

BMJ Open Advice on healthy pregnancy, delivery, motherhood and information on non-communicable diseases in the maternal care programme in Myanmar: a cross-sectional study

Sumiyo Okawa,^{1,2} Hla Hla Win,³ Keiko Nanishi,⁴ Akira Shibamura,⁵ ¹ Phyu Phyu Aye,⁵ Thu Nandar Saw,¹ Masamine Jimba¹

To cite: Okawa S, Win HH, Nanishi K, *et al.* Advice on healthy pregnancy, delivery, motherhood and information on non-communicable diseases in the maternal care programme in Myanmar: a cross-sectional study. *BMJ Open* 2019;**9**:e025186. doi:10.1136/bmjopen-2018-025186

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2018-025186>).

Received 3 July 2018
Revised 19 February 2019
Accepted 22 February 2019



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For numbered affiliations see end of article.

Correspondence to

Professor Masamine Jimba;
mjimba@m.u-tokyo.ac.jp

ABSTRACT

Objective Pregnancy and delivery periods offer an opportunity for counselling women to improve behavioural risk and prevent complications, including non-communicable diseases (NCDs). However, little evidence is available on counselling offered during antenatal and postnatal care (PNC) in Myanmar. This study aimed to assess the contents of advice and information received by women during antenatal and postnatal counselling and to identify factors associated with receiving those advice and information.

Design Cross-sectional study.

Setting A predominantly rural township in the Ayeyawady region and a predominantly urban township in the Yangon region.

Participants 1500 women who had given birth in the last 6 weeks to 12 months prior to the survey.

Outcome measures Receiving advice on 18 items during antenatal counselling, 10 items during postnatal counselling and information on five major NCDs during antenatal care (ANC).

Results Nearly 52% of women received advice on 18 items during antenatal counselling, and 60% received advice on 10 items during postnatal counselling. About 28% received information on five NCDs during ANC. Women who were living in the Yangon site, who had primary school education or lower and who experienced complications were less likely to receive advice on all items during both antenatal and postnatal counselling. Women who received PNC outside of a healthcare facility and were primiparas were also less likely to receive advice on all items during postnatal counselling. Women living in the Yangon site and those who utilised a private care facility were less likely to receive information on NCDs.

Conclusions Only 60% of women received advice on healthy pregnancy, delivery and motherhood, whereas 30% received information on NCDs. Although non-modifiable maternal factors were associated with these results, counselling practice can be improved and information on NCDs can be offered as the first step of integrated NCDs care in maternal care programme in Myanmar.

Strengths and limitations of this study

- This study assessed 28 essential advice items received by women at antenatal and postnatal counselling.
- The study also examined women's behavioural risk, experience of cancer screening and reception of information on non-communicable diseases (NCDs) at antenatal care.
- Despite the limited generalisability of the findings, the study identified a need for improving counselling in the maternal care programme in Myanmar and a potential benefit of offering information on NCD prevention.
- Future research needs to examine the effects of counselling on improved knowledge, behaviour and health outcomes.

INTRODUCTION

Lifelong health and well-being are new global goals for sustainable development.¹ Poor maternal and child health and the increased burden of non-communicable diseases (NCDs) could delay the achievement of sustainable development in low-income and middle-income countries. A crucial approach to improving maternal and child health is strengthening the health systems to ensure a continuum of care and² the quality of care.³ Maternal care programmes, including antenatal care (ANC), delivery care and postnatal care (PNC), can improve health outcomes by providing physical examination, screening, treatment for prevention and complications and counselling to women.⁴

In addition to regular maternal care services, women's daily self-care practice also plays an important role in maintaining healthy pregnancy, preventing complications and achieving safe delivery. Daily self-care practice

and timely care seeking depend on whether women receive appropriate counselling from healthcare providers.⁵ The essential topics of such counselling includes nutrition, self-care, substance use, birth and emergency plan, family planning, schedule of routine visit and follow-up visit for complications.⁴ Community-based and facility-based counselling and education improve women's knowledge, practice and health outcomes.^{6–10}

Pregnancy-related complications and NCDs share common risk factors and clinical symptoms, and are related to one another even after childbirth. For example, alcohol consumption during pregnancy is associated with higher risks of preterm birth and small size newborns for their gestational age.¹¹ Maternal smoking habits and overweight are associated with stillbirths.¹² A high maternal glucose level is associated with increased birth weight, birth injury and preeclampsia.¹³ Gestational diabetes is associated with an increased risk of developing type 2 diabetes in the future.¹⁴ Moreover, maternal hypertensive disorders during pregnancy contribute to maternal deaths¹⁵ and are associated with cardiovascular risks after pregnancy.¹⁶

Meanwhile, the maternity period offers a good opportunity for women to modify their lifestyle and behaviours, which would contribute to lifelong health promotion. In this regard, the maternal care programme can play an extended role that integrates primary NCD services.¹⁷ The integration approach can provide screening of NCDs, counselling on health promotion against NCDs and interventions for lifestyle modification.¹⁸

Myanmar is a lower middle-income country located in Southeast Asia. This multiethnic country has a literacy rate of 88% among adult women.¹⁹ The Demographic and Health Survey 2015–2016 reported that 227 women per 100 000 live births died from pregnancy-related causes, and 25 newborns per 1000 live births died.¹⁹ In the same time period, 59% of women had at least four ANC visits, 37% of births took place in a healthcare facility, and 71% of women and 36% of their newborns received PNC within the first 2 days after delivery.¹⁹ NCDs represent an emergent public health issue in Myanmar. In 2016, an estimated 68% of all deaths were caused by NCDs, and >20% of women were at risk of premature death (between the ages of 30 and 70 years).²⁰ The national maternal care programme applies the WHO's guidelines.^{4 21–23} Public healthcare facilities provide services for free. However, the majority of these facilities face a lack of resources and capacity.

Given the constraints on the health systems, the integration of NCDs services in the maternal care programme is an ambitious strategy. The feasibility of integrated NCDs services, such as providing information on NCDs along with routine counselling, would be worth exploring. However, scarce evidence is available on whether women receive advice for healthy pregnancy, delivery and motherhood, and information on NCDs during antenatal or postnatal counselling. This study aimed to examine the content of advice for health pregnancy, delivery,

motherhood and information on NCDs that women received during antenatal and postnatal counselling and to identify the factors associated with receiving advice or information on all these items during counselling in Myanmar.

METHODS

Study design and setting

This cross-sectional study was conducted in March 2016 in a predominantly rural township in the Ayeyawady region and a predominantly urban township in the Yangon region. A multisite study, which could reflect variations in the socioeconomic characteristics of individuals and health system characteristics of the different sites, was deemed appropriate to enhancing the external validity of the study findings.

Out of 33 townships in the Ayeyawady region, Pan Ta Naw township was selected as the Ayeyawady site. Agriculture is the major economic activity in the township. Healthcare services are mainly provided by public health facilities: a township hospital, 4 station hospitals, 9 rural health centres and 50 sub-rural health centres. Out of 46 townships in the Yangon region, Shwe Pyi Tha township was selected as the Yangon site. Residents tend to be migrants from rural areas and depend on daily wages for their living. The township operates a township hospital, no station hospital, two rural health centres and eight sub-rural health centres.

Participants

Women were eligible to participate in the study if they had given birth between 6 weeks and 12 months prior to the survey. Those who aborted the latest pregnancy were excluded. We identified a target population of 1456 women in the Ayeyawady site and 1958 women in the Yangon site. We recruited a total of 1500 women (750 women from each site) because this size covered about half of the target population, and the two sites had a similar-sized target population. For the first stage of sampling, we applied the administrative unit called 'wards' or 'village tracts' as a cluster. A ward refers to an urban area with a high density of population and buildings, whereas a village tract refers to a rural area with low population density and high coverage of agricultural fields.²⁴ The Ayeyawady site was composed of 4 wards and 52 village tracts, whereas the Yangon site was composed of 23 wards and 4 village tracts. We randomly selected about half of the target clusters: 2 wards and 19 village tracts from the Ayeyawady site, and 12 wards and 2 village tracts from the Yangon site. For the second stage of sampling, we selected eligible women from each cluster, corresponding to the proportion of the target population in the cluster to the target population in the township using a birth registration list. On the first day of on-site recruitment, however, we switched to convenience sampling because we recognised that random sampling based on the birth registration list was not feasible owing to logistical

constraints, such as unreliable listing of name and household addresses and finding out the listed individuals had moved or were absent from the listed household.

Data collection

A total of 30 trained research assistants conducted face-to-face interviews with the eligible women using a structured survey questionnaire. The questionnaire included information on basic characteristics, type of healthcare facility utilised, complications experienced during pregnancy and after delivery and contents of advice and information received during antenatal and postnatal counselling. Data on basic characteristics included women's age, ethnicity, completion of school education, marital status, wealth quintile, parity, alcohol drinking and tobacco smoking habits at the time of survey, as well as experience of screening for breast and cervical cancer. Data on age and parity were converted to categorical variables. The wealth quintile was developed based on principal component analysis with 13 household asset items. Data on the experience of complications were collected from a list of common complications that women perceived or for which they received a diagnosis.^{4,25} These data on complications were converted to a binary variable; '1' if a woman had any complications and '0' otherwise.

Study outcome

The contents of the advice or information received by women during antenatal and postnatal counselling represented the primary outcome in this study. Measuring the content of care has commonly been used to assess one aspect of care quality.^{9, 26, 27} No standard measurement was available in the maternal care programme²⁸ when we designed the study. We assessed whether women received advice on the 18 items on self-care and lifestyle for healthy pregnancy and delivery during antenatal counselling and 10 items on healthy motherhood during postnatal counselling. The 18 items of antenatal counselling were those on the importance of continuum of care, timing and contents of ANC, benefit of facility delivery, timing of postnatal visit, nutrition during pregnancy, appropriate outfit, balance of exercise and sleeping, monitoring of body weight during pregnancy, health damage of smoking and alcohol drinking, constraints of self-medication, use of insecticide-treated bed net, danger signs, birth preparedness, labour signs, family planning and benefit of breast feeding. The 10 items for postnatal counselling were those on exclusive breast feeding, nutrition during breast feeding, personal hygiene management, sexual life in early postpartum, contraception, birth spacing, immunisation schedule, constraints of traditional practice, oral rehydration solution with zinc and danger signs. These items are routine counselling items recommended by Myanmar's and WHO's guidelines^{4, 29} and the Maternal and Child Health Handbook.²⁵ During the interview survey, the research assistants asked women whether they received advice or information on each item; for instance, 'Did you learn about danger signs

from healthcare providers?' and they responded based on their recall. Additionally, this study assessed any information regarding symptoms, prevention and screening of five NCDs received by women during ANC. The five NCDs referred to breast cancer, cervical cancer, diabetes, hypertension and depression, which are major NCDs among women in maternity and later in life. Further, we assessed whether women received advice on all 18 items during antenatal counselling, 10 items during postnatal counselling and information on five NCDs during ANC.

Statistical analysis

The data were analysed using a chi-squared test to compare the distributions in basic characteristics, utilisation of maternal care services, experience of complications and contents of advice and information received by women during counselling. Multiple logistic regression analysis was then performed to identify factors associated with receiving advice and information on all items, controlling for the potential effect of cluster correlations by robust variance estimates. Independent variables included in the logistic model were the study site, type of facility utilised by women, women's age, education, parity and complications. The target samples of the logistic model for antenatal counselling and information on NCDs were those who had attended ANC at least once (n=1410). Participants with missing values for type of health facility utilised (n=88) were excluded from the model; a total of 1322 women were included in the analysis. Similarly, those who attended PNC at least once (n=1217) were included in the model for postnatal counselling. We performed these statistical analyses using Stata V.13 (StataCorp LP).

Participant and public involvement

The participants and the public were not involved in the design, recruitment and conduct of the study. There are no plans to disseminate the study findings to the study participants.

RESULTS

All 1500 women were included in the analysis (table 1). More than 98% of women were married, and ~50% were primiparous. Women in the Yangon site were more likely to be Bamar, have high school education or higher, and be wealthier, compared with women in the Ayeyawady site. Alcohol drinking (3.3%) and tobacco smoking (4.5%) were rare for women in both study sites, whereas tobacco smoking by family members was common (31.9%). Breast and cervical cancer screening were not common at either study site; about 15% had ever undergone screening tests.

Table 2 gives the details of the participants' latest pregnancy. Women in the Yangon site mainly utilised hospitals for ANC, delivery and PNC, whereas women in the Ayeyawady site commonly used health centres for ANC, and about half delivered outside of healthcare facilities (eg, at home). About 60% of women utilised ANCs ≥ 4 times, 78% had their first PNC within 24 hours and 25%

Table 1 Basic characteristics of participating women

	Total	Ayeyawady site	Yangon site	P value
	n=1500	n=750	n=750	
	n (%)	n (%)	n (%)	
Age (years)				0.89
≤19	63 (4.2)	33 (4.4)	30 (4.0)	
20–34	1128 (75.2)	565 (75.3)	563 (75.1)	
≥35	309 (20.6)	152 (20.3)	157 (20.9)	
Ethnicity				<0.01
Bamar	1072 (71.5)	422 (56.3)	650 (86.7)	
Others	428 (28.5)	328 (43.7)	100 (13.3)	
Education completed				<0.01
Primary school or lower	812 (54.1)	498 (66.4)	314 (41.9)	
Middle school	411 (27.4)	156 (20.8)	255 (34.0)	
High school or higher	277 (18.5)	96 (12.8)	181 (24.1)	
Marital status				0.02
Married	1472 (98.1)	742 (98.9)	730 (97.3)	
Unmarried	28 (1.9)	8 (1.1)	20 (2.7)	
Wealth quintile (n=1498)				<0.01
Highest	287 (19.2)	42 (5.6)	245 (32.8)	
Higher	312 (20.8)	84 (11.2)	228 (30.5)	
Middle	299 (20.0)	179 (23.9)	120 (16.0)	
Lower	300 (20.0)	208 (27.7)	92 (12.3)	
Lowest	300 (20.0)	237 (31.6)	63 (8.4)	
Parity				0.07
Primipara	707 (47.1)	336 (44.8)	371 (49.5)	
Multipara	793 (52.9)	414 (55.2)	379 (50.5)	
Alcohol drinking during survey				1.00
Yes	50 (3.3)	25 (3.3)	25 (3.3)	
No	1450 (96.7)	725 (96.7)	725 (96.7)	
Tobacco smoking during survey				0.80
Yes	68 (4.5)	35 (4.7)	33 (4.4)	
No	1432 (95.5)	715 (95.3)	717 (95.6)	
Tobacco smoking in household				<0.01
Yes	479 (31.9)	197 (26.3)	282 (37.6)	
No	1021 (68.1)	553 (73.7)	468 (62.4)	
Breast cancer screening undergone				<0.01
Yes	197 (14.0)	121 (16.7)	76 (11.1)	
No	1213 (86.0)	604 (83.3)	609 (88.9)	
Cervical cancer screening undergone				0.25
Yes	224 (15.9)	123 (17.0)	101 (14.7)	
No	1186 (84.1)	602 (83.0)	584 (85.3)	

P values were calculated by chi-squared tests.

had complications during pregnancy and delivery/postpartum at both sites.

Table 3 identifies the contents of advice or information that women received at antenatal and postnatal

counselling. During antenatal counselling, over half of women at the two study sites received advice on all items, with significant difference between the Ayeyawady (61.7%) and Yangon sites (43.9%). During postnatal counselling,

Table 2 Profile of the latest pregnancy

	Total n=1500 n (%)	Ayeyawady site n=750 n (%)	Yangon site n=750 n (%)	P value
Type of facility utilised for ANC (n=1412)				
Public hospital	424 (30.0)	142 (20.6)	282 (39.0)	<0.01
Public health centre	707 (50.1)	453 (65.8)	254 (35.1)	
Private hospital/clinic	108 (7.7)	17 (2.5)	91 (12.6)	
Home/other	83 (5.9)	51 (7.4)	32 (4.4)	
No ANC contact	90 (6.4)	25 (3.6)	65 (9.0)	
Place of delivery				
Public hospital	778 (51.9)	343 (45.7)	435 (58.0)	<0.01
Public health centre	107 (7.1)	57 (7.6)	50 (6.7)	
Private hospital/clinic	65 (4.3)	5 (0.7)	60 (8.0)	
Home/other	550 (36.7)	345 (46.0)	205 (27.3)	
Type of facility utilised for PNC				
Public hospital	725 (48.3)	332 (44.3)	393 (52.4)	<0.01
Public health centre	106 (7.1)	54 (7.2)	52 (6.9)	
Private hospital/clinic	75 (5.0)	7 (0.9)	68 (9.1)	
Home/other	311 (20.7)	188 (25.1)	123 (16.4)	
No PNC contact	283 (18.9)	169 (22.5)	114 (15.2)	
Frequency of ANC visits (n=1489)				
≤3 times	582 (39.1)	319 (42.5)	263 (35.6)	0.01
≥4 times	907 (60.9)	431 (57.5)	476 (64.4)	
Timing of the first PNC visit (hours)				
≤24	1175 (78.3)	579 (77.2)	596 (79.5)	0.29
>24	325 (21.7)	171 (22.8)	154 (20.5)	
Complications during pregnancy				
Yes	368 (24.5)	169 (22.5)	199 (26.5)	0.07
No	1132 (75.5)	581 (77.5)	551 (73.5)	
Complications during or after delivery				
Yes	377 (25.1)	154 (20.5)	223 (29.7)	<0.01
No	1123 (74.9)	596 (79.5)	527 (70.3)	

P values were calculated by chi-squared tests.

ANC, antenatal care; PNC, postnatal care.

60.0% of the women received advice on all items, with a significant difference between the Ayeyawady (67.7%) and Yangon sites (52.3%). Further, 27.9% received information on the five NCDs during ANC, with a significant difference between the Ayeyawady (34.8%) and Yangon sites (21.1%).

Table 4 presents the factors associated with receiving advice on all items during antenatal and postnatal counselling. Women living in the Yangon site were less likely to receive advice on all items during antenatal (adjusted OR [AOR]: 0.40, 95% CI 0.29 to 0.56) and postnatal counselling (AOR: 0.25, 95% CI 0.17 to 0.35), and information on the five identified NCDs (AOR: 0.47, 95% CI 0.32 to 0.68) compared with those in the Ayeyawady site. Women

who received PNC outside of healthcare facilities were less likely to receive advice on all items during postnatal counselling (AOR: 0.67, 95% CI 0.50 to 0.89), and women who utilised private facilities for ANC were less likely to receive information on NCDs (AOR: 0.47, 95% CI 0.25 to 0.89) compared with women who utilised public hospitals.

Women who completed middle (AOR: 1.47, 95% CI 1.10 to 1.97) or high school (AOR: 1.90, 95% CI 1.35 to 2.68) were more likely to receive advice on all items during antenatal counselling compared with women who had primary school education or lower. Similarly, in postnatal counselling, women with middle (AOR: 1.77, 95% CI 1.27 to 2.47) or high school education (AOR: 2.30, 95% CI 1.57 to 3.35) were more likely to receive advice on

Table 3 Contents of counselling received by women

	Total	Ayeyawady site	Yangon site	
	n=1500	n=750	n=750	
	n (%)	n (%)	n (%)	P value
Antenatal counselling				
Maternal healthcare services				
Benefit of facility delivery	1230 (82.0)	619 (82.5)	611 (81.5)	0.59
Importance of continuum of care	1222 (81.5)	626 (83.5)	596 (79.5)	0.05
Timing of postnatal care visits	1192 (79.5)	618 (82.4)	574 (76.5)	0.01
Timing of antenatal care visits	1187 (79.1)	614 (81.9)	573 (76.4)	<0.01
Contents of antenatal care	1127 (75.1)	592 (78.9)	535 (71.3)	<0.01
Self-care and healthy life style				
Nutrition during pregnancy	1366 (91.1)	721 (96.1)	645 (86.0)	<0.01
Benefit of breastfeeding	1258 (83.9)	627 (83.6)	631 (84.1)	0.78
Appropriate outfit	1244 (82.9)	639 (85.2)	605 (80.7)	0.02
Health damage of smoking	1243 (82.9)	639 (85.2)	604 (80.5)	0.02
Health damage of alcohol drinking	1242 (82.8)	642 (85.6)	600 (80.0)	<0.01
Balance of exercise and sleeping	1235 (82.3)	635 (84.7)	600 (80.0)	0.02
Body weight monitoring during pregnancy	1223 (81.5)	636 (84.8)	587 (78.3)	<0.01
Constraints of self-medication	1219 (81.3)	634 (84.5)	585 (78.0)	<0.01
Danger signs	1220 (81.3)	621 (82.8)	599 (79.9)	0.15
Birth preparedness	1214 (80.9)	625 (83.3)	589 (78.5)	0.02
Family planning	1204 (80.3)	628 (83.7)	576 (76.8)	<0.01
Labour signs	1202 (80.1)	623 (83.1)	579 (77.2)	<0.01
Use of insecticide-treated bed net	1126 (75.1)	615 (82.0)	511 (68.1)	<0.01
All 18 items of antenatal counselling	792 (52.8)	463 (61.7)	329 (43.9)	<0.01
Postnatal counselling				
Exclusive breastfeeding	1218 (81.2)	595 (79.3)	623 (83.1)	0.06
Sexual life in early postpartum	1218 (81.2)	596 (79.5)	622 (82.9)	0.09
Immunisation schedule	1189 (79.3)	592 (78.9)	597 (79.6)	0.75
Nutrition during breastfeeding	1188 (79.2)	587 (78.3)	601 (80.1)	0.37
Personal hygiene management	1153 (76.9)	578 (77.1)	575 (76.7)	0.85
Contraception	1143 (76.2)	579 (77.2)	564 (75.2)	0.36
Birth spacing	1140 (76.0)	578 (77.1)	562 (74.9)	0.33
Constraints of traditional practice	1138 (75.9)	576 (76.8)	562 (74.9)	0.40
Oral rehydration solution with zinc	1090 (72.7)	575 (76.7)	515 (68.7)	<0.01
Danger signs	1024 (68.3)	541 (72.1)	483 (64.4)	<0.01
All 10 items of postnatal counselling	900 (60.0)	508 (67.7)	392 (52.3)	<0.01
Information on NCDs				
Hypertension	683 (45.5)	383 (51.1)	300 (40.0)	<0.01
Diabetes	614 (40.9)	344 (45.9)	270 (36.0)	<0.01
Cervical cancer	566 (37.7)	318 (42.4)	248 (33.1)	<0.01
Breast cancer	548 (36.5)	318 (42.4)	230 (30.7)	<0.01
Depression	512 (34.1)	311 (41.5)	201 (26.8)	<0.01
All 5 items of information on NCDs	419 (27.9)	261 (34.8)	158 (21.1)	<0.01

P values were calculated by chi-squared tests.
NCD, non-communicable disease.

Table 4 Factors associated with receiving counselling/information on all items

Area	Antenatal counselling n=1322		Postnatal counselling n=1217		Information on NCDs n=1322	
	AOR (95% CI)	P value	AOR (95% CI)	P value	AOR (95% CI)	P value
	Area					
Ayeyawady site	1.00		1.00		1.00	
Yangon site	0.40 (0.29 to 0.56)	<0.01	0.25 (0.17 to 0.35)	<0.01	0.47 (0.32 to 0.68)	<0.01
Health facility utilised						
Public hospital	1.00		1.00		1.00	
Public health centre	1.26 (0.94 to 1.68)	0.12	1.27 (0.85 to 1.91)	0.24	0.94 (0.57 to 1.55)	0.80
Private hospital/clinic	1.03 (0.64 to 1.66)	0.89	0.80 (0.33 to 1.89)	0.61	0.47 (0.25 to 0.89)	0.02
Home/other	1.02 (0.56 to 1.87)	0.95	0.67 (0.50 to 0.89)	0.01	1.17 (0.56 to 2.41)	0.68
Age (years)						
≤19	1.00		1.00		1.00	
20–34	1.02 (0.55 to 1.91)	0.95	1.63 (0.84 to 3.18)	0.15	0.93 (0.47 to 1.83)	0.83
≥35	1.03 (0.54 to 1.98)	0.93	1.41 (0.66 to 3.02)	0.37	1.11 (0.55 to 2.22)	0.77
Education completed						
Primary school or lower	1.00		1.00		1.00	
Middle school	1.47 (1.10 to 1.97)	0.01	1.77 (1.27 to 2.47)	<0.01	1.34 (0.89 to 2.00)	0.16
High school or higher	1.90 (1.35 to 2.68)	<0.01	2.30 (1.57 to 3.35)	<0.01	1.59 (0.97 to 2.61)	0.07
Parity						
Primipara	1.00		1.00		1.00	
Multipara	1.19 (0.88 to 1.60)	0.26	1.64 (1.13 to 2.36)	0.01	1.10 (0.78 to 1.54)	0.60
Complications						
Yes	0.54 (0.43 to 0.66)	<0.01	0.67 (0.47 to 0.96)	0.03	0.71 (0.49 to 1.02)	0.07
No	1.00		1.00		1.00	

Adjusted OR (AOR) and 95% CI were calculated by multiple logistic regression analyses, controlling for the potential effect of cluster correlations. The sample included in the models were those who attended ANC at least once with no missing value on utilisation of a healthcare facility (n=1322) and those who attended PNC at least once (n=1217). ANC, antenatal care; PNC, postnatal care.

all items. Multiparous women were more likely to receive advice on all items at postnatal counselling than primiparous women (AOR: 1.64, 95% CI 1.13 to 2.36). Finally, women who had complications were less likely to receive advice on all items during antenatal counselling (AOR: 0.54, 95% CI 0.43 to 0.66) and postnatal counselling (AOR: 0.67, 95% CI 0.47 to 0.96), respectively.

DISCUSSION

This study is the first to examine advice on healthy pregnancy, delivery and motherhood, as well as information on NCDs that women received during antenatal and postnatal counselling. About 52% of the women received advice on all 18 items during antenatal counselling and 60% received advice on all 10 items during postnatal counselling. The results identified three factors negatively associated with receiving advice on all items during counselling: living in the Yangon site, having primary school education or lower and experience of complications in the latest pregnancy. Information on NCDs was

not commonly provided to women in the study sites; <30% of the women learnt about the five identified NCDs during ANC, which rate was particularly low in women who lived in the Yangon site or utilised private facilities.

During antenatal counselling, the coverage of advice for each item was >75%. The advice item with the lowest coverage was that on the overall content of ANC. This finding implies that women may receive ANC services with insufficient understanding. Although the Maternal and Child Health Handbook presents the content of ANC, written information would not be enough for women. Counselling on care contents and offering voluntary choices to clients are important aspects to the quality of care, which helps women feel involved in their care, improve compliance and increase care satisfaction.²³ During postnatal counselling, the coverage of advice for each item was ~70% or higher. The item with the lowest coverage was that on danger signs (68%). Although 81% of women received advice on danger signs during antenatal counselling, the coverage was lower during postnatal

counselling. The majority of maternal deaths occur in the early postpartum period,³⁰ which highlights the importance of continuous counselling and monitoring of danger signs. About 20% of women did not receive PNC or received delayed postnatal checkup. Those women might have missed timely learning opportunities about danger signs in the postpartum period. Ensuring early postnatal contact with healthcare providers should be given priority.

Women living in the Yangon site were less likely to receive advice on all items during both antenatal and postnatal counselling. Further, a higher incidence of complications during the antenatal and postpartum periods was observed in women living in the Yangon site, compared with women living in the Ayeyawady site. Although urban areas have a greater availability of social and health services compared with rural areas, urban areas also have inequity issues in terms of access and utilisation of health services.³¹ The study site of Shwe Pyi Tha township in the Yangon region is a low socioeconomic community with a high population of internal migrants. The low coverage of counselling and high prevalence of complications observed in the Yangon site may indicate a disparity in the health systems and health outcomes within large cities, which could be more apparent than the case in rural areas. In addition, women with low educational attainment were less likely to receive advice on all items during counselling. Educational attainment is a typical determinant for access to and reception of quality healthcare.^{32 33} Disparities by socioeconomic status, especially in urban areas, need to be addressed in the national maternal care programme in Myanmar.

Moreover, women who experienced complications during pregnancy and around delivery were less likely to receive advice on all items during counselling. We initially assumed that these women who had complications were more likely to receive counselling, compared with healthy women, as healthcare providers would monitor their complications; however, the current findings were to the contrary. An implication is that women who did not receive quality counselling have an increased risk of developing complications subsequently. For example, in Ghana, women who received care from healthcare providers characterised with non-adherence to basic guidelines showed higher risks of delivery and neonatal complications.³⁴ Another explanation for this could be that women who received counselling were less likely to develop complications. Although the study design cannot determine the causal nature of these relationships, the current findings call for improved counselling for women with complications.

About 35%–45% of the women received information on five NCDs during ANC. The proportion of receiving the information on all items was particularly low among women who lived in Yangon or who utilised private care facilities. However, cancer screening was not common among the women; only about 15% had ever undergone screening for breast and cervical cancer. Breast

and cervical/uterine cancer accounted for almost 25% of cancer-related deaths among women in Myanmar.³⁵ However, access to screening for these cancers has been limited in most public healthcare facilities.³⁵ Moreover, women had low awareness regarding the risk factors and early signs of these cancers, often obtaining information from family and friends only.³⁶ Because the current standard of maternal care in Myanmar does not include the provision of information on NCDs,³⁷ healthcare facilities, particularly private facilities, may not necessarily provide information on NCDs. Our finding suggests a potential opportunity for integrating NCD service in the maternal care programme. In the present study, the coverage of counselling on healthy lifestyle and behaviours was already >80%. Thus, it would be beneficial to provide information on prevention and early detection of major NCDs along with routine antenatal and postnatal counselling.

This study has several limitations. First, the study compromised the sampling strategy, which might have affected the quality of the study findings. Second, the study findings observed in Pan Ta Naw and Shwe Pyi Tha townships do not necessarily represent the situation in the Ayeyawady and Yangon regions, respectively, or the entire nation. Third, this study did not utilise a standard measurement for counselling on maternal care, because a standard was not available; as such, the generalisability of the study findings is further limited. This study assessed the content of advice and information received by women during counselling, which is only one aspect of counselling service. Future research should assess whether women are asked about their behavioural risk or health problems, evaluated for their readiness to change their behaviour, assisted in improving their behaviour and scheduled for follow-up contact, all of which would impact on improved self-care practice.³⁸ Fourth, the cross-sectional design cannot establish causality between associated variables (eg, the significant association between women's experience of complications and receiving counselling). Future longitudinal studies will be needed to assess the relationships between women's understanding of health information, self-care behaviour and health outcomes.

CONCLUSIONS

Only 60% or less of women received comprehensive advice on healthy pregnancy, delivery and motherhood and <30% received information on NCDs during antenatal and postnatal counselling, with a significant gap between the Ayeyawady and Yangon sites. Women with low school education and those with complications were particularly at risk of missing the opportunity for comprehensive counselling. To improve the national maternal care programme in Myanmar, the practice of the standard counselling, more than policy on the same, should be ensured, by considering inequity to access maternal care services due to socioeconomic disparity in individual and community levels. Counselling on danger signs and monitoring women with complications

should be paid attention from pregnancy to postpartum period. Basic counselling on behavioural risk factors and early symptoms of NCDs will be feasible as the first step of integrating NCD care in the national maternal care programme. Training of healthcare providers on NCDs and adding basic information on NCDs in the Maternal and Child Health Handbook are potential interventions. The practice of routine counselling should be monitored to mitigate gaps across healthcare facilities.

Author affiliations

¹Department of Community and Global Health, Graduate School of Medicine, The University of Tokyo, Bunkyo-ku, Tokyo, Japan

²Cancer Control Center, Osaka International Cancer Institute, Osaka, Japan

³Department of Preventive and Social Medicine, University of Medicine 1, Yangon, Yangon, The Republic of the Union of Myanmar

⁴Office of International Academic Affairs, Graduate School of Medicine, The University of Tokyo, Bunkyo-ku, Tokyo, Japan

⁵Department of Public Health, Ministry of Health and Sports, Naypyidaw, Naypyidaw Union Territory, Myanmar

Acknowledgements The authors are thankful to the study participants and research assistants for supporting the study. Particularly, we sincerely thank Dr Yu Mon Saw, Ms Kanan Nakamura, Dr Khine Thet Su and Dr Su Sandy for their technical support during the data collection.

Contributors SO, HHW, KN and MJ conceived and designed the study. AS and PPA provided critical advice for the design. SO, HHW and TNS supervised the data collection by the research assistants. SO analysed the data. SO wrote the first draft of the manuscript. MJ contributed to data interpretation and critically edited the manuscript. MJ obtained funding. MJ and HHW supervised the study. All authors read and approved the final manuscript.

Funding This research was supported by the Japan Agency for Medical Research and Development, AMED (grant number: 16jk0110006h0002).

Competing interests None declared.

Patient consent for publication Not required.

Ethics approval The research team obtained ethical approval from the University of Medicine 1, Yangon; Department of Medical Research, Ministry of Health and Sports, The Republic of the Union of Myanmar; and the Research Ethics Committee of the Graduate School of Medicine, The University of Tokyo. During the survey, the research assistants obtained written consent from all of the participants after explaining the objectives, procedures and ethical considerations for study participation. The participants were assured of their voluntary participation and confidentiality.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement The data are not publicly available because it contains information that could compromise the confidentiality or consent of the study participants.

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