

Usefulness of Antenatal Care Handbook: A Cross-Sectional Study of Mother's Perspective

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Research

Keywords: Maternal and Child Health Handbook, Maternal and Child Health booklet, Cross-sectional study, Online Survey

Posted Date: June 22nd, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-627529/v1>

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Abstract

Introduction: The Maternal and Child Health (MCH) Handbook was introduced by the Ministry of Health Brunei Darussalam in 2016 to replace a card-type record. Since its introduction, its usefulness has not been evaluated. The purpose of the study was to determine the usefulness of the MCH Handbook contents in delivering information on antenatal care to Bruneian women.

Methods: A cross-sectional study using an online survey to women who came for their routine antenatal checkup at 32-week gestation.

Results: 73 mothers returned the self-administered online questionnaires. Participants had time to read the handbook (95.9%), were familiar with content (89.0%), and satisfied with the usage (93.2%). Major reasons for not using the handbook included “same information available online” (20.5%), “some words difficult to understand” (17.8%), “like more pictures than words” (12.3%), and “less encouragement from healthcare workers” (12.3%).

Conclusions: Majority of mothers find the handbook useful. However, further study is required to explore mother’s perception on the utilization of the handbook to continue improving the content and ensure relevance of its usage over time.

Introduction

The Maternal and Child Health (MCH) Handbook was published for the first time in Japan in 1948 and have been developed and adapted in more than 50 countries around the world (Nakamura, 2019). In Brunei Darussalam, the usage of MCH Handbook was introduced in January 2016 aimed to provide health information, to help women achieve and maintain optimal health during pregnancy and to help parents in terms of childcare as a whole. The MCH handbook has been stated as an effective tool for improving both health knowledge and health seeking behavior in both maternal and child (Kawakatsu et al., 2015). Furthermore, MCH Handbook is a necessary tool in their efforts to manifest the idea of leaving no one behind in the health care services (WMA - The World Medical Association, 2021).

The MCH Handbook is given to all pregnant mothers during their first antenatal visit, and it acts as a reference at time of need and is brought along during any visit to health care facility (Osaki, Kosen, Indriasih, Pritasari, & Hattori, 2015). It comprises of information for maternal health; during pregnancy, childbirth and postpartum and includes child health record; from newborn until the child age of 5 years old. The handbook was designed to record every single information regarding health services provided to a pregnant woman and her child and as an integrated home-based record (Balogun et al., 2020). In addition, it is viewed as the starting point that may aid in increasing the knowledge and change health behaviors through communication between health professionals and mothers with children. Also included in the handbook are health education messages to aids in promoting better health care seeking, healthy behaviors and safe home care practices (Magwood et al., 2019). Since the introduction of the MCH Handbook in Brunei Darussalam, no study or investigation has been done to evaluate its

usefulness. Hence, this initiated the researcher's interest to conduct the study and measure the usefulness of the MCH Handbook among pregnant women in Brunei Darussalam.

Several studies have investigated the usage of handbook. In 2015, pregnant women with MCH Handbook in Indonesia were more likely to seek medical attention when having problems throughout their pregnancy (Osaki et al., 2015). In a different research conducted in Mongolia also showed the similar outcome whereby when used during pregnancy, the MCH Handbook promotes health seeking behaviors thus increasing the numbers of antenatal visit (Mori et al., 2015). Furthermore, the utilization of handbook among pregnant women contributed to a more proactive attitude in health seeking behavior (Aiga, Nguyen, Nguyen, Nguyen, & Nguyen, 2015). Health seeking behavior during pregnancy is vital as it result in adequate health education. The provision of health education during pregnancy increases pregnant women's awareness of appropriate time to seek for medical attention and relatively reducing maternal morbidity and mortality (Gopalakrishnan, Eashwar, & Muthulakshmi, 2019).

In Brunei Darussalam, there is at least one Maternal and Child Health (MCH) Clinic in each of the 4 districts. One of the services catered by the clinic is the care of pregnant women or antenatal care. Antenatal care is the routine health monitoring of pregnant women which includes screening, diagnosis of diseases or any obstetric complications or conditions, providing information about lifestyle, pregnancy and delivery. The impact of MCH handbook on maternal knowledge and behaviors which gave positive influences on the antenatal care attendance among pregnant women (Yanagisawa, Soyano, Igarashi, Ura, & Nakamura, 2015). Therefore, the purpose of this study is to determine the usefulness of the content of MCH Handbook in delivering information related to antenatal care among pregnant Bruneian women.

Methods

Study design and Setting

A cross-sectional study using an online survey on all 32-week pregnant mothers attending antenatal visits in major maternal and child clinics (MCH) in Brunei.

Data collection procedure

A QR code and link of the survey was distributed by the gatekeepers and staffs of the respective clinics. It was distributed to 32 weeks pregnant women who came to the clinic for their routine antenatal care visit. There were inclusion criteria during the recruitment process which are women aged 18 years and above, citizens or permanent residents of Brunei Darussalam, and able to read and access the internet.

Survey instrument

The online survey instrument was developed using Qualtrics and the questionnaire was developed by the researcher and the team. The questionnaires were pilot tested among 5 participants in Kuala Belait MCH Clinic, and no amendment or changes was made. The questionnaires were available both in English and Malay version. This was done to accommodate participants who do not speak or understand English.

The survey contains 3 sections; 5 demographic questions (e.g. age, ethnicity, education level, occupation and number of pregnancies), 7 questions on the participants opinion on the purpose of MCH Handbook (e.g. time to read, frequency of reading, familiarity, purpose of the handbook, explanation from health care worker on the usage of handbook, satisfaction and suggestions) and the last section is about the usage of handbook (e.g. the convenient of taking the handbook, reasons for not interested in reading or using the handbook, the preferability of using handbook or smartphone applications and further comments about the handbook).

Data analysis

Data collected from this study were analyzed using R-studio using descriptive method analysis. A value of < 0.05 was considered as statistically significant findings.

Ethical consideration

The research proposal along with the questionnaire were reviewed and was approved by the Joint Research Ethics Committee of Pengiran Anak Puteri Rashidah Sa'adatul Bolkihah (PAPRSB), Institute of Health Science Research Ethic Committee (IHSREC), Universiti Brunei Darussalam (UBD/PAPRSBIHSREC/2020/123) with permission by the Ministry of Health Brunei Darussalam. Participants need to give informed consent by clicking "I agree" before completing the survey.

Results

A total of 73 pregnant women participated in the survey. Below is the table (Table 1) showing the socio demographic characteristics of the respondents. The age of pregnant women participated in this study was categorized into two; below and above 30 years old. There was only a small difference in between these two categories; 38 (52.1%) and 35 (47.9%) respectively. Pregnant women who were with secondary level education has a total number of 31 (42.5%), diploma level 28 (38.4%) and degree 14 (19.2%). The questionnaire also surveyed the employment status of the sample. A total number of 47 (62.7%) pregnant women were employed and 26 (34.7) were unemployed. 46 (63%) pregnant women had less than 3 pregnancies and 27 (37%) of them had more or equal to 3 pregnancies.

Table 2 illustrated the result between ages of the respondents with several factors that affect the usage of the handbook. The results showed that higher age were more significantly preferring pictures than words ($p = 0.032$). There was only a slight difference in respondents in the age group when it comes to time factors in reading the handbook. In the factors that measure the frequency of the pregnant women in reading the handbook, most of them only read then handbook whenever necessary which contributed to 47.9% of them out of the total number of respondents. Whereas participants in both age groups answered that they are moderately familiar with the content of the handbook, which resulted in 47.4% and 62.9% respectively.

The respondent's educational level was also measured if this factor is associated the with the usage of MCH handbook in Brunei Darussalam (Table 3). Higher education were significantly associated with

getting information from website ($p=0.018$), finding the handbook bulky or heavy ($p=0.032$) and agree in the transition of the usage of handbook to smartphone applications ($p=0.041$).

Discussion

This study was the first to examine the effectiveness of MCH Handbook among pregnant women in Brunei Darussalam. The results of this study indicated that age and educational level among the participants have significant value. Firstly, is the association of the age and the understanding of the purposes of the handbook. The study between the variables reported that respondents age less than 30 are more aware on the purpose of the MCH handbook, which was to find relevant information related to childbearing mother and child health. Their initiatives in finding reliable information in the handbook is one of the health seeking behavior and self-care. Individual with health seeking behavior have its advantages on his or her own health. Women who are not actively looking for information related cervical cancer resulted with the failure of early detection and prevention of the illness (Habtu, Yohannes, & Laelago, 2018). Thus, this indicated that health seeking behavior is crucial. In another place, the respondent's act in seeking relevant information from the booklet showed that they trusted more than any other resources example from the website. This is because some of the information on the internet is misleading. Misleading health related information caused severe effects to people's quality of life and increase risk of mortality (Swire-Thompson & Lazer, 2020). Nevertheless, the evolving in the usage of online or internet searching health information was not seen as a challenge to General Practitioner but more in leading to a better understanding of the symptoms and diagnosis (Van Riel, Auwerx, Debbaut, Van Hees, & Schoenmakers, 2017). The insecurity or inability to justify reliable information related to mother and child health leads to the option of using the handbook. Thus, insecurity and lack of trust in the information on the website or internet contribute to the selection of answers to use the handbook as a reference and a place to seek information for both mother and child.

Secondly, a significant value in birth age and education level of the participants showed their awareness on the purpose of the handbook. An increase in the awareness aids in the increase of understanding among the women on how to utilize the handbook. In Vietnam, women who used the handbook was more aware on the services provided for antenatal and knew the important of initial first six months exclusive breastfeeding for the baby (Aiga et al., 2015). In an Indonesian study, testified that pregnant women at their 3rd trimester have improve in their healthy behavior and increase in their awareness when utilized the handbook more often (Ainiyah, 2017). This suggests that the usage of MCH handbook in pregnant women increase their health awareness thus contributes to a healthy seeking behavior.

Participants with diploma qualification indicated that they utilized the handbook to record their pregnancy journey. This indicated that they were aware on the extra content of the handbook where it can also be interactively and interesting use to record their pregnancy journey. The size of the handbook affects its utilization. In Table 3, the reason for not interested in using the handbook was because it is bulky and heavy. The findings simplified that the size of the handbook was the reason for pregnant women of not keen to use the handbook. Therefore, this can help in future planning or editing the size,

content, and weight of the booklet. Results illustrated the association of educational level and the suggestion in the transition of the handbook to smartphone apps showed its statistically significant. Majority of the participants did not agree on the transition from a handbook to smartphone applications. The findings from all the associated variables showed more than half the respondents did not agree on the usage of smartphone applications. This finding was in contrast with the finding earlier where the respondents said that the handbook is bulky and heavy. On the contrary, smartphone health applications have its advantage, and it provides an interactive, social, and personalized the individual health needs especially among the younger generation (Tang, Abraham, Stamp, & Greaves, 2015). The online application contributes to a better health seeking behavior (Lim et al., 2011) and enable individual to track their own health progress, health goal, health-related decision making and discussion with health provider (Mahmood, Kedia, Wyant, Ahn, & Bhuyan, 2019). In another survey done in the United States reported that the health applications lower the burden on primary care, as well as reducing the costs and showed improvement in the quality of care (Bhuyan et al., 2016). This finding is relatively important in planning of re-editing or re-construct the MCH handbook to accommodate the users' needs and interest. Since the finding pointed more to the usage of handbook rather than smartphone application, healthcare worker (nurses or midwives) in the MCH Clinic may increase their effort in providing a clear and consistent information prior to the usage of the handbook. This may promote the utilization of the handbook among pregnant women in Brunei Darussalam.

Limitations

The sample size for this study was very low. Only 73 (19%) answered the survey from 380 participants targeted earlier during the proposal. Therefore, the findings of this study cannot be generalized to the population of mothers in Brunei Darussalam. More studies are needed to increase understanding of antenatal care handbook usefulness.

Conclusion

This study is the first to be done in Brunei Darussalam since the use of the handbook from 2016. The results of this study to some extent can give an idea of how this handbook works and is used by pregnant mothers. With the awareness on the purpose of the handbook, this will be able to help improve health behavior among women who utilizes it. The use of the book is still an option among respondents although the information related to both the mother and child health is easily accessible using a smart device or smartphone. It is hoped that the results of this study can be used in the future for an in-depth investigation about the effectiveness of the use of this handbook.

Declarations

Ethics approval and consent to participate

Ethical approval obtained from the Joint Research Ethics Committee of Pengiran Anak Puteri Rashidah Sa'adatol Bolkiah (PAPRSB), Institute of Health Science Research Ethic Committee (IHSREC), (UBD/PAPRSBIHSREC/2020/123) with permission by the Ministry of Health Brunei Darussalam. Participants need to give informed consent by clicking "I agree" before completing the survey.

Consent for publication

All authors have read and approved the final version of this manuscript for publication.

Availability of data and material

Data is available upon reasonable request.

Competing interest

None.

Funding

None.

Author contributions

All authors have made substantial contributions to the conception or design of the study and acquisition, analysis, and/or interpretation of data, and participated in drafting or revising the manuscript, and approved the version to be published, and agreed to be accountable for all aspects of the work and any issues related to the accuracy or integrity of any part of the work.

Acknowledgements

The authors would like to express their utmost gratitude to all participants and nurse managers for supporting this study.

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Tables

Table 1 Sociodemographic Characteristics of participants

Sociodemographic characteristics	n	%
Age		
<30	38	52.1
>=30	35	47.9
Location		
Gadong MCH	28	38.4
Kuala Belait MCH	20	27.4
Jubli Perak Sengkurong MCH	11	15
Berakas MCH	6	8.2
Tutong MCH	6	8.2
Bangar Temburong MCH	2	2.7
Ethnicity		
Malay	60	82.2
Others	7	9.6
Chinese	5	6.8
Indian	1	1.4
Education level		
Secondary	31	42.5
Diploma	28	38.4
Degree	14	19.2
Primary	0	0
Employed		
Yes	47	62.7
No	26	34.7
Number of pregnancies		

<3	46	63
>=3	27	37

Due to technical limitations, table 2 is only available as a download in the Supplemental Files section.

Table 2.1: Lists of options for answers on the purposes and reasons.

Purposes:
Purpose 1 To write down any clinic appointment
Purpose 2 To be use by healthcare worker only
Purpose 3 To be used as reading material to increase health behavior knowledge
Purpose 4 To be used as reference when experiencing mild health problems during pregnancy
Purpose 5 To find relevance information related to mother and child health
Purpose 6 Can be used to record pregnancy journey
Reasons NOT KEEN to read or used the handbook:
Reason 1 I find it bulky or heavy
Reason2 Less encouragement from the healthcare worker
Reason 3 The words used in the handbook are difficult to understand
Reason 4 Not interactive
Reason 5 I like more pictures than words
Reason 6 I can get the same information from website
Reason 7 I would like to access the information from my handphone

Table 3 Factors influenced the usage of handbook in relation to educational level.

Factors	Educational level								
	Secondary		Diploma		Degree		Total		p value
	n	%	n	%	n	%	n	%	
Time to read handbook	30	96.8	27	96.4	14	100	71	97.3	0.759
Frequency to read handbook									0.66
Whenever necessary	13	41.9	12	42.9	10	71.4	35	47.9	
Sometimes	15	48.4	11	39.3	4	28.6	30	41.1	
Always	3	9.7	2	7.1	0	0	5	6.8	
Are you familiar with the content in the MCH Handbook?									0.344
Moderately familiar	19	61.3	15	53.6	6	42.9	40	54.8	
Slightly familiar	11	35.5	6	21.4	6	42.9	23	31.5	
Very familiar	1	3.2	4	14.3	2	14.3	7	9.6	
Not familiar at all	0	0	1	3.6	0	0	1	1.4	
What is the purpose of MCH handbook given to you?									
Purpose 1	21	67.7	21	75	11	78.6	53	72.6	0.704
Purpose 2	5	16.1	7	25	3	21.4	15	20.5	0.698
Purpose 3	19	61.3	18	64.3	10	71.4	47	64.4	0.805
Purpose 4	19	61.3	19	67.9	9	64.3	47	64.4	0.870
Purpose 5	21	67.7	23	82.1	12	85.7	56	76.7	0.287
Purpose 6	16	51.6	24	85.7	10	71.4	50	68.5	0.018
Did you receive any explanation on how to use the handbook?									0.133
Yes	31	100	25	89.3	12	85.7	68	93.2	
No	0	0	2	7.1	2	14.3	4	5.5	
Satisfied with the information given to you before the usage of the handbook?									0.081
Extremely satisfied	14	45.2	10	35.7	4	28.6	28	38.4	
Slightly satisfied	17	54.8	14	50.0	8	57.1	39	53.4	

Slightly dissatisfied	0	0	1	3.6	1	7.1	2	2.7	
Neither satisfied nor dissatisfied	0	0	2	7.1	1	7.1	3	4.1	
Do you find it difficult to take the handbook with you anywhere?									0.281
Yes	2	6.5	2	7.1	2	14.3	6	8.2	
No	29	93.5	22	78.6	11	78.6	62	84.9	
Reasons why women NOT KEEN to read or use the handbook									
Reason 1	2	6.5	8	28.6	5	35.7	15	20.5	0.032
Reason 2	1	3.2	5	17.9	3	21.4	9	12.3	0.119
Reason 3	5	16.1	7	25.0	1	7.1	13	17.8	0.343
Reason 4	2	6.5	3	10.7	1	7.1	6	8.2	0.826
Reason 5	3	9.7	2	7.1	4	28.6	9	12.3	0.115
Reason 6	2	6.5	8	28.6	5	35.7	15	20.5	0.325
Reason 7	4	12.9	2	7.1	1	7.1	7	9.6	0.710
Usage of Handbook changed to applications from smartphone									0.041
Yes	10	32.3	8	28.6	11	78.6	29	39.7	
No	21	67.7	13	46.4	5	35.7	29	53.4	

Supplementary Files

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

- [Table2Factorsinfluencedtheusageofhandbookassociateage.docx](#)