Facilitating Better Postnatal Care with Women-Held Documents in The Gambia: A Mixed-Methods Study

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Abstract

Background: Women-held documents are a basic component of continuity of maternity care. The use and completion of women-held documents following discharge could improve treatment and care for postnatal women. Using a mixed-methods study design, we aimed to assess content, quality and completeness of women-held discharge documents and identify factors contributing to the effective use and handover of these documents.

Methods: Documents given to women at discharge from all three hospitals in the Greater Banjul Area, The Gambia, were reviewed for content and quality. Poisson regression was used to estimate factors predicting completion of the documents. Semi-structured interviews (n=21) and two focus groups were carried out with healthcare professionals (HCPs).

Results: From the 212 women included in the study, nearly all (n=211; 99%) were given a document to take home. The maternal record was the most common (n=207; 98%) and the most complete (17/26 items completed on average; 65%). None of the women's sociodemographic or clinical characteristics were associated with the completeness of the documents. Themes identified from the interviews include HCPs completing and handing over the documents to women and the ability of women to understand and use the documents. Facilitators and barriers identified from both themes were synthesised alongside the quantitative results.

Conclusions: The government-issued maternal record is well established in The Gambia and has potential to be more effective. We recommend a national protocol be established to improve consistent completion and use of the maternal record and to reduce the number of documents HCPs must complete. Training and monitoring of HCPs would ensure the document is complete, given to all women and explained to the women clearly and thoroughly.

Background

Approximately 99% of global maternal deaths occur in low- and middle-income countries (LMICs), with 66% occurring in sub-Saharan Africa.(1) Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division placed The Gambia as having one of the highest maternal mortality rates worldwide in 2017, with 597 per 100,000 live births.(1) Reducing maternal mortality is in line with Sustainable Development Goals but can be challenging in resource-limited settings.(2) Insufficient access to healthcare is a major contributor to poor outcomes in rural areas,(3) however, in LMICs the urgency of high-quality care has superseded the need for more services.(3)

Continuity of care is a key element in providing high quality, safe and coordinated care and includes handover of patient information between healthcare professionals (HCPs) and their patients.(4) Poor continuity of care is partially to blame for maternal deaths in LMICs, where it is not uncommon for women to visit multiple healthcare facilities for their postnatal care.(5–7) One way to improve continuity of maternal care is by capturing detailed information on women-held documents. These documents can
provide HCPs at different facilities with the necessary information to provide appropriate and timely management of postnatal care.(8)

The World Health Organisation (WHO) considers the use of women-held documents a basic component of continuity of maternal care.(8) HCPs in LMICs have reported improved health outcomes resulting from women-held documents, and such documents increase the likelihood of women initiating postnatal care through check-up appointments.(7,9) For women-held documents to be effective sources of information, HCPs must complete them and the women must take them to their appointments.

Whilst women-held documents are used in most countries(8), a recent systematic review found no studies that report completion of such documents or predictors of having documents complete at the time of discharge(10). Women are particularly at risk following birth and often in LMICs, women-held documents serve as the only medical records available.(8,11) Therefore, assessing such documents and identifying contributing factors to their use are vital steps towards improving handover of essential information after birth, thus improving follow-up care, including management of postnatal complications. (7,9)

The primary aim of this study was to assess the number, type, completeness and quality of women-held documents on discharge from maternity units in The Gambia, identify characteristics associated with completeness and explore context-specific barriers and facilitators for the document’s effective use.

**Methods**

This study was a component of a larger study investigating the use of women-held documents upon arrival for maternity care in The Gambia.(12) The reporting of our research was guided by the Minimum Standards of Reporting Checklist and the cross-sectional Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist can be found in Additional file 1.

**Setting and Design**

Three maternity hospitals in the Greater Banjul Area were the setting of this cross-sectional mixed-methods study(13). Each hospital’s characteristics are described in Additional file 2. Women were surveyed, documents were examined and HCPs interviewed between January and March 2018. Written informed consent was obtained by all women in the study with signature or thumbprint if the woman was illiterate.

**Quantitative component**

Sample size calculations for the quantitative element were carried out for a linked study.(12) Calculations were based on an unknown population size and an assumption that 80% of women would have documents.(14) For the linked study, a minimum sample size of 243 women was needed to achieve a sufficiently precise estimate (+/-5% using a 95% confidence level).(12)
Researchers (LG, FL and FR) and Gambian translators were trained in the use of the questionnaire and assessment of documents. They rotated around the hospitals across an even distribution of weekdays and weekends to generate a representative sample and reduce observer bias. They approached all women being discharged on each day they were present (normally between 9am and 1 pm).

The inclusion criteria comprised women aged 16 and older being discharged from the hospitals who had a live birth during their stay. Women were excluded if they had partaken in any Medical Research Council (MRC) study or were unable to speak English or one of the three major tribal languages of Mandinka, Wolof or Fula.

The questionnaire was adapted from handover and discharge studies in Mongolia(15) and India(16) to identify women's opinions around use of women-held documents (Additional file 3) and was verbally administered in the women's local languages. Those recruited gave informed consent with thumbprint or signature.

Women-held documents were assessed for content quality by determining legibility; a document was considered illegible if both the researcher and translator were unable to read the content. Document completeness was assessed using a 26-item checklist developed using a combination of the government-issued maternal record used in The Gambia and the 2015 WHO guide for essential practice in pregnancy, childbirth, postpartum and newborn care(17). Final checklist items were agreed by senior co-authors.

Data was analysed using SPSS version 25.0 (IBM, Armonk, NY, USA). Descriptive statistics were used to describe the number, content and quality of documents and questionnaire responses. Poisson regression was used to assess associations between the number of completed items (maximum 26 per woman) and participant characteristics, adjusting for potential confounding factors. A P-value of less than 0.05 was considered statistically significant. The dependant variable was the number of items completed for each woman after combining all documents she held. Covariates entered into the model were determined based on clinical importance and evidence on which variables are associated with quality of written documentation(15,16). Occupation was agreed to be the best representation of socioeconomic status and was therefore used in the model along with age, education, travel time to hospital, complicated/normal birth (defined in Additional file 4), number of antenatal visits and English literacy. The location of birth (hospital 1, 2 and 3) was added to the regression model as a fixed effect.

Qualitative component

The qualitative component was conducted in parallel at the same hospitals using a purposive sampling approach. Nurses, midwives and doctors on the maternity wards were invited to participate in either focus group discussions (FGDs) or one-on-one semi-structured interviews (SSIs) based on their availability; none participated in both. Recruitment continued until thematic saturation was achieved.

A researcher (FL) trained in qualitative research conducted the Interviews in English (all HCPs were fluent) at the hospital sites. All interviews were conducted in person, recorded and anonymously transcribed verbatim. No prior relationship was established between the interviewer and the HCPs being interviewed.
The interview topic guide used addressed barriers and facilitators for the effective use of women-held documents and opportunities for improvement and was piloted prior to the FGDs and SSIs (Additional file 5). Fifteen to thirty minutes were needed for the SSIs whereas the FGDs took twenty to forty minutes. Field notes were taken immediately after each FGD and SSI.

Inductive thematic analysis based on Braun and Clarke's six-step approach(18) was undertaken for analysis. A different researcher (TG) performed line-by-line coding on all transcripts, developing themes and sub-themes. Convergent triangulation was used to combine and discuss quantitative and qualitative results.

Results

All 272 women approached agreed to partake, however twenty-one were involved in an MRC study, one lacked capacity to consent, two had not been formally discharged, nineteen had not given birth and seventeen did not have a live birth. These sixty women were subsequently excluded, leaving 212 women eligible for the study (Fig. 1). Additional file 6 shows women's demographic and pregnancy characteristics. Across the three hospitals, women differed in the time it took them to get to the hospital, the type of transportation they took and whether or not they had a complicated birth.

Number and type of documents

All documents were assessed by researchers. Only one woman (0.5%) did not have a document to assess. Seventy-four percent (n = 157) held more than one document. The government-issued maternal record (Fig. 2, 3) was most commonly held (n = 207; 98%); these are given to women in The Gambia at their first antenatal appointment and its use is intended until the final postnatal check-up. Prescription cards were the second most common document held (n = 111; 52%). Eighty women (38%) had a discharge card or checklist; however, the checklist was used at only one hospital (44 women from this hospital had the checklist; 54%). Thirty-one women (15%) were provided with pieces of paper, referral forms and miscellaneous documents such as ultrasound reports.

Quality and completion of documents

Twenty-two women (10%) had at least one illegible document and two (1%) held no legible document. The maternal record had 17 (65%) items completed on average, the highest of any document (Additional file 7). Discharge checklists had the second highest average of items complete, but with only 9 (35%) items complete on average. All but five items were better recorded on the maternal records compared to any other document: date of discharge, name of staff that issued the document, date of next appointment, and mother's vaccinations and medications.

Of the women that had a document at discharge (n = 211; 99%), the number of items completed ranged from 5 to 22 (mean = 17; standard deviation (SE) = 3.04). Regression results indicate that no sociodemographic or clinical characteristic tested were associated with the proportion of items complete
However, age, time to hospital, English literacy and complicated birth had an Incident Risk Ratio (IRR) greater than 1. Education, occupation, number of antenatal visits and hospital had an IRR of less than 1. All assumptions of a Poisson regression were met for the analysis.

**Women’s questionnaire responses**

Additional file 8 shows questionnaire responses, analysed by whether the woman had a complicated birth. Most women (n = 211; 99%) planned to see an HCP for a postnatal check-up. Over half (n = 125; 59%) planned to visit the same hospital for their check-up (45 women (46%) with a complicated birth and 80 women (71%) with a normal birth). Forty women (19%) stated they would not be able to tell the HCP at their check-up what happened during birth, but sixty-seven percent (n = 142) said they would use documents HCPs had given them (80 women (80%) with a complicated birth and 62 women (55%) with a normal birth). Most women thought a written explanation of what happened during their visit was important (n = 199; 94%). The most common reason given (n = 175; 83%), was that it helped them when attending postnatal services whereas the next highest reason (n = 24; 11%) was that it made them feel confident about what to do next.
| **Respondent Variable** | **P-value** | **IRR (95% CI)** |
|-------------------------|-------------|-----------------|
| **Age**                 |              |                 |
| 30+                     | .330        | 1.039 (.962, 1.123) |
| 21–29                   | .417        | 1.031 (.958, 1.110) |
| Under 20                | 1 a         |                 |
| **Education**           |              |                 |
| None or did not complete primary school | .515 | .974 (.898, 1.055) |
| Completed junior secondary school | .608 | .981 (.911, 1.056) |
| Completed senior secondary school | .819 | .992 (.922, 1.066) |
| Islamic or other        | 1 a         |                 |
| **Occupation**          |              |                 |
| Retail                  | .812        | .993 (.934, 1.055) |
| Other                   | .374        | .965 (.893, 1.043) |
| Housewife               | 1 a         |                 |
| **Time to hospital**    |              |                 |
| Under 1 hour            | .425        | 1.028 (.961, 1.099) |
| More than 1 hour        | 1 a         |                 |
| **Number of antenatal visits** |         |                 |
| More than 3 visits      | .064        | .945 (.890, 1.003) |
| 0 to 3                  | 1 a         |                 |
| **English literacy**    |              |                 |
| Literate                | .064        | 1.058 (.997, 1.123) |
| Illiterate              | 1 a         |                 |
| **Complicated birth**   |              |                 |
| Yes                     | .151        | 1.055 (.980, 1.136) |
| No                      | 1 a         |                 |
| **Hospital**            |              |                 |
| Respondent Variable | P-value | IRR (95% CI) |
|---------------------|---------|--------------|
| 1                   | .773    | .988 (.913, 1.070) |
| 2                   | .743    | .990 (.933, 1.051) |
| 3                   | 1\(^a\) |              |

\(^a\) An IRR of 1 indicates the reference category of the predictor variable.

**Qualitative results**

Twenty-one HCPs (8 doctors, 8 midwives and 5 nurses) participated in SSIs whilst nine participated in two FGDs. All HCPs approached agreed to take part; however, some were unable to due to workload. The demographic details of the participants interviewed are included in the Additional file 9 and published elsewhere.\(^{12}\) Two themes identified were related to the effective use of women-held documents for continuity of post-delivery care: HCPs completing and handing over documents to women, and women’s ability to understand the documents. Divided into facilitators and barriers, themes and sub-themes are presented in Additional file 10 with supporting quotations.

The first theme considers the role of HCPs in completing the documents and effectively handing them over to women. Identified facilitators included the HCPs knowledge and consistent use of the government-issued maternal records (referred to as antenatal cards in the interviews). HCPs understood the maternal record was to be used for the postpartum period and knew from memory the basic items to record. There were two HCPs that believed they were only used for normal births. Barriers identified included HCPs having too many discharge documents to complete and lacking the time to complete them due to understaffed hospitals. The final barrier identified was the lack of protocols on written documents; it was mentioned there is currently no national guidelines on which documents to complete and give to women at discharge. HCPs felt this contributed to inconsistencies in the documents used.

The second theme - the women’s ability to utilise the documents - identified two barriers but no facilitators. From the HCPs’ perspectives, one barrier was the women’s education level. Some HCPs believed illiteracy to be the problem and others mentioned that uneducated women did not understand the information given to them. Several HCPs also stated that women often lose or forget their documents. Rationales for this included women thinking the documents were unimportant, having too many loose documents or forgetting them when rushing to the hospital.

**Discussion**

We found that nearly all women (n = 211; 99%) held one or more document following birth at three hospitals in The Gambia’s capital city. The government-issued maternal record was most commonly used and complete, though key information was omitted. HCPs were familiar with the maternal records, knew
the information that was to be recorded on them and knew they cover the postnatal period. Whilst two HCPs thought maternal records were only used for normal births, the quantitative data disputes this. None of the women's sociodemographic or clinical factors contributed to the completeness of the documents, suggesting that completeness is universally sub-optimal.

Most women had more than one document (n = 157; 74%), supporting the comments made from HCPs regarding the various documents they must complete and give to women. Five items were recorded less on the maternal record; four of which were better recorded on the discharge checklist. The checklist was not universally given to women, but the maternal record was. It is therefore more practical to consolidate all necessary items onto the maternal record and it be the only women-held document after discharge. Completing and explaining to women just one document could save HCPs valuable time, thus increase time for patient care and likelihood of the correct document being taken to postnatal appointments by women.

A national protocol on what women-held discharge document to complete (the maternal record) and minimum criteria of information to include could aid in the document's completeness and consistent use. Additional supervision and monitoring of the discharge information given to women would further enhance implementation of such a protocol.

Our results complement the existing literature on women's opinions and use of women-held documents. (9,10,12,19) Despite some HCPs in this study thinking women find these documents unimportant, most women said a written explanation on what happened during birth was important and they would use the document(s) given to them. It is possible that the HCPs' perceptions on what women think about the documents, lack of staff, lack of a national protocol, or a combination of these factors could be impacting completeness.

A national training plan for staff could help change perceptions, stress the impact of women-held documents and encourage them to complete the document(s) consistently. It should be clarified to HCPs that women rarely forget to bring their documents to healthcare appointments in The Gambia and elsewhere.(10,12,20) It is crucial for HCPs to understand that the maternal record does not just improve continuity of care. Providing women with clear information to take home can increase their confidence in the care they receive and improve communication with HCPs.(9,21–23)

Despite women's positive opinions, 19% said they did not know how they would inform the next HCP about the birth, indicating that further education and explanation of the documents are needed and emphasising the need for adequately completed women-held documents. Further studies are required to understand the health and social impact of women-held documents following discharge. Findings from such research could assist in determining minimum criteria for information on women-held documents and strengthen the evidence needed to educate women and HCPs on the importance of these documents.

This study had some limitations. The criteria used to assess document completeness was partially based on the maternal record. Consequently, this may have positively influenced the completeness of maternal
records; however, the criteria were also guided by WHO recommendations. Results may be less
generalisable to rural Gambia, although all rural areas around Banjul referred women to these hospitals.
The time it took for women to reach the hospital did not predict completeness and 99% of woman held a
document, suggesting that use and completeness would not differ between urban inhabitants near the
hospitals and rural inhabitants further away.

Conclusions

Most women in The Gambia are given at least one document to take home at discharge. The
government-issued maternal record was the most commonly held and complete document. It is
recommended that the maternal record be the only document given to women at discharge to reduce the
number of documents that HCPs need to complete. For the maternal record to be more effectively used, a
national protocol should be developed and include minimum criteria of information to record. The
protocol should then be implemented and complemented with training and monitoring. HCPs’ perceptions
on women’s opinions and use of documents should be challenged through national training to ensure
they understand that women rarely forget their documents and that women think written information is
important. Improved use of the maternal record could facilitate safer transition of women between
healthcare facilities and increase effectiveness of the management of postpartum complications, thereby
contribute to the international aim in reducing global maternal mortality.

Abbreviations

LMICs: low- and middle-income countries; HCPs: healthcare professionals; WHO: World Health
Organisation; MRC: Medical Research Council; FGDs: focus group discussions; SSIs: semi-structured
interviews; IRR: incident risk ratio

Declarations

Ethics approval and consent to participate

Ethical approval was given by the joint Gambia Government/Scientific Coordinating Committee at the
Medical Research Council (MRC) Fajara (Quantitative Ref: SCC 1580V1.1; Qualitative Ref: SCC 1581v1.1)
and University of Birmingham BMedSc Research Ethics Committee (Quantitative Ref:
IREC2017/1416069; Qualitative Ref: IREC2017/1410620). Permission to conduct research was granted
by each hospital’s administrators and the Gambian director of Public Health. Written informed consent
was obtained by all women in the study with signature or thumbprint if the woman was illiterate. This
study did not include minors (under age 16) and therefore did not require the consent of any women’s
parent or guardian.

Consent for publication

Not applicable
Availability of data and materials

The dataset supporting the conclusions of this article is available in the figshare repository [13199942; https://figshare.com/articles/dataset/Full_dataset_Maternity_cards_in_The_Gambia_xlsx/13199942]

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

LG, FL, FR, CM, CC, KM, AW and SM-H developed the design and conceptualisation of the study. LG completed the ethics application paperwork for the quantitative arm of the study, designed the questionnaire tool, collected the quantitative data, and assisted with the editing of the manuscript. FL completed the ethics application paperwork for the qualitative arm of the study, conducted the qualitative interviews and transcriptions, and reviewed and contributed to the final manuscript. FR helped collect data and helped with the design. TG designed the final analysis plan, analysed the quantitative and qualitative data and wrote all drafts of the manuscript. AS guided the quantitative analysis. SM-H guided the research execution. CC, AW and CM supervised the researchers carrying out the work. KM contributed to the data collection at one of the hospitals in The Gambia. All authors read and approved the final manuscript.

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References
1. World Health Organization, UNICEF, UNFPA, World Bank Group, United Nations Population Division. Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. World Health Organization; 2019. https://www.who.int/reproductivehealth/publications/maternal-mortality-2000-2017/en/. Accessed 14 Oct 2020.

2. Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages. Sustainable Development Goals: Knowledge platform. https://sustainabledevelopment.un.org/sdg3. Accessed 26 Oct 2019.

3. Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, et al. High-quality health systems in the Sustainable Development Goals era: time for a revolution. Lancet Glob Health. 2018;6:e1196–e1252.

4. World Health Organisation. Continuity and coordination of care: a practice brief to support implementation of the WHO framework on integrated people-centred health services. World Health Organization; 2018. https://apps.who.int/iris/handle/10665/274628. Accessed 14 Oct 2020.

5. Walraven G, Telfer M, Rowley J, Ronsmans C. Maternal mortality in rural Gambia: levels, causes and contributing factors. Bull World Health Organ. 2000;78:603–613.

6. Cham M, Sundby J, Vangen S. Maternal mortality in the rural Gambia, a qualitative study on access to emergency obstetric care. Reprod Health. 2005;2:3.

7. Shah P, Selwyn B, Shah K, Kumar V. Evaluation of the home-based maternal record: a WHO collaborative study. Bull World Health Organ. 1993;71:535.

8. World Health Organization. WHO recommendations on home-based records for maternal, newborn and child health. World Health Organization; 2018. https://apps.who.int/iris/bitstream/handle/10665/274277/9789241550352-eng.pdf?ua=1. Accessed 24 Apr 2019

9. Turner KE, Fuller S. Patient-held maternal and/or child health records: meeting the information needs of patients and healthcare providers in developing countries? Online J Public Health. 2011. doi:10.5210/ojphi.v3i2.3631.

10. Hawley G, Janamian T, Jackson C, Wilkinson SA. In a maternity shared-care environment, what do we know about the paper hand-held and electronic health record: a systematic literature review. BMC Pregnancy Childbirth. 2014;14:52.

11. Ronsmans C, Graham WJ, Lancet Maternal Survival Series steering group. Maternal mortality: who, when, where, and why. Lancet. 2006;368:1189–1200.

12. Gustafsson L, Lu F, Rickard F, MacArthur C, Cummins C, Coker I, et al. The content and completeness of women-held maternity documents before admission for labour: A mixed methods study in Banjul, The Gambia. PloS one. 2020;15:e0230063.

13. Curry LA, Krumholz HM, O’Cathain A, Clark VLP, Cherlin E, Bradley EH. Mixed methods in biomedical and health services research. Circ Cardiovasc Qual Outcomes. 2013;6:119–123.
14. Sheikh A, Dunphy J, Humphries C, MacArthur C, Manaseki-Holland S. Maternity handover in Kerala: a cross sectional study. Int J Community Med Public Health. 2018;5:3760–6.

15. Ibrahim H, Munkhbayar U, Toivgoo A, Humphries C, Ochir C, Narula IS, et al. Can universal patient-held health booklets promote continuity of care and patient-centred care in low-resource countries? the case of Mongolia. BMJ Qual Saf. 2019;28:729–740.

16. Humphries C, Jaganathan S, Panniyammakal J, Singh S, Goenka S, Dorairaj P, et al. Investigating clinical handover and healthcare communication for outpatients with chronic disease in India: a mixed-methods study. PLoS one. 2018;13:e0207511.

17. World Health Organisation, UNICEF. Pregnancy, childbirth, postpartum and newborn care. A guide for essential practice. 3rd ed. 2015. https://www.who.int/maternal_child_adolescent/documents/imca-essential-practice-guide/en/. Accessed 14 Oct 2020.

18. Zimmerman MS. Reproductive health information needs and maternal literacy in the developing world: a review of the literature. IFLA. 2017;43:227–241.

19. UNAIDS. Gambia. UNAIDS; 2020. https://www.unaids.org/en/regionscountries/countries/gambia. Accessed 28 Aug 2020.

20. Toohill J, Soong B, Meldrum M. Risk management considerations and the pregnancy handheld record: An audit of the return rate of the pregnancy handheld record. Women Birth. 2006;19:113–116.

21. Homer CS, Davis GK, Everitt LS. The introduction of a woman-held record into a hospital antenatal clinic: the bring your own records study. Aust N Z J Obstet Gynaecol. 1999;39:54–57.

22. Phipps H. Carrying their own medical records: the perspective of pregnant women. Aust N Z J Obstet Gynaecol. 2001;41:398–401.

23. Elbourne D, Richardson M, Chalmers I, Waterhouse I, Holt E. The Newbury Maternity Care Study: a randomized controlled trial to assess a policy of women holding their own obstetric records. BJOG. 1987;94:612–9.

Figures
Figure 1

Sample recruitment flowchart
Figure 2

Front side of the government-issued maternal record

Figure 3

Back side of the government-issued maternal record
Supplementary Files

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