions and satisfaction of antenatal and intra-natal services (13,14), studies on institutional postnatal care as sparse in Sri Lanka. Therefore, this study was conducted with the aim of assessing the quality of the regular postnatal care provided by the public sector specialized institutions in the district of Colombo, following a normal vaginal delivery (NVD). It was the mothers’ perceptions, and the factors associated with it that was studied. This is a component of a larger study that evaluated the quality of the regular institutional postnatal care comprehensively. We hope that the information gained from this study would be beneficial to improve the institutional postnatal care services in Sri Lanka to meet mothers’
expectations.

Methods

A cross sectional analytical study was conducted from the 1st December 2016 to the 30th April 2017 in the public sector specialized health institutions in Colombo district. Colombo District is situated in the south west of Sri Lanka and has an area of 699 km$^2$. It’s mixture of urban, semi urban, rural and estate areas. Colombo District has a population of 20,359,439, the highest out of all 25 districts (15).

Study setting

Curative health sector in Sri Lanka is comprised of three levels: primary, secondary and tertiary. Primary health services provide the field and the first contact care, while the secondary and tertiary level institutions provide specialized services under the guidance of specialist health professionals. Thus, in the institutions providing specialized Maternal and Newborn Health (MNH) care, both routine basic care and comprehensive care for emergencies and complications are provided through a team of trained health care providers.

Of the 330,898 deliveries that took place in government hospitals in 2014, the highest proportion (12.6%) took place in Colombo district (12). The six state sector health care institutions providing specialized MNH care in Colombo account for 98.4 % of these deliveries (16). These six institutions include three base hospitals (secondary level), one teaching hospital (tertiary level) and two special hospitals specialized to provide women’s’ health services only. Altogether, there are 17 wards providing specialized MNH services in these six institutions.

Study population and sampling

The study population consisted of mothers who had been discharged following a normal vaginal delivery. Mothers who had complications and the mothers with newborns who had complications following a normal delivery were excluded from the study as their care would deviate from the regular postnatal care, which was the focus of the study. A sample of 1300 mothers was deemed necessary to detect the significant associations of client perceptions.

Mothers were selected from all 17 wards. Number of mothers selected from each ward was
proportionate to the number of NVDs in the first quarter of 2016 in that ward. Consecutive sampling technique was used to select eligible mothers in each ward.

Data collection

Interviews were conducted in a pre-identified place in the ward with adequate privacy after all the discharge procedures were completed for each selected mother. As discharges are done twice daily at 12 noon and at 5.00 pm, two interview sessions were held daily, approximately at these times. The Client Perceived Quality of Institutional postnatal Care (CPQIPNC) questionnaire, which was developed by the Principal Investigator (PI), was used for data collection. It had a total of 23 items divided into three domains: technical care and information, interpersonal care and ward facilities and cleanliness. Each item was rated on a five-point Likert scale, from one to five. Therefore, the total obtainable score ranged from 23 to 115. It was validated by conducting an exploratory and confirmatory factor analysis and had an internal consistency and test retest reliability of 0.94.

In addition, socio demographic information from the mother and information on receipt of services by the mother and the baby that are stipulated in the National guidelines on maternal care (17) were also collected.

Data collection was conducted by trained pre-intern medical officers via an interviewer administered questionnaire after obtaining the informed written consent from the eligible mothers. Data collectors were supervised by the PI throughout the study and 2% of all questionnaires were re-administered by the PI to ensure reliability of data collection.

Data Analysis

Data analysis was conducted by SPSS version 21. Inter-rater reliability was assessed by computing Intra class correlation coefficient for data collectors’ results and PI’s results. The cut off was set at 0.7 (18).

Descriptive statistics were used to describe the basic information of the study sample, services received by them during the postnatal period and their perceived quality.

A binomial logistic regression analysis was carried out to determine the associations of client
perceptions, as most of the statistical assumptions were met for binomial regression analysis.
The total score obtained by each participant for the CPQIPNC questionnaire was taken as the
dependent variable and was dichotomized into low and high client perceived quality, based on the
median value of the total score. Identification of the independent variables was accomplished by
reviewing previous literature and expert opinion. The variables included socio demographic factors,
pregnancy related factors, institutional factors and services received during the current hospital stay.
Information on independent variables were gathered during interviews of the mothers using
questionnaires developed by the PI. They were transformed into categorical variables for further
analysis. The independent variables to be included in the analysis were determined by a bivariate
analysis. The variables with less than 10 counts in one category were excluded from the analysis. The
significance level for selection was taken as $p<0.25$ (19). Using the variables selected, a backward
stepwise binomial logistic regression was conducted to assess the significant correlates. Goodness of
fit of the regression model was assessed by the regression diagnostics- overall percentage of the
predictions that were correctly classified by observed outcomes, The Omnibus test, Cox and Snell
Square test, Nagelkerke R Square test, Hosmer and Lameshow test.

Necessary administrative clearances were obtained and the ethical clearance for the study was
obtained from the ethics Review Committee, faculty of Medicine, University of Colombo, Sri Lanka.

Results

Of the selected mothers, 1265 responded to the questionnaire, giving a response rate of 97.3%.
Participation from individual wards ranged between 76.5% - 100%. Of the non-respondents, four did
not consent for participation (0.3%) and another 31 mothers (2.4%) who consented, had left the
hospital before the interview was initiated.

The inter-rater reliability was satisfactory for all the data collectors as all had obtained an Intra class
correlation coefficient between 0.96-0.99.

Socio demographic and pregnancy related details of the participants

Age ranged from 16 to 46 years, while most mothers belonged to the 20–35 years age group (n =
More than three fourths have obtained an educational qualification above the secondary level (n = 1029, 81.3%). A clear majority of the study sample (n = 958, 75.7%) was unemployed. Average monthly income showed a wide variation, ranging from Rs.3,000.00 (17 USD) to Rs.350,000.00 (2000 USD). Close to half of the study sample were primi mothers (n = 525, 41.5%) (Table 1).

Mothers’ account on services received by them

Services recommended in the national guidelines to be delivered during the postnatal period following a NVD were received by most of the participants. Majority have initiated breast feeding within one hour after delivery (n = 1184, 93.6%) as recommended, and 99.4% mothers have exclusively breast fed while in the postnatal ward. The technique of breast feeding has been assessed by a health care worker for majority of mothers (n = 1249, 98.7%) and corrected where necessary. Least frequently received service was the opportunity to practice kangaroo mother care (KMC) (n = 970, 76.7%). Inquiry was made into the services provided to the mother and the newborn at discharge. All the mothers and 99.8% (n = 1263) of the babies have been examined by a medical officer at discharge, and over 95% of the examinees were informed about their examination findings (1235 participants were informed about their examination findings and 1256 were given information following examination of the baby). Privacy has been ensured during 99% of the examinations by covering the examination area (n = 1254).

All mothers have received health advices regarding the postnatal period. The main sources of information were nursing officers and midwives (n = 1195, 94.5% and n = 190, 86.2% respectively). Medical officers have provided health advices to only 750 mothers in the study sample (59.3%) (Table 2).

Client perceived quality of institutional postnatal care (CQIPNC)

The total obtainable score of CQIPNC ranged from 23 to 115. The obtainable scores for technical care
and information domain, interpersonal care domain and ward facilities and cleanliness domain ranged between 9-45, 7-35, and 7-35 respectively.

The total score obtained for the CQIPNC questionnaire in the study ranged from 48 to 115. The median score obtained was 108, which was 93.9% of the total obtainable score (IQR- 96–114). Technical care and information domain had a median score of 43 (IQR = 38–45). Interpersonal care domain and ward facilities and cleanliness domain had median scores of 33 (IQR = 30–35) and 32 (IQR = 28–35) respectively (Table 3).

Over 90% of the mothers have rated care as ‘good’ or ‘very good’ for all the items included in interpersonal care domain and the technical care and information domain. The ratings reduced somewhat for the items in the ward facilities and cleanliness domain. Only 81.1% have rated the cleanliness of the toilets in the ward as ‘good’ or ‘very good’. The ‘good’ or ‘very good’ ratings percentages for the space and the facilities available were 88.0% and 88.8% respectively (Table 4).

**Determinants of client perceived quality of care**

The bivariate analysis depicted that participant characteristics such as the age between 20–35 years (OR = 1.6, p = 0.06), husband’s occupation (OR = 1.2, p = 0.08), average monthly income (OR = 0.8, p = 0.13), the type of institution used by the mother (OR = 1.4, p = 0.004); services such as initiation of breast feeding within one hour (2.2, p = 0.001), informing the mother after examination of the baby (OR = 1.9, p = 0.02), provision of adequate pain relief during episiotomy suture (OR = 2.2, P<0.001), giving assistance to practice KMC in the labour room and the ward (OR = 1.4, p = 0.02), receiving health advices from doctors (OR = 2.6, p<0.001) and midwives (OR = 3.2, p<0.001), regular examination of the mother (OR = 2.0, p = 0.009), getting assistance to initiate breast feeding (OR = 1.9,p = 0.12) were significantly associated with high perceptions of quality of care.

Among these variables, only 20–35 age category (aOR = 1.8, p = 0.024), teaching and specialized hospitals category (1.6, p<0.001), and services such as initiation of breast feeding within one hour of delivery (2.1, p = 0.009), pain relief during suturing of the episiotomy (2.2, p<0.001), Ability to
practice KMC (1.4, \( p = 0.035 \)), Receiving health advices by the doctors (2.1, \( p<0.001 \)) and PHMs (2.1, \( p<0.001 \)) were identified as significant correlates via the multivariate analysis (Table 5).

The final model explains between 10.7% (Cox & Snell R square) to 14.3% (Negelkerke R Square) of the variation in the client perceived quality. The Omnibus test was statistically significant with a \( p \) value of less than 0.001. Hosmer and Lameshow test was not significant, indicating that the model was a good fit to the data. The final model of the binary logistic regression correctly classified 52.5% of client perceptions.

**Discussion**

This is the first study to assess the client perceived quality of regular postnatal care services provided by public sector specialized institutions in Sri Lanka. This study discovered that mothers’ assessment of the quality of institutional postnatal care was favourable, as observed by the high median scores received for the questionnaire. It also identified that each item of care assessed by the questionnaire was rated favourably by most of the mothers.

Favourable ratings for client satisfaction and client perception surveys is a well-known phenomenon (20) and has been observed across the world (21–23). A recent review of literature on women’s satisfaction with maternal care in developing countries has observed that majority of studies have reported a high level of satisfaction (22). However, in several studies, clients have rated the quality of institutional maternal care as poor (24,25) which have been attributed by some authors to poor quality of health delivery systems, client characteristics such as literacy level, cultural diversity, and techniques of assessment of satisfaction.

Client perceived quality is a multi-dimensional concept and is assessed through a number of related domains (26). During the development of the CPQIPNC tool, three domains were identified, namely, technical care, interpersonal care and ward facilities. These domains have commonly been used to assess client perceptions with institutional care (Wijesinghe, 2012; van Duong et al., 2004). Among them, “ward facilities and cleanliness” domain was rated less favourably than other two domains by the participant mothers. Items such as cleanliness of the toilets and washrooms, space in the postnatal ward and ability to get adequate rest have obtained lowest scores. Ward facilities and
related domains have consistently obtained low scores in client perception and client satisfaction surveys. Wijesinghe (2012) (14) and Senerath (2004) (27) have also identified the same phenomenon in relation to intra-natal care in Sri Lanka. The same trend has been reported in international studies, where environmental attributes have been rated negatively in comparison to other attributes (26). Attributes such as technical care and interpersonal care may also receive higher scores due to courtesy bias, where inanimate items such as that assessed by ward facilities domain may be rated more objectively, as suggested by studies assessing the biases associated with exit interviews (28,29). Further, in the current study, mothers have reported that most of the recommended services were provided to them, which may contribute to high ratings of technical care.

Assessment of determinants of client-perceived quality of care

Client perceptions may be influenced by many factors besides actual service delivery. Studies have shown that apart from structure, process and outcomes of care, factors such as client characteristics, access to services, financial costs, socio economic and cultural factors may shape the way clients perceive the services (22).

Logistic regression revealed that apart from age, other socio demographic factors were not associated with mothers’ perceptions of the quality of care. Similar findings have been reported by Kambala et al, 2015, where socio demographic factors were found to be related to perceived quality of antenatal care but not delivery or postnatal care (30). Further, literature report that socio demographic associations of client perceptions are not consistent across studies. In addition, most of these associations are non-modifiable, limiting their value in improving care to meet patients’ expectations (31).

Awareness on service related and facility related factors that may influence mothers’ perceptions on the other hand, plays a major role in improving care. The current study found that certain services, such as initiation of breast feeding within one hour of delivery, pain relief during suturing of the episiotomy, ability to practice KMC, receiving health advices by the doctors and midwives were
associated with higher ratings of quality of care provided to mothers and the babies. These services may help to create a favourable opinion of the postnatal care in the mother, leading to high perceived quality.

Initiation of breast feeding and skin to skin care immediately after the delivery promotes the bonding between mother and the newborn has been known to improve the maternal perceptions and satisfaction with care (32,33). Practice of Kangaroo Mother Care also improves bonding through skin to skin care, leading to positive perceptions about quality of care.

Experience of intense pain during labour by the mother has constantly been associated with negative perceptions about labour (34). Therefore, it is reasonable to expect that mothers who received adequate pain relief during suture of episiotomy would perceive care more positively compared to mothers who did not, as demonstrated by the current study.

Previous studies have reported that mothers expect to receive adequate information on important aspects such as breast feeding, child-care and behaviour during the postnatal period (35). Positive perceptions of care by the mothers who receive information as expected is evident in many literature on maternal satisfaction (22). Consistently, the current study revealed that while all mothers have received health advices from either midwives, nurses or doctors, those who received advices from doctors and midwives have perceived care more positively than who did not.

In addition to these services, mothers who received services from teaching and specialized hospitals have rated the quality more favourably than the mothers in the base hospitals. “Good physical environment and efficient management” has been stated as significant predictors of positive assessment of care by mothers (22). Teaching hospitals and specialized hospitals have better facilities and resources than base hospitals and is capable of better management and care than base hospitals. This is consistent with literature that higher-level institutions are associated with more positive maternal perceptions of care, possibly due to better facilities (26).

**Limitations of the study**

Our study had following limitations. Firstly, it assessed the perceptions of the mothers who attend specialized institutions only. The perceptions of the mothers who attend non-specialized institutions
may be quite different to these findings. Secondly the effect of courtesy bias that is introduced when information is collected through exit interviews may have led to an over estimation of the results. However, use of interviewers who were not involved in patient care and ensuring privacy during the interviews were aimed to overcome this issue.

Conclusions And Recommendations
This study presents a cross sectional depiction of postnatal mothers’ perceptions of the care received by them. According to the postnatal mothers’ perceptions, the quality of institutional postnatal care in specialized institutions in Colombo district of Sri Lanka is commendable. However, the ward facilities and environment domain has obtained lower ratings compared to technical and interpersonal care domains. Services such as initiation of breast feeding immediately following delivery, practice of KMC in the ward, getting health advices from doctors or midwives and provision of adequate pain relief during episiotomy suture, and obtaining services from higher level institutions were associated with positive client perceptions. These findings will be useful for quality improvement, and to provide more patient centred care. However, quality assessment should be a regular process which should be an integral component of health care delivery systems. Therefore, it is recommended that this assessment is conducted regularly to get the most updated feedback.

Declarations
Ethics approval and consent to participate
The ethical clearance for the study was obtained from the ethics Review Committee, faculty of Medicine, University of Colombo, Sri Lanka.

Informed written consent was obtained from all the participants prior to participation.

Consent for publication
Not applicable.

Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author on request.

Competing interests
The authors declare that they have no competing interests.

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Authors’ contributions
SAW designed the study, analyzed and interpreted data and prepared the manuscript. MWG and NH provided the technical supervision throughout the study. All authors read and approved the final manuscript.

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References
1. Ronmans C, Graham WJ. Maternal mortality: who, when, where, and why. Lancet. 2006;368(9542):1189–200.

2. World Health Organization. Essential newborn care course: clinical practice workbook. 2010; Available from: http://www.who.int/maternal_child_adolescent/documents/newborncare_course/en/

3. Stanton CK, Rawlins B, Drake M, dos Anjos M, Cantor D, Chongo L, et al. Measuring Coverage in MNCH: Testing the Validity of Women’s Self-Report of Key Maternal and Newborn Health Interventions during the Peripartum Period in Mozambique. PLoS One. 2013;8(5).

4. World Health Organization. Quality of care: A process for making strategic choices in health systems. Vol. 267. Geneva, Switzerland: World Health Organization; 2006. 1–
5. World Health Organization. Newborns: reducing mortality [Internet]. WHO. World Health Organization; 2016. http://www.who.int/mediacentre/factsheets/fs333/en/. Accessed 10 May 2016.

6. Hulton AL, Matthews Z, Stones RW. A framework for quality of care in maternity services. Southampton: University of Southampton; 2000.

7. Castle NG, Brown J, Hepner KA, Hays RD. Review of the literature on survey instruments used to collect data on hospital patients’ perceptions of care. Health Serv Res. 2005;40(6 II):1996–2017.

8. Vuori H. Patient satisfaction—an attribute or indicator of the quality of care? Vol. 13, Quality Review Bulletin. 1987. p. 106–8.

9. Williams B. Patient satisfaction: A valid concept? Soc Sci Med. 1994;38(4):509–16.

10. Andaleeb SS. Service quality perceptions and patient satisfaction: A study of hospitals in a developing country. Soc Sci Med [Internet]. 2001;52(9):1359–70. Available from: http://www.sciencedirect.com/science/article/pii/S0277953600002355. Accessed 02 June 2019.

11. van Duong D, Binns CW, Lee AH, Hipgrave DB. Measuring client-perceived quality of maternity services in rural Vietnam. Int J Qual Heal Care. 2004;16(6):447–452.

12. Medical Statistics Unit. Annual Health Bulletin 2014. Colombo, Sri Lanka: Ministry of Health, Nutrition and Indigenous Medicine; 2016. 203 p.

13. Prathapan S. Quality of field antenatal clinics in Colombo District. Post Graduate Institute of COlombo, Sri Lanka; 2009.

14. Wijesinghe SD. Client perceived Quality of antenatal and intranatal care and its association with service utilization. Post Graduate Institute of Medicine, Colombo, Sri
15. Department of Census and Statistics. Census of Population and Housing. Colombo, Sri Lanka; 2015.

16. Family Health Bureau. NATIONAL EMERGENCY OBSTETRIC AND NEONATAL CARE NEEDS ASSESSMENT. Colombo, Sri Lanka; 2012.

17. Ministry of Health. National guidelines for maternal care: Volume I. Colombo, Sri Lanka: Family Health Bureau; 2013.

18. Litwin M. How to measure survey reliability and validity. Newyork, USA: Sage Publications; 1995.

19. Hosmer DW, Lemeshow S. Applied logistic regression. 2nd editio. New York, USA: John Wiley & Sons; 2000.

20. Teijlingen ER, Hundley V, Rennie A, Graham W, Fitzmaurice A. Maternity satisfaction studies and their limitations:”what is, must still be best.” Vol. 30, Birth. 2003. p. 75-82.

21. Jha P, Larsson M, Christensson K, Svanberg AS. Satisfaction with childbirth services provided in public health facilities: Results from a cross-sectional survey among postnatal women in Chhattisgarh, India. Glob Health Action [Internet]. 2017;10(1). Available from: https://doi.org/10.1080/16549716.2017.1386932. Accessed 02 June 2019.

22. Srivastava A, Avan B, Rajbangshi P, Bhattacharyya S. Determinants of women’s satisfaction with maternal health care_ a review of literature. BMC Pregnancy Childbirth. 2015;15(97).

23. Wiegers TA. The quality of maternity care services as experienced by women in the Netherlands. Vol. 9, BMC Pregnancy and Childbirth. 2009. p. 18.

24. Karkee R, Lee AH, Pokharel PK. Women’s perception of quality of maternity services:
25. Gashaye KT, Tsegaye AT, Shiferaw G, Worku AG, Abebe SM. Client satisfaction with existing labor and delivery care and associated factors among mothers who gave birth in university of Gondar teaching hospital; Northwest Ethiopia: Institution based cross-sectional study. PLoS One. 2019;14(2):1–15.

26. Matejić B, Milićević MŠ, Vasić V, Djikanović B. Maternal satisfaction with organized perinatal care in Serbian public hospitals. BMC Pregnancy Childbirth [Internet]. 2014;14(1):1–9. Available from: http://www.biomedcentral.com/1471–2393/14/14. Accessed 17 Oct 2016.

27. Senerath LDJU. Essential Newborn Care Services in a District of Sri Lanka and the Effectiveness of an Intervention to improve services. Post Graduate Institute of Medicine, Colombo, Sri Lanka; 2004.

28. Glick P. How reliable are surveys of client satisfaction with healthcare services? Evidence from matched facility and household data in Madagascar. Vol. 68, Social Science and Medicine. 2009. p. 368–79.

29. Hameed W, Ishaque M, Gul X, Siddiqui J-R, Hussain S, Hussain W, et al. Does courtesy bias affect how clients report on objective and subjective measures of family planning service quality? A comparison between facility- and home-based interviews. Open Access J Contracept. 2018;Volume 9:33–43.

30. Kambala C, Lohmann J, Mazalale J, Brenner S, De Allegri M, Muula AS, et al. How do Malawian women rate the quality of maternal and newborn care? Experiences and perceptions of women in the central and southern regions. BMC Pregnancy Childbirth [Internet]. 2015;15(1):1–19. Available from: http://dx.doi.org/10.1186/s12884–015-0560-x. Accessed 02 June 2019.

31. Al-Abri R, Al-Balushi A. Patient satisfaction survey as a tool towards quality
improvement. Oman Med J [Internet]. 2014 Jan;29(1):3–7. Available from: https://www.ncbi.nlm.nih.gov/pubmed/24501659. Accessed 02 June 2019.

32. Zeyneloğlu S, Kisa S, Özberk H, Badem A. Predictors and measurement of satisfaction with postpartum care in a government hospital. Nurs Heal Sci. 2017;19(2):198–203.

33. Sundin CS, Mazac LB. Implementing Skin-to-Skin Care in the Operating Room After Cesarean Birth. MCN Am J Matern Child Nurs. 2015;40(4):249–255.

34. Oweis A. Jordanian mother’s report of their childbirth experience: Findings from a questionnaire survey. Int J Nurs Pract. 2009;15(6):525–33.

35. Lindberg I, Ohrling K, Christensson K. Expectations of post-partum care among pregnant women living in the north of Sweden. Int J Circumpolar Health [Internet]. 2008;67(5):472–83. Available from: http://www.circumpolarhealthjournal.net/index.php/ijch/article/view/18354. Accessed 02 June 2019.

Tables
Table 1: Distribution of the study participants by socio demographic characteristics
| Socio-demographic characteristic | N=1265 |  |
|---------------------------------|--------|---|
| **Age in years**                |        |   |
| <20                             | 73     | 5.8|
| 20-35                           | 1074   | 84.9|
| >35                             | 118    | 9.3|
| **Ethnicity**                   |        |   |
| Sinhala                         | 909    | 71.9|
| Muslim                          | 184    | 14.5|
| Tamil                           | 172    | 13.6|
| **Religion**                    |        |   |
| Buddhist                        | 841    | 66.5|
| Catholic                        | 112    | 8.9|
| Islam                           | 192    | 15.2|
| Hindu                           | 120    | 9.5|
| **Highest level of education**  |        |   |
| No schooling                    | 5      | 0.4|
| Grade 1-5                       | 23     | 1.8|
| Grade 6-11                      | 208    | 16.4|
| Passed G.C.E. (O/L)*            | 518    | 40.9|
| Passed G.C.E. (AL)**            | 409    | 32.3|
| Graduate                        | 102    | 8.1|
| **Occupation**                  |        |   |
| Unemployed                      | 958    | 75.7|
| Unskilled manual                | 19     | 1.5|
| Skilled manual                  | 82     | 6.5|
| Sales and services              | 54     | 4.3|
| Clerical                        | 54     | 4.3|
| Professional                    | 98     | 7.7|
| **Husbands’ level of education**|        |   |
| No schooling                    | 5      | 0.4|
| Grade 1-5                       | 17     | 1.3|
| Grade 6-11                      | 167    | 13.2|
| Passed G.C.E. (O/L)*            | 561    | 44.3|
| Passed G.C.E. (AL)**            | 419    | 33.1|
| Graduate                        | 94     | 7.4|
| Othera                          | 2      | 0.2|
| **Husbands’ Occupation**        |        |   |
| Unemployed                      | 5      | 0.4|
| Unskilled manual                | 119    | 9.4|
| Skilled manual                  | 531    | 42|
| Sales and services              | 407    | 32.2|
| Clerical                        | 114    | 9|
| Professional                    | 87     | 6.9|
| Othera                          | 2      | 0.2|
| **Income**                      |        |   |
| No income                       | 2      | 0.2|
| <30,000.00                      | 252    | 19.9|
| 30,000-39,999                   | 344    | 27.2|
| 40,000-49,999                   | 231    | 18.3|
| =>50,000                        | 436    | 34.5|
| **Parity (Current)**            |        |   |
| P1                              | 525    | 41.5|
| P2-P4                           | 723    | 57.2|
| =>P5                            | 17     | 1.3|

* General Certificate of Education/Ordinary Level  
** General Certificate of Education/Advanced Level  
a-These participants did not have a husband
Due to technical limitations, Table 2 is only available as a download in the supplemental files section.

### Table 3: Median values for each domain of the CPQIPNC questionnaire (N=1265)

| Domain and Information          | Range | Median | Median as a percentage of the maximum score (%) |
|---------------------------------|-------|--------|-------------------------------------------------|
| Technical care and Information  | 16-45 | 43     | 95.5                                            |
| Interpersonal care (7)          | 16-35 | 33     | 94.3                                            |
| Ward facilities and cleanliness (7) | 16-35 | 32     | 91.4                                            |
| Total score                     | 48-115| 108    | 93.9                                            |

### Table 4: Percentage of mothers either satisfied or extremely satisfied with each item in the CPQIPNC questionnaire (N=1265)

| Domain and Item                                                                 | Number | Percentage |
|--------------------------------------------------------------------------------|--------|------------|
| Interpersonal care                                                             |        |            |
| 1  Friendliness shown by the HCWs                                              | 1210   | 95.7       |
| 2  Patience                                                                    | 1166   | 92.2       |
| 3  Promptness of the attention                                                 | 1194   | 94.4       |
| 4  Availability of pain relief during the postpartum period                    | 1233   | 97.4       |
| 5  Respect for privacy                                                         | 1249   | 98.8       |
| 6  Willingness to discuss about your concerns                                 | 1155   | 91.3       |
| 7  Way health care workers treated your family members                         | 1203   | 95.1       |
| Technical care and Information                                                 |        |            |
| 8  Help given for the initiation of breast feeding                             | 1224   | 96.8       |
| 9  Help received to take care of your baby                                    | 1191   | 94.2       |
| 10 Help received to take care of yourself                                     | 1163   | 91.5       |
| 11 Information on taking care of the baby                                     | 1200   | 94.8       |
| 12 Information on proper method of breast feeding                              | 1237   | 97.6       |
| 13 Information to identify danger signals                                      | 1163   | 91.5       |
| Ward facilities and Cleanliness                                               |        |            |
| 14 HCWs’ skills to identify and manage health issues of your baby             | 1225   | 96.5       |
| 15 HCWs’ skills to identify and manage health issues in relation to you       | 1219   | 96.4       |
| 16 Information received to clarify your issues                                | 1169   | 92.4       |
| 17 Cleanliness of the ward                                                     | 1222   | 96.6       |
| 18 Cleanliness of the toilets & washrooms                                      | 1032   | 81.1       |
| 19 Space in the postnatal ward                                                  | 1114   | 88.6       |
| 20 Adequacy of facilities in the ward                                          | 1124   | 88.8       |
| 21 Adequacy of delivery beds in the labour room                                | 1235   | 97.7       |
| 22 Adequacy of numbers of HCWs                                                  | 1232   | 97.4       |
| 23 Ability to get some rest                                                    | 1130   | 89.3       |
Table 5: Results of the logistic regression on factors associated with a positive maternal perception of quality of care received in the institutional postnatal period

| Variable                              | Frequency | Crude OR (p value) | Adjusted OR (p value) |
|---------------------------------------|-----------|--------------------|-----------------------|
| **Socio-demographic variables**       |           |                    |                       |
| Age                                   |           |                    |                       |
| >35 years                             | 73        | 1.2 (0.53)         | 1.3 (0.45)            |
| 20-35 years                           | 1074      | 1.6 (0.06)         | 1.8 (0.024)           |
| <20 years                             | 118       | 1                  | 1                     |
| Husbands’ Occupation                  |           |                    |                       |
| Other occupations                     | 608       | 1.2 (0.08)         | 1.2 (0.08)            |
| Unemployed or manual worker           | 657       | 1                  | 1                     |
| Income                                |           |                    |                       |
| ≥ 40,000 Rupees                       | 667       | 0.8 (0.69)         | 0.8 (0.16)            |
| <40,000 Rupees                        | 598       | 1                  | 1                     |
| **Institutional characteristics**     |           |                    |                       |
| Teaching/ Specialized hospitals       | 994       | 1.6 (<0.01)        | 1.4 (<0.01)           |
| Base hospitals                        | 271       | 1                  | 1                     |
| **Service provided to the mother and the newborn** | | | |
| Initiation of breast feeding immediately after the delivery | | | |
| Yes                                   | 1184      | 2.2 (<0.01)        | 2.1 (<0.01)           |
| No                                    | 81        | 1                  | 1                     |
| Provision of adequate pain relief for suture of episiotomy (1264) | | | |
| Yes                                   | 1125      | 2.2 (<0.01)        | 2.2 (<0.01)           |
| No                                    | 295       | 1                  | 1                     |
| Practicing Kangaroo Mother Care at ward | | | |
| Yes                                   | 970       | 1.4 (0.02)         | 1.4 (0.04)            |
| No                                    | 295       | 1                  | 1                     |
| Receipt of health advices from the doctors | | | |
| Yes                                   | 750       | 2.6 (<0.01)        | 2.1 (<0.01)           |
| No                                    | 515       | 1                  | 1                     |
| Receipt of health advices by the Midwives | | | |
| Yes                                   | 1090      | 3.2 (<0.01)        | 2.1 (<0.01)           |
| No                                    | 175       | 1                  | 1                     |
| Regular examination of the mother in the postnatal period | | | |
| Yes                                   | 1193      | 2.0 (<0.01)        | -                     |
| No                                    | 72        | 1                  | -                     |
| Informing about the baby’s health after examination | | | |
| Yes                                   | 1209      | 1.9 (0.02)         | -                     |
| No                                    | 56        | 1                  | -                     |
| Help received from the health staff for breast feeding (1255) | | | |
| Yes                                   | 1230      | 1.9 (0.12)         | -                     |
| No                                    | 25        | 1                  | -                     |

**Supplementary Files**

This is a list of supplementary files associated with this preprint. Click to download.

Table 2.jpg
