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ORIGINAL ARTICLE

Access Factors Associated With Postpartum Care Adherence in Primary Health Care

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Highlights:

Access to primary care increases the chances of adherence to postpartum appointments.
Shorter wait times for nursing appointments increase the chances of adherence to postpartum appointments.
It is essential to invest in improving access to primary care for postpartum women.

ABSTRACT

Objective: Analyzing access factors to Primary Health Care associated with adherence to postpartum appointments. Method: Cross-sectional study with data from 19.177 postpartum women who participated in the external evaluation of the third cycle of the National Program for Improving Access and Quality of Primary Care (2017). The dependent variable was the attendance of postpartum appointments, and the independent variables, grouped hierarchically, included sociodemographic and economic factors at a distal level, and access-related factors at a proximal level. Analysis was conducted using multiple logistic regression. Results: The results showed that women who know the operating hours of the primary health care unit (OR = 1.30), have their problems resolved (OR = 1.35), the primary health care unit operates five days a week (OR = 1.27), seek assistance at the primary health care unit as their first choice (OR = 1.27), positively evaluate appointment scheduling (OR = 1.15), have daily appointment scheduling at the primary health care unit (OR = 1.13), live less than 16 minutes away from the primary health care unit (OR = 1.15), and for those whose wait time for nursing appointments is less than six days (OR = 1.11), there is a higher chance of adherence to postpartum appointments. Conclusion: This research identified access factors that may influence adherence to postpartum appointments, highlighting the importance of wait times for nursing appointments. Identifying these factors contributes to organizing postpartum care and improving women's access to appointments.

Keywords: primary health care; postpartum period; women's health; access to health services.



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INTRODUCTION

Access to quality postpartum care directly correlates with maternal and child health indicators in the country, with postpartum appointments strengthening care and serving as a significant healthcare parameter to reduce morbidity and mortality among women¹.

Access is an indispensable and fundamental element for the quality of health services, as it enables a set of coordinated actions strongly focused on health promotion, disease prevention, and recognition of user needs².

Especially within the scope of Primary Health Care (PHC), access is of utmost relevance, as it is the appropriate strategy for achieving continuity of care, offering greater resolution and minimizing costs at higher levels of complexity. Therefore, adequate access directly contributes to reducing maternal morbidity and mortality rates².

In 2011. the Ministry of Health (MS) aimed to enhance Primary Health Care (PHC) by ensuring quality and access to care through the creation of the National Program for Improving Access and Quality of Primary Care (PMAQ-AB). This program was implemented to evaluate the quality of services provided by PHC in the country³.

Even with the implementation of strategies like PMAQ-AB, which emphasizes access and service quality, access and adherence to postpartum care remain unsatisfactory, with a low prevalence of postpartum appointments, often around 50% or less^{1.4}.

The lack of effective maternal health care remains a global health concern, despite the creation of international policies focused on maternal and child health. Additionally, the postpartum period is a critical time requiring mandatory attention, given that developing countries account for 99% of maternal deaths annually⁵.

Considering the importance of postpartum appointments for women's health care, recognizing access factors that influence adherence to these appointments, and identifying new variables beyond the well-established economic and sociodemographic factors in the literature, allows us to identify needs and redirect improvements in the context of Primary Health Care (PHC). This addresses tangible gaps in care for postpartum women and contributes to expanding postpartum care.

The study hypothesizes that facilitated access enhances the likelihood of attending postpartum appointments. Thus, the objective of this study was to analyze access factors in Primary Health Care associated with adherence to postpartum appointments.

METHOD

The study is a cross-sectional, quantitative research that utilized public data from postpartum women who participated in the external evaluation of the third cycle of PMAQ-AB, a federal program aimed at enhancing the quality of primary care services (PCS)³ through financial incentives. The study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (Strobe) guidelines (Strobe).

The study utilized an evaluation instrument provided by PMAQ-AB, consisting of three modules: Module I observed structural and environmental characteristics of Basic Health Units (UBS); Module II involved interviews with professionals regarding the health team's work process and document analysis; and Module III interviewed users to assess their perception and satisfaction regarding health services, particularly focusing on access and utilization⁶.

The interviews were conducted using a non-probabilistic sampling method, with four users interviewed from each health unit, totaling 140.444 users nationwide ⁶.

For the study population, participants included those from the PMAQ-AB who answered "yes" to the question: "Have you been pregnant in the last 2 years?", totaling 21.110 users. Additionally,



participants who answered "yes" or "no" to the question: "Did you attend a postpartum check-up (postpartum appointment)?" Were included, totaling 19.177 users from Module III evaluation⁶. No participants were excluded after meeting the inclusion criteria.

For the study, the user utilized variables from Module III. Data were collected by accessing a secondary database available in "xlsx" format from the third cycle of PMAQ Module III, obtained through the website https://aps.saude.gov.br/ape/pmaq. The dependent variable was defined as the question "Did you attend a postpartum check-up (postpartum appointment)?" Determinants influencing attendance at postpartum appointments in Primary Health Care (PHC) were categorized into distal and proximal levels.

The inclusion of possible determinants in the levels followed the theoretical model of postpartum care in PHC⁷. The distal level (Level 1) refers to the variables that are farthest from the outcome and act indirectly through proximal determinants to affect the performance of the consultation⁸. At this level, the following sociodemographic variables were considered: region, age, marital status, color, education, participation in the Cash Transfer Program (CTP).

The proximal level (Level 2), was structured based on access-related questions, following Starfield's principles, which consider access a crucial element for PHC service quality. Access should enable users to reach health services universally, not limited by need level, and should address all presented issues. It should be effective in resolving problems, and for this, the service location needs to be accessible, overcoming geographical, administrative, financial, and language barriers.

Thus, access-related questions from the sub-dimensions of the data collection instrument were selected as variables for the proximal level: Access to Health Unit, Access to Care, and Access to Health Services, as evidenced in Figure 1:





Source: Baratieri, Natal, Hartz⁷.



After selecting the variables, data exploration and descriptive analysis of the variables were conducted on the database, identifying 5.131 interviews that had missing values in at least one variable. To prevent participant exclusion and maintain the study population's profile, data imputation was performed using the Multivariate Imputation by Chained Equations (MICE) package with the Predictive Mean Matching (PMM) method, implemented in R version 4.1.0^{9.10}.

The data analysis was performed using a multiple logistic regression model with stepwise forward variable inclusion. In the bivariate analysis, variables with a p-value < 0.20 were considered, and those with p < 0.05 and/or that improved model fit remained in the final model (multiple analysis). The magnitude of associations was estimated using Odds Ratios (OR) with 95% confidence intervals as a measure of precision. The adequacy of the final model was assessed using the Hosmer-Lemeshow test (p = 0.07947), and collinearity among variables was tested with Variance Inflation Factor (VIF < 10). R software version 4.1.0 was used for the analysis.

Since this is a study using secondary public databases where information is aggregated without the possibility of individual identification, the present study is exempt from review by the Research Ethics Committee involving Human Subjects, in accordance with Resolution No. 510. dated April 7. 2016. and in compliance with Law No. 12.527. dated November 18. 2011. which regulates access to public information and data.

RESULTS

The study showed a higher prevalence of women in the Northeast Region, with a partner, brown/ mestizo, over 25 years of age, with at least incomplete high school education and who participated in CTP (Table 1).

Regarding the access variables, there was a higher prevalence for those who live less than 16 minutes from the UBS, know the opening hours and recognize the daily care during the five days of the week, who had their health needs met and who sought the UBS as their first choice, prevailing the scheduling via the unit with daily scheduling, that the consultations are not carried out on the same day of scheduling, occur in chronological order after scheduling, with the waiting time for medical consultations up to 10 days and nursing consultations up to six days, users who evaluated the form of scheduling as good or very good and that the UBS is resolute in the face of the problems presented by them (Table 1).

Regarding the bivariate analysis, it was found that all sociodemographic and/or economic variables were significant in at least one of the categories (Table 1).

	Po	ostpartum a	OR *	<i>p</i> -Value [‡]		
Variables	Yes				No	
	n	%	n	%	(IC 95% [*])	
Region						
Northeast	3523	18.37	3452	18.00	1.00	Reference
Midwest	741	3.86	738	3.85	0.98 (0.97-1.07)	0.776
North	995	5.19	1152	6.01	0.85 (0.77- 0.93)	<0.001
Southeast	3675	19.16	2981	15.54	1.21 (1.13- 1.29)	<0.001
South	1231	6.42	689	3.59	1.75 (1.58- 1.94)	<0.001
Marital status						
No Partner	2935	15.3	2749	14.33	1.00	Reference

Table 1: Relationship between sociodemographic/economic factors and attendance at postpartum appointments in PHC. Brazil, 2017. (n = 19.177).



With partner	7230	37.7	6263	32.66	1.08 (1.02-1.15)	0.014
Color						
Black	1429	7.45	1182	6.16	1.00	Reference
White	2628	13.70	2127	11.09	1.02 (0.93- 1.12)	0.657
Yellow	350	1.83	346	1.80	0.84 (0.71- 0.99)	0.037
Brown/Mixed race	5670	29.57	5275	27.51	0.89 (0.82- 097)	0.007
Indigenous	88	0.46	82	0.43	0.89 (0.65- 1.21)	0.452
Age						
24 or less	3408	17.77	3756	19.59	1.00	Reference
25 or more	6757	35.23	5256	27.41	1.42 (1.34- 1.50)	<0.001
Education						
Up to elementary education	4826	25.17	4513	23.53	1.00	Reference
Minimum incomplete high school education	5339	27.84	4499	23.46	1.11 (1.05- 1.17)	<0.001
СТР						
Yes	5260	27.43	4514	23.54	1.00	Reference
No	4905	25.58	4498	23.46	0.93 (0.88- 0.99)	0.022

* Odds ratio; † 95% confidence interval; ‡ Yesples logistic regression.

Source: PMAQ, 2017.

Among the access variables established in the bivariate analysis, all showed significant association with the outcome (Table 2).

Table 2 – Relationship between access factors and the attendance of postpartum appointments in PHC. Brazil, 2017. (n = 19.177)

	Postpartum appointment					
Variables	Yes		No			<i>p</i> -Value [‡]
	Ν	%	n	%	(IC 95%)	
Travel time from home to the						
UBS						
More than 16 minutes	2929	15.27	2993	15.61	1.00	Reference
16 minutes or less	7236	37.73	6019	31.39	1.23 (1.15- 1.31)	<0.001
Do you know the operating						
hours of the Basic Health Unit (UBS)?						
No	523	2.73	744	3.88	1.00	Reference
Yes	9642	50.28	8268	43.11	1.66 (1.48- 1.86)	<0.001
Does the UBS operate 5 days a week?						
No	258	1.35	359	1.87	1.00	Reference
Yes	9907	51.66	8653	45.12	1.59 (1.35- 1.87)	<0.001
Does the UBS meet your needs?						
No	445	2.32	489	2.55	1.00	Reference
Yes	8742	45.59	7366	38.41	1.30 (1.14- 1.49)	<0.001
Sometimes	978	5.10	1157	6.03	0.93 (0.80- 1.08)	0.348
Where do you seek medical care?						
Another location	1160	6.05	1471	7.67	1.00	Reference
In this unit	9005	46.96	7541	39.32	1.51 (1.39- 1.64)	<0.001



How	do you	schedule	your
	• •		

appointment?						
Don't schedule	214	1.12	252	1.31	1.00	Reference
Telephone	272	1.42	211	1.10	1.52 (1.17- 1.96)	<0.001
Internet	25	0.13	28	0.15	1.05 (0.59- 1.86)	0.862
By unit	8152	42.51	7240	37.75	1.32 (1.10- 1.60)	<0.001
Community Health Agent	1450	7.56	1216	6.34	1.40 (1.15- 1.71)	<0.001
Others	52	0.27	65	0.34	0.94 (0.62- 1.41)	0.774
Does the UBS schedule						
appointments every day?						
No	3645	19.01	3783	19.73	1.00	Reference
Yes	6520	34.00	5229	27.27	1.29 (1.22- 1.37)	<0.001
User evaluation regarding						
appointment scheduling						
Poor to fair	2870	14.97	3154	16.45	1.00	Reference
Good/very good	7295	38.04	5858	30.55	1.37 (1.29- 1.45)	<0.001
Same-day appointment						
No	6254	32.61	5769	30.08	1.00	Reference
Yes	3911	20.39	3243	16.91	1.11 (1.05- 1.18)	<0.001
Appointments are						
Walk-in appointments	1012	5.28	851	4.44	1.00	Reference
Appointment	1993	10.39	1441	7.51	1.16 (1.04- 1.30)	<0.001
Appointments after scheduling	7095	37.00	6642	34.64	0.90 (0.81- 0.99)	0.030
Outhers	65	0.34	78	0.41	0.70 (0.50- 0.98)	0.041
Wait time for medical						
appointment						
More than 10 days	2501	13.04	2335	12.18	1.00	Reference
Up to 10 days	7664	39.96	6677	34.82	1.07 (1.00- 1.14)	0.038
Wait time for nursing						
appointment						
More than 6 days	2497	13.02	2553	13.31	1.00	Reference
Up to 6 days	7668	39.99	6459	33.68	0.99 (0.99- 1.00)	<0.001
Resolution of issues by the UBS						
No	1074	5.60	1411	7.36	1.00	Reference
Yes	8130	42.39	6449	33.63	1.66 (1.52- 1.80)	<0.001
Never needed	961	5.01	1152	6.01	1.09 (0.97- 1.23)	0.124

* Odds ratio; † 95% confidence interval; ‡ Yesples logistic regression

Source: PMAQ, 2017.

Table 3 presents Model A, regarding the Variables at the distal level, and Model B, which includes all Variables that remained statistically significant after performing the multiple analysis of distal and proximal Variables, or that adjusted the model.

Table 3 – Multiple hierarchical logistic regression analysis of the association between proximal and
distal level variables and attendance at postpartum appointments. Brazil, 2017. (n = 19.177)

Variables	Model	A*	Model B ⁺		
	OR [‡] (IC [§] 95%)	<i>p</i> -Value	OR [‡] (IC [§] 95%)	<i>p</i> -Value	
Region					
Northeast	1.00	Reference	1.00	Reference	



South	1.84 (1.65-2.06)	0.001	1.78 (1.59-2.00)	<0.001
North	0.87 (0.79-0.96)	0.004	0.91 (0.83-1.01)	0.076
Central-West	1.04 (0.93-1.16)	0.530	1.03 (0.92-1.16)	0.564
Southeast	1.28 (1.16-1.34)	0.001	1.24 (1.15-1.33)	<0.001
Age				
24 or less	1.00	Reference	1.00	Reference
25 or more	1.38 (1.30-1.46)	0.001	1.34 (1.26-1.42)	<0.001
Education				
Up to elementary education	1.00	Reference	1.00	Reference
Minimum incomplete high school education	1.13 (1.06-1.19)	0.001	1.10 (1.03-1.17)	<0.001
СТР				
Yes	1.00	Reference	1.00	Reference
No	0.83 (0.78-0.88)	0.001	0.83 (0.78-0.89)	0.001
Color				
Black	1.00	Reference	1.00	Reference
White	0.94 (0.85-1.04)	0.238	0.91 (0.83- 1.01)	0.071
Yellow	0.87 (0.73-1.03)	0.096	0.85 (0.72-1.01)	0.067
Brown/Mixed race	0.94 (0.86-1.02)	0.158	0.92 (0.85-1.01)	0.073
Indigenous	0.97 (0.71-1.33)	0.859	0.98 (0.72-1.35)	0.925
Do you know the operating hours of the UBS?				
No	-	-	1.00	Reference
Yes	-	-	1.30 (1.15-1.47)	<0.001
Resolution of problems by the UBS				
No	-	-	1.00	Reference
Yes	-	-	1.35 (1.23-1.48)	< 0.001
Never needed	-	-	1.01 (0.90-1.14)	0.860
Does the UBS operate 5 days a week?				
No	-	-	1.00	Reference
Yes	-	-	1.27 (1.07-1.50)	< 0.001
Seeking medical care				
Another location	-	-	1.00	Reference
At this unit	-	-	1.27 (1.17-1.39)	<0.001
User's evaluation of appointment scheduling				
Poor to regular	-	-	1.00	Reference
Good / very good	-	-	1.15 (1.08-1.24)	<0.001
Does the UBS schedule appointments every day?				
No	-	-	1.00	Reference
Yes	-	-	1.13 (1.05-1.20)	<0.001

Travel time from home to the UBS



More than 16 minutes	-	-	1.00	Reference
16 minutes or less	-	-	1.15 (1.08-1.22)	<0.001
Waiting time for a nursing appointment				
More than 6 days	-	-	1.00	Reference
Up to 6 days	-	-	1.11 (1.04-1.19)	<0.001

* Model of sociodemographic variables, considered at the distal level;[†] Model of variables related to the longitudinality of care, considered at the proximal level, adjusted for distal level variables;[‡] Odds ratio;§ 95% confidence interval; || Multiple logistic regression.

Source: PMAQ, 2017.

The multiple analysis showed that among the sociodemographic/economic variables, women residing in the South and Southeast have, respectively, 1.84 and 1.28 times higher odds of attending postpartum appointments. Those aged 25 years or older have 1.38 times higher odds, and those with at least incomplete high school education have 1.13 times higher odds of adherence to postpartum appointments. Conversely, women who do not participate in CTP have 0.83 times lower odds of attending postpartum appointments.

Regarding the analyzed access variables, knowing the operating hours of the UBS increases the odds of attending the postpartum appointment by 1.30. Women whose problems were resolved by the UBS have 1.35 times higher odds of attending the appointment. UBS operating five days a week provides a 1.27 higher chance. Those who seek care at the health unit in question have 1.27 times higher odds. A user's good or very good evaluation of appointment scheduling increases the odds of adherence to postpartum follow-up by 1.15. Booking appointments daily increases the likelihood by 1.13, and having the health unit within a distance less than 16 minutes from home contributes to a 1.15 higher adherence chance. Finally, waiting time for a nursing appointment of fewer than six days remains associated with a 1.11 higher odds of attending the postpartum appointment.

DISCUSSION

This study highlighted important access factors that contribute to adherence to postpartum appointments. Primary Health Care (PHC) as a care coordinator plays a crucial role in addressing the reduction of maternal morbidity and mortality indicators, as it is capable of providing longitudinal and comprehensive care to postpartum women¹¹.

Therefore, highlighting the possible determinants of access to and utilization of postpartum care, such as economic, social, and geographical characteristics, and especially access-sensitive determinants of PHC, directly contributes to incorporating new actions aimed at improving healthcare delivery.

The study identified that perinatal access aspects are directly influenced by social and economic determinants. Women from the Southern region, aged 25 or older, and with higher education have increased chances of attending postpartum appointments, reinforcing that better living conditions lead to improved perinatal outcomes. These aspects have been supported by findings from national and international studies^{1.12-14}.

Several social inequalities surround Brazil, with a high prevalence of the population being low-income, which unfavorably impacts health outcomes. Poverty predominantly affects Black and mixed-race individuals, who make up 72.7% of the lower-income society, with more than half of this group being women¹⁵.

Low income, resulting in lower education levels, coupled with fragile access to and provision of health services, contribute to worsening chronic and acute health issues among Brazilian citizens, particularly affecting women¹⁶.



Low education, combined with social factors, significantly influences a portion of people's ability to understand health information and recognize their own postpartum needs. Health services have the potential to provide care, but knowledge barriers hinder access¹⁵.

In order to minimize social inequalities in the country, Brazil has invested in social programs for income transfer, aimed at providing monetary assistance to the most disadvantaged. To qualify, beneficiary families are required to meet conditions such as educational requirements and participation in health programs¹⁷.

This study found that participating in Cash Transfer Programs (CTP) facilitated the attendance of postpartum appointments. This can be explained by program conditions, such as meeting minimum healthcare service usage requirements for women's and children's health, resulting in increased engagement with healthcare services¹⁷.

Another relevant finding was that users of PHC services knowing the operating hours of the UBS. The UBS operating five days a week and allowing daily appointment scheduling positively contribute to higher adherence to postpartum appointments. Recognizing the operating hours of UBS contributes to access; however, despite reports that operating hours facilitate access, literature indicates that users expressed a desire for the health unit to extend services beyond 6:00 PM and to Saturdays¹⁸.

These findings reinforce the need for service providers to expand and flexibilize the operating hours of UBS, especially for working individuals, leading to positive outcomes in expanding access¹⁹.

It was observed that the UBS's ability to resolve problems directly correlated with higher adherence to postpartum appointments. It is essential for the UBS to be the initial point of contact for healthcare users, given its competence in coordinating with other levels of care, employing various care technologies, and being familiar with the assigned territory²⁰. The UBS's ability to resolve up to 85% of the population's problems contributes to expanding healthcare coverage and user satisfaction, thereby reducing the need for services at higher levels of complexity²¹.

Seeking care at the UBS instead of other healthcare services also favored postpartum appointment attendance. This finding can be explained by the established bond between professionals and users over time, allowing for a comprehensive understanding of medical history, individual and collective characteristics. This cooperation fosters user satisfaction and positive outcomes²².

It was also evidenced that positive user evaluation of appointment scheduling increases the likelihood of adherence to postpartum appointments. Therefore, improving scheduling standards has the potential to enhance access to PHC²³. Organizational changes towards faster, more efficient scheduling models that meet user demands, taking into account economic and educational factors, including online tools, are expected to maximize access effectiveness^{24,25}.

It was also observed that women who live closer to the UBS are more likely to attend postpartum appointments. This finding can be explained by the difficulties encountered in accessing transportation, especially with public transportation, which is the primary means of transportation for much of the population. These difficulties can hinder the postpartum woman's ability to reach the health facility, particularly when lacking support networks. Additionally, she may need to bring her newborn, exposing them both to weather changes and meteorological conditions²⁶.

Another important finding of the study is that shorter wait times for scheduling nursing appointments lead to higher adherence to postpartum appointments. The study confirms that reducing wait times for care has a positive impact on patient clinical outcomes and reflects the service's ability to provide timely solutions to the population's needs²⁷.

The role of nurses in the multidisciplinary team is essential for strengthening care and service quality provided by PHC. Nursing practices implement tools for transforming health practices²⁸. The postpartum appointment allows for identifying the needs of the period, promotes women's health,



facilitates timely identification of emotional, physical, and social changes, directly contributing to reducing maternal morbidity and mortality^{1.12}. Nurses are essential professionals for providing care to women during this period.

Therefore, the nurse utilizes the Nursing Care Systematization, an indispensable tool for postpartum nursing consultations. It considers the organization and development of care, applying a methodology based on theoretical and scientific foundations. This approach, coupled with an understanding of the emotional and social peculiarities experienced by postpartum women, enables the identification of problems and the planning of actions and solutions to address their needs^{29.30}.

The research findings underscore the critical need for enhancing and strengthening PHC in the country concerning the care provided to women. Low adherence to postpartum appointments reduces health coverage, negatively impacting health indicators and contributing to maternal morbidity and mortality.

Unsatisfactory adherence results from various factors, including teams' lack of readiness to address the uniqueness of the postpartum period, focus on the newborn rather than the woman, insufficiently established bonds, discontinuity of care, and issues related to inequalities and access difficulties¹⁸ which were closely observed in this study.

Regarding study limitations, it is important to highlight the memory bias due to the inclusion criterion that required women to have given birth in the last two years. Another limitation is the use of non-probabilistic sampling, which limits the generalizability of the data. Additionally, the database used had a certain amount of missing data, although this challenge was addressed through a rigorous data imputation method. Despite these limitations, the study successfully analyzed factors related to access to postpartum appointments. Ultimately, it is hoped that this study will contribute to addressing the identified gaps, encourage further research, and facilitate the implementation of new actions in the field.

CONCLUSION

The present study analyzed factors related to access to PHC associated with adherence to postpartum appointments. It was found that women who know the operating hours of the basic health unit, have their issues resolved by the team at this unit, attend units that operate five days a week, choose the basic health unit as their primary healthcare provider, rate the appointment scheduling positively, have access to daily appointment scheduling at the basic health unit, live within a 16-minute distance from home to the basic health unit, and experience a wait time of less than six days for nursing appointments are more likely to adhere to postpartum appointments.

Based on the knowledge of these factors, it highlights the contribution of access as a crucial attribute for adherence to postpartum appointments, directing attention to key access aspects that require greater focus from healthcare professionals and managers in delivering services within the scope of PHC.

It emphasizes the importance of access to nursing consultations to promote adherence to postpartum appointments. Nurses possess technical skills for innovative management processes addressing demands and barriers. Therefore, this study is expected to encourage professionals to develop tools that overcome access barriers, aiming to transform and expand the work processes in PHC, contributing to positive outcomes for women in the postpartum period and enhancing the visibility and recognition of the profession.



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