



Length of Hospital Stay, Quality of Discharge Teaching, and Readiness for Hospital Discharge Among First-Time Mothers, the Republic of Burundi*
ระยะเวลาในการนอนโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย และความพร้อมในการจำหน่ายจากโรงพยาบาลในมารดาครั้งแรก สาธารณรัฐบुरुнди*

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Abstract

Readiness for hospital discharge is a key moment for ensuring that postpartum women and newborns receive the support they need to care for themselves and their babies at home. This descriptive correlational research aimed to explore the length of hospital stay, quality of discharge teaching, and readiness for hospital discharge among first-time mothers in the Republic of Burundi. The relationship between these factors was also determined. The participants were 101 first-time postpartum women in three general hospitals in the Republic of Burundi. Research instruments were translated into Kirundi, and included the Demographic Data Form, the Length of Hospital Stay Questionnaire, the Quality of Discharge Teaching Scale- New Mother Form, and the Readiness for Hospital Discharge Scale- New Mother Form. Data were analyzed using descriptive statistics and Spearman's rank correlation.

The results of this study revealed that all of the first-time mothers (100%) were discharged from hospitals within 24 hours after childbirth with a median of 12 hours (IQR: 9.00-15.50 hours). Almost all of the first-time mothers (96.04%) perceived the quality of discharge teaching at a low level with a median score of 1.15 (IQR: 0.35-4.60). All first-time mothers (100%) perceived readiness for hospital discharge at a low level with a median score of 0.82 (IQR: 0.68-1.05). The quality of discharge teaching was moderately positively correlated with readiness for hospital discharge ($r = .459, p < 0.001$). The length of hospital stay was not correlated with readiness for hospital discharge.

These results provide baseline information regarding length of hospital stay, quality of discharge teaching, and readiness for hospital discharge during the discharge transition. Nurse-midwives should develop strategies to enhance the quality of discharge teaching to improve readiness for hospital discharge among first-time mothers.

Keywords: First-time mother; Length of hospital stay; Quality of discharge teaching; Readiness for hospital discharge; The Republic of Burundi

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บทคัดย่อ

ความพร้อมในการจำหน่ายจากโรงพยาบาลเป็นช่วงเวลาสำคัญ เพื่อให้แน่ใจว่าสตรีหลังคลอดและทารกแรกเกิดได้รับการสนับสนุนที่จำเป็นในการดูแลตนเองและทารกที่บ้าน การวิจัยเชิงพรรณนาหาความสัมพันธ์ครั้งนี้มีวัตถุประสงค์เพื่อศึกษาระยะเวลาในการนอนโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย และความพร้อมในการจำหน่ายจากโรงพยาบาลในมารดาครั้งแรก สาธารณรัฐบรูไน และศึกษาความสัมพันธ์ของปัจจัยดังกล่าว กลุ่มตัวอย่างเป็นมารดาหลังคลอดครั้งแรกจำนวน 101 ราย ในโรงพยาบาลทั่วไปจำนวน 3 โรงพยาบาล สาธารณรัฐบรูไน เครื่องมือการวิจัยได้รับการแปลเป็นภาษาบรูไน ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล แบบสอบถามระยะเวลาในการนอนโรงพยาบาล แบบวัดคุณภาพการสอนก่อนจำหน่ายฉบับมารดาครั้งแรก และแบบวัดความพร้อมในการจำหน่ายจากโรงพยาบาลฉบับมารดาครั้งแรก วิเคราะห์ข้อมูลโดยใช้สถิติพรรณนา และสถิติ Spearman's rank correlation

ผลการวิจัยพบว่า มารดาครั้งแรกทั้งหมด (ร้อยละ 100) ได้รับการจำหน่ายออกจากโรงพยาบาลภายใน 24 ชั่วโมงหลังคลอด โดยมีค่ามัธยฐาน 12 ชั่วโมง (IQR: 9.00-15.50 ชั่วโมง) มารดาครั้งแรกเกือบทั้งหมด (ร้อยละ 96.04) รับรู้เกี่ยวกับคุณภาพการสอนก่อนจำหน่ายในระดับต่ำ โดยมีค่ามัธยฐาน 1.15 (IQR: 0.35-4.60) มารดาครั้งแรกทั้งหมด (ร้อยละ 100) รับรู้เกี่ยวกับความพร้อมในการจำหน่ายจากโรงพยาบาลในระดับต่ำ โดยมีค่ามัธยฐาน 0.82 (IQR: 0.68-1.05) คุณภาพการสอนก่อนจำหน่ายมีความสัมพันธ์ทางบวกระดับปานกลางกับความพร้อมในการจำหน่ายจากโรงพยาบาล ($r = .459, p < 0.001$) ระยะเวลาในการนอนโรงพยาบาลไม่มีความสัมพันธ์กับความพร้อมในการจำหน่ายจากโรงพยาบาล

ผลการวิจัยครั้งนี้ แสดงถึงข้อมูลพื้นฐานของระยะเวลาในการนอนโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย และความพร้อมในการจำหน่ายจากโรงพยาบาล ในระยะการเปลี่ยนผ่านของการจำหน่ายจากโรงพยาบาล พยาบาลผดุงครรภ์ควรพัฒนาแนวทางในการส่งเสริมคุณภาพการสอนก่อนจำหน่าย เพื่อเสริมสร้างความพร้อมในการจำหน่ายจากโรงพยาบาลในมารดาครั้งแรก

คำสำคัญ: มารดาครั้งแรก ระยะเวลาในการนอนโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย ความพร้อมในการจำหน่ายจากโรงพยาบาล สาธารณรัฐบรูไน

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Background and significance

The postpartum period is a critical phase for both mothers and newborns. The maternal mortality ratio (MMR) is remarkably higher in low- and middle-income countries (WHO, 2023). In Burundi, a low-income country, MMR remains the highest in the region with 494 deaths per 100,000 live births (WHO, 2023). Most maternal deaths in Burundi occur within 48 hours after birth, mainly due to hemorrhage and infection (Ministère à la Présidence chargé de la Bonne Gouvernance et du Plan et al., 2017). Burundi also struggles with a neonatal mortality rate of 23 deaths per 1,000 births, the highest in sub-Saharan Africa (SSA) (UNICEF, 2021), mainly due to infection/septicemia during the neonatal period (Moise, 2018).

In Burundi, all health care institutions have a mandate to follow the postnatal care guidelines from the WHO (2014) which state that mothers and newborns should receive care in the facility for at least 24 hours after an uncomplicated vaginal delivery. However, hospital capacity strain has led many hospitals to implement early hospital discharge. As a result, Burundi had the third lowest percentage (43.80%) of women receiving a postpartum check while in the facility following childbirth compared to 33 countries in SSA (Benova et al., 2019). It has been shown that a higher level of discharge readiness can significantly reduce incidence of puerperal complications and neonatal diseases (Jing et al., 2017). Thus, readiness for hospital discharge is a key moment in ensuring that postpartum women receive support for the transition to home care.

Readiness for hospital discharge refers to the perceived ability of a postpartum woman to self-manage personal and health care needs in the home environment (Weiss & Lokken, 2009). Compared to multiparous mothers, first-time mothers face physiological and psychological difficulties to transition into motherhood. As a result, primiparous mothers have reported less readiness for discharge than multiparous mothers (Weiss & Lokken, 2009). A study in Turkey pointed out that 15.30% of postpartum women were unready for hospital discharge (Şenol et al., 2017). Hospital discharge before a mother is ready places them at a greater risk of detrimental health outcomes and increases the likelihood of adopting poor health behaviors during the postpartum period (Lain et al., 2015). There are some factors influencing the discharge readiness of postpartum mothers including age (Yanikkerem et al., 2018), number of pregnancies and children (Şenol et al., 2017), type of delivery (Yanikkerem et al., 2018), length of hospital stay (Weiss et al., 2004), quality of discharge teaching (Krikirat et al., 2020), and postpartum support (Şenol et al., 2017). However, these studies targeted both primiparous and multiparous postpartum women.

Length of hospital stay refers to the number of hours that a postpartum woman spends in the hospital between birth and discharge. Although a stay of at least 24 hours after an uncomplicated delivery has been endorsed by the WHO (2014), a study in SSA countries revealed that 15.5% of postpartum women stayed in the hospital less than 24 hours, irrespective of the mode of delivery (Tsigah-Ahmed et al., 2022). Shorter lengths of stay were associated with a reduction in assistance received after birth, and then lower perceived discharge readiness (Weiss et al., 2004). However, this is inconsistent with a study in Ghana which found that a longer length of hospital stay was



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negatively associated with discharge readiness score (Lau et al., 2023).

The quality of discharge teaching refers to the perceptions of a postpartum mother regarding the education provided by health care providers during hospitalization in preparation for discharge home and coping with the posthospitalization period (Weiss & Lokken, 2009). A study in Turkey found that around 69.4% of postpartum women received information from midwives or nurses about their own care and their baby's care (Şenol et al., 2017). High-quality discharge education can improve patients' readiness for hospital discharge (Meleis et al., 2000). A study on Thai postpartum mothers found that the quality of discharge teaching had a high positive correlation with readiness for hospital discharge ($r = .513, p < .01$) (Krikirat et al., 2020).

Most previous studies conducted in middle- and high-income countries targeted both primiparous and multiparous postpartum women. There are very few focused on first-time mothers who may have different discharge readiness perceptions when compared to multiparous mothers. The relationship between length of hospital stay and readiness for hospital discharge is inconsistent, so more investigation is needed. Moreover, there is a lack of research in Burundi, where the maternal and neonatal death is the highest rate in SSA. This study provided essential information for nurses and health care providers to improve the length of hospital stay, the quality of discharge teaching, and readiness for hospital discharge to promote first-time mothers and infants' health outcomes in Burundi.

Research Objectives

1. To examine the length of hospital stay, the quality of discharge teaching, and the readiness for hospital discharge among first-time mothers in Burundi.
2. To explore the relationship between the length of hospital stay, the quality of discharge teaching, and readiness for hospital discharge among first-time mothers in Burundi.

Conceptual framework

Meleis' middle-range theory of transitions (Meleis, 2010) provides a relevant conceptual framework for first-time mothers' adaptation to changes in discharge factors during the transition home after childbirth. This theory focuses on four elements: nature of transitions, transition conditions, nursing therapeutics, and patterns of response. Length of hospital stay was derived from the nature of the transitions which indicated assistance received after birth, and then related to perceived discharge readiness (Weiss et al., 2004). The quality of discharge teaching was derived from nursing therapeutics which can allay concerns and boost confidence levels, improving readiness for hospital discharge (Weiss & Lokken, 2009). Readiness for hospital discharge was derived from patterns of response which was the outcome of the transition (Weiss & Lokken, 2009). A longer length of hospital stay and higher quality of discharge teaching may be related to higher readiness for hospital discharge among first-time mothers.



Methodology

A descriptive correlational study was done among first-time mothers in three general hospitals in the Republic of Burundi.

Population and sample

Participants were recruited by the purposive sampling method according to the following criteria: 1) being first-time mothers aged 20 years or over; 2) having vaginal delivery with a full term healthy living child; 3) having no diagnosis of obstetric and medical complications; 4) having no diagnosis of mental health problems; 5) having the ability to communicate in Kirundi language; and 6) willing to take part in the study. The sample size was determined through power analysis with $\alpha = .05$ and an effect with power = 0.80. The correlation coefficient of 0.30, a medium effect which is widely acceptable in nursing research, was considered sizeable (Cohen, 1992). The calculated sample size was 84, and with 20% added for the possible loss of participants (Polit & Beck, 2012), the total number of the sample size was 101.

Research instruments

1. The demographic data form was developed by the researcher. It contains 8 questions on age, religion, marital status, educational level, occupation, family income, family member's relationships, and feeding method for the baby.

2. The Length of Hospital Stay Questionnaire was developed by the researcher. This was calculated as the time of discharge from the hospital minus the time of the complete neonatal delivery and was interpreted as very early discharge (≤ 24 hours), early discharge (25-48 hours), or late discharge (> 48 hours) (American Academy of Pediatrics & American College of Obstetricians and Gynecologists, 2002).

3. The Quality of Discharge Teaching Scale–New Mother Form (QDTS-NMF) was developed by Weiss and Lokken (2009). It consists of 20 items with two subscales. The content subscale includes 7 parallel questions on content received and content needed (only the received score is included in the scale calculations, even though it is part of the subscale analysis). The delivery subscale consists of 13 items. A 10-point Likert-scale format from 0 (none) to 10 (a great deal) was used. According to the grading standards, each subscale is categorized into four levels: 9–10 (very high), 8–8.9 (high), 7–7.9 (moderate), and <7 (low) (Weiss et al., 2014).

4. The Readiness for Hospital Discharge Scale–New Mother Form (RHD-NMF) was developed by Weiss and Lokken (2009). It contains 22 items composed of four subscales: Personal status (8 items), Knowledge (7 items), Coping Ability (3 items), and expectation support (4 items). A 10-point Likert-scale format, from 0 (not at all) to 10 (totally), was used. According to grading standards, each subscale is categorized into four levels representing 9–10 (very high), 8–8.9 (high), 7–7.9 (moderate) and <7 (low) (Weiss et al., 2014).

After receiving permission, all instruments were translated into Kirundi following the back translation process (WHO, 2022). The first step was conducting a forward translation into the Kirundi language by the first translator who was certified in both English and Kirundi language.



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The second step was the back translation of the Kirundi version into an English version by a bilingual second translator who had not seen the original instruments before. Then, translation discussion was held to ensure that the meaning of the original text was clear. The reliability was tested with 15 mothers who had similar characteristics to the participants in the current study. The Cronbach alpha reliabilities of the QDTS-NMF and RHD-NMF were 0.85 and 0.84, respectively.

Ethical considerations

The study was approved by the Research Ethics Committee of the Faculty of Nursing, Chiang Mai University, Thailand (Code 105/2023) and by the Burundi Research Ethics Committee (No/ref.: 2023/DGCHUK.2157/11.5). Permission for data collection was obtained from each general hospital in Burundi. All participants who agreed to participate in this study were required to sign a written consent form, independently, after details of the study were explained and clarification was made. They were informed that whether or not they participated, their treatment as patients would not be affected, and that they could withdraw from the study at any time and for any reason. In addition, only a code number was used for data analysis. Voluntariness, privacy, and confidentiality were ensured.

Data collection

After obtaining permission from the director of each hospital, the researcher selected two research assistants who were registered nurses and had experience in conducting research. They were given information about the objectives of the study, the inclusion or exclusion criteria for potential subjects, informed consent, and the data collection process. Later, the researcher demonstrated how to select participants who fit the inclusion criteria and the method for administering the questionnaires. After meeting with participants, eligible and potential participants were approached to explain the research objectives and benefits of the study. After the consent form was signed, the participants were invited to complete self-report questionnaires which took approximately 30-35 minutes. The response rate for the 101 participants was 100%.

Data analysis

Data was analyzed using the SPSS statistical software package, and the significance level was set at .05. The demographic data were analyzed using descriptive statistics including frequency, percentage, mean, and standard deviation. The scores for the QDTS-NMF and RHD-NMF were analyzed using range, mean, standard deviation, frequency, and percentage. The Kolmogorov-Smirnov test was used to test the normal distribution of all variables and revealed non-normal distribution of the data. Spearman's rank correlation test was then used to examine the correlation between the length of hospital stay, the quality of discharge teaching, and readiness for hospital discharge. In the analysis of the correlation between two variables, $r < 0.3$ was considered as a low correlation, $r = 0.3$ to 0.5 reflected a moderate correlation, and $r > 0.5$ was regarded as a high correlation.



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Results

According to the demographic data, the majority of participants (93.06%) were aged between 20-29 years old with a mean age of 25.05 (SD = 3.97). More than half (56.40%) were Christian. Most participants were married (86.14%), and 53.47% had reached primary education. Most participants were housewives (78.22%) with a monthly family income of 34.96-174.79 US dollars. Almost all participants (96.04%) had a cooperative relationship with family members. Exclusive breastfeeding (94.06%) was the most common feeding method for their babies.

All participants were discharged very early. The median length of hospital stay was 12 hours (interquartile range [IQR]: 9.00-15.50 hours) (Table 1).

Table 1 Level of the Length of Hospital Stay Among the Participants (n = 101)

Length of Hospital Stay (hours)	Frequency (n)	Percentage (%)	Level
Median length of stay in hours = 12 (interquartile range: 9.00-15.50)			
≤ 24	101	100	Very early discharge

Almost all of the first-time mothers (96.04%) perceived the quality of discharge teaching at a low level with a median score of 1.15 (IQR: 0.35-4.60). Regarding each subscale, the level of content needed (M = 2.10, SD = 1.98), the content received (M = 2.03, SD = 2.32), and the delivery (M = 2.51, SD = 2.40) were also at a low level (Table 2).

Table 2 Level of Quality of Discharge Teaching Among the Participants (n = 101)

Quality of Discharge Teaching	Range	M ± SD	Level	
			Low n (%)	Moderate n (%)
Median score = 1.15 (interquartile range: 0.35-4.60)				
Content needed subscale	0.00-7.14	2.10 ± 1.98	100(98.01)	1(0.99)
Content received subscale	0.00-7.43	2.03 ± 2.32	98(97.03)	3(2.97)
Delivery subscale	0.00-7.31	2.51 ± 2.40	96(95.05)	5(4.95)
Total scale (the content received and delivery)	0.00-7.15	2.34 ± 2.30	97(96.04)	4(3.96)

All participants (100%) perceived readiness for hospital discharge at a low level with a median score of 0.82 (IQR: 0.68-1.05). Regarding each dimension, the level of personal status (M = 1.31, SD = 1.33), knowledge (M = 1.16, SD = 1.13), coping ability (M = 1.20, SD = 1.32), and expected support (M = 1.28, SD = 1.28) were also at a low level (Table 3).



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Table 3 Level of Readiness for Hospital Discharge Among the Participants (n = 101)

Readiness for Hospital Discharge	Range	M±SD	Level
			Low n (%)
Median score = 0.82 (interquartile range: 0.68-1.05)			
Personal status	0.00-5.50	1.31 ± 1.33	101(100.00)
Knowledge	0.00-5.14	1.16 ± 1.13	101(100.00)
Coping ability	0.00-6.00	1.20 ± 1.32	101(100.00)
Expected support	0.00-6.00	1.28 ± 1.28	101(100.00)
Total score	0.18-4.68	1.24 ± 1.21	101(100.00)

The results revealed that the quality of discharge teaching was moderately positively correlated with readiness for hospital discharge among first-time mothers in Burundi ($r = .459, p < 0.001$). However, there was no significant relationship between the length of hospital stay and the readiness for hospital discharge ($p > .05$) among participants (Table 4).

Table 4 The Relationships between Length of Hospital Stay, Quality of Discharge Teaching, and Readiness for Hospital Discharge Among the Participants (n = 101)

	Readiness for Hospital Discharge	
	Spearman's rank	P-value
1. Length of hospital stay	-.181	.07
2. Overall quality of discharge teaching	.459***	0.000

*** $p < .001$

Discussion

1. All participants in this study were discharged very early, less than the recommended 24 hours based on the WHO guideline. This may be related to several reasons. Firstly, the participants were first-time mothers having a normal delivery without complications. This aligns with a study in Tanzania indicating that discharge within 24 hours after childbirth was considered an institutional norm, with 65.70% of uncomplicated vaginal deliveries routinely discharged within 12 hours and 90% within 24 hours (McMahon et al., 2015). Secondly, the babies of the participants were healthy full-term neonates receiving breastfeeding (94.06%). This is congruent with a study of 92 countries which demonstrated that infants needing greater care played an important role in extending length of stay (Campbell et al., 2016). Thirdly, the participants were hospitalized in three central general hospitals. This could be a facility-based factor as these three general hospitals had a high number of deliveries (1,283 normal deliveries and 772 abnormal deliveries in 2022). The participants were more likely to stay for shorter durations due to a limited supply of beds and insufficient capacity for those who accompanied the women. This finding adds evidence to support a study in Nepal which found that delivery at a facility with a physical space was associated with a longer length of stay (Ikeda et al., 2021).



2. The quality of discharge teaching among first-time mothers in Burundi was at a low level, a result which was lower than the value reported by existing literature in Thailand (Krikirat et al., 2020) and China (Li et al., 2023). This may be related to several reasons. Firstly, as all participants were discharged early, they may not have received enough discharge education from the nurse due to the limited time. Therefore, participants' information needs were unmet. Secondly, all participants were first-time mothers receiving the information for the first time. They might expect the nurses to provide all necessary education and guidance through the teaching process. However, as information was provided to participants in the limited time before discharge, they may have felt hesitant to ask for additional information during this process. Thirdly, the majority of participants attended primary education (53.47%) and were relatively limited in receiving professional knowledge, resulting in a lack of understanding and acceptance of information. This finding is congruent with a study in Jordan which reported that mothers identified an unmet need for education about their own physical self-care and newborn care (Almalik, 2017) and adds evidence to support a qualitative study which found that postpartum mothers expressed a desire for more education on what to expect during the postpartum period (Madray et al., 2022).

3. Readiness for hospital discharge among first-time mothers in Burundi was at a low level which may be related to first-time mothers who had little or no knowledge or experience in dealing with physical and psychological changes of adjustment to motherhood which may inevitably lead to poor mastery of the relevant knowledge of managing care and observing complications, which is then related to unreadiness for hospital discharge. This finding aligns with a study in Turkey demonstrating a statistically lower mean total RHD-NMF score for first-time mothers compared with multiparous mothers ($p = .01$) (Yanikkerem et al., 2018). Secondly, the majority of participants (93.06%) were aged between 20-29 years with primary education (53.47%) and were relatively limited in receiving professional knowledge, resulting in a low score for the knowledge and coping ability subscales. This is congruent with a study which found that women aged 18 to 31 had lower knowledge and coping ability scores than those aged over 32 (Yanikkerem et al., 2018).

4. Quality of discharge teaching was verified to be moderately positively correlated with readiness for hospital discharge ($r = .459, p < .001$), indicating that high-quality discharge education can improve participants' readiness for hospital discharge. This finding supports the relationships proposed by Meleis' middle-range theory of transitions describing how effective health education provided by health care providers can help in improving participants' understanding of their health care literacy and their ability to manage care demands at home (Meleis, 2010). Moreover, it supports a study in Thai postpartum women which showed that teaching quality had a high positive correlation with readiness for hospital discharge ($r = .513, p < .01$) (Krikirat et al., 2020).

5. There was no significant correlation between length of hospital stay and readiness for hospital discharge among first-time mothers in Burundi, differing from previous studies (Lau et al., 2023; Weiss & Lokken, 2009). This inconsistency may be related to the care situation of the hospital settings where all participants were allowed to discharge very early. This means that the decision to discharge



goes beyond readiness for hospital discharge and vice versa. Longer hospital stays may be considered as being for poor maternal or infant health conditions which were uncommon for mothers without complications.

Application of research findings

The quality of discharge teaching and readiness for hospital discharge among first-time mothers needs to be assessed during the discharge transition. Nurses should promote the readiness to discharge among first-time mothers by manipulating the quality of discharge teaching and emphasizing the teaching content related to the first-time mothers' needs at home and delivery skills. In addition, as all mothers in this study were discharged very early, they may not have received enough discharge education from nurses due to the limited time. Therefore, the WHO recommendation endorsing a minimum 24-hour stay in a healthcare facility after an uncomplicated birth should be considered and implemented.

Suggestions for further research

To expand knowledge, other factors related to readiness for hospital discharge among first-time mothers based on Meleis' middle-range theory of transitions should be explored. In addition, studies on length of hospital stay, quality of discharge teaching, and readiness for hospital discharge among first-time mothers in other levels of health care may be considered.

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Length of Hospital Stay, Quality of Discharge Teaching, and Readiness for Hospital Discharge Among First-Time Mothers, the Republic of Burundi
ระยะเวลาในการนอนโรงพยาบาล คุณภาพการสอนก่อนจำหน่าย และความพร้อมในการจำหน่ายจากโรงพยาบาลในมารดาครั้งแรก สาธารณรัฐบรูไน

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