

Factors associated with service user embracement by Primary Health Care teams in Brazil, 2012: a cross-sectional study*

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Abstract

Objective: To evaluate prevalence and factors associated with service user embracement by Primary Health Care teams in Brazil. **Methods:** This is a cross-sectional study that included teams that took part in the 2012 National Program for Primary Health Care Access and Quality Improvement (PMAQ-AB) (Cycle I). The outcome used was 'user embracement by the health team'. The independent variables were macro-region, municipal profile, Gini index and Family Health Strategy population coverage, team meetings, study of spontaneous demand, consideration of user opinions and existence of continuing education. Multilevel Poisson regression analysis was performed. **Results:** The sample consisted of 13,751 teams. User embracement prevalence was 78.3% (95%CI 77.6;79.1). In the hierarchical analysis, the highest prevalence of user embracement was found among Southern region teams (PR=1.37 – 95%CI 1.27;1.48) taking the Northeast region as a reference. **Conclusion:** There is an uneven distribution of Primary Care teams practicing user embracement in Brazil, possibly associated with regional inequalities.

Keywords: User Embracement; Primary Health Care; Multilevel Analysis; Cross-Sectional Studies; Social Inequity.

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Introduction

Primary Health Care is of great importance in the composition of health care networks. Close to people's everyday lives in their territories, it provides care to health service users more quickly and effectively. Responsible for several important functions, such as preparing, monitoring and managing individual treatment programs, monitoring and organizing the flow of service users between Health Care Network service points, resolving and arranging services, health care at its primary complexity level is reflected in practices that ensure integrality and access to the various services provided by the Brazilian National Health System (SUS).^{1,2} Given the complexity of the Primary Health Care level, its health teams need to develop the ability to listen to and deal with service user needs. Mechanisms that enable qualified care are therefore needed. One of these mechanisms is service user embracement.²

Service user embracement can be considered to be a technology, located within the micro-policy of health work, whereby the work process becomes a public space, subject to joint discussion and reorientation, enabling health worker self-management and service user autonomy to be built.

Service user embracement can be considered to be a technology, located within the micro-policy of health work, whereby the work process becomes a public space, subject to joint discussion and reorientation, enabling health worker self-management and service user autonomy to be built.^{3,4} In addition to the notion of care technology, service user embracement can also be understood as a mechanism that increases/facilitates access and also as a mechanism for team work process organization and humanization. Although there is no one specific way of practicing service user embracement, there is an understanding that it includes the act of actively listening to health service users, i.e. going

beyond purely technical diagnosis matters, a space for creating possibilities for care between the health team and the service user.²

In countries of large dimensions, such as Brazil, there is an evident need for studies that address regional health differences. Given that regional imbalances interfere in the production of public policies and resource allocation for Health, spatial differentiations – in the broadest sense, between the country's macro-regions – play a crucial role, as geography is associated with differences in distribution of health indicators, such as satisfaction with services and infant mortality.⁵ According to Victora et al.,⁶ a predominance of information can be found in the literature about regional health inequalities related to the disease burden among the population and, to a lesser extent, information about regional and/or spatial differences in the distribution of factors related to health service delivery in Brazil.

In particular, there is a scarcity of epidemiological studies on the provision of service user embracement by health services. For example, a search performed in 2020 in different bibliographical databases (Scopus, Web of Science, Pubmed, Scielo, Lilacs, BDEF and PAHO), with no restrictions as to time period and language, using the following Boolean descriptors and operators: (i) 'Acolhimento' AND 'Atenção Primária à Saúde', (ii) 'User embracement' AND 'Primary Health Care' and (iii) 'Acogimiento' AND 'Atención Primaria de Salud', found just one study evaluating issues related to regional differences.⁷ The majority of the papers found by this search were about provision of service user embracement,^{4,7-9} focusing on a health center or a state, but none of them assessed contextual aspects of regional inequities in the practicing of service user embracement by Primary Health Care professionals.

In view of the scenario presented, considering the possibility of the influence of health team characteristics and their respective socio-spatial contexts on the practicing of embracement of spontaneous service user demand by Primary Health Care services, the objective of this study was to assess prevalence and factors associated with the practice of service user embracement by Primary Health Care teams in Brazil in 2012.

Methods

This is a cross-sectional observational study using secondary data from the external evaluation of the first cycle of the National Program for Primary Health Care Access and Quality Improvement (PMAQ-AB).

The PMAQ-AB was developed by the Ministry of Health and its main objective was to induce increased access and improved quality of health care on the first level of complexity, seeking to guarantee a comparable standard of quality, nationally, regionally and locally, as well as greater transparency and effectiveness of government actions aimed at Primary Health Care.¹⁰

The study included 13,751 Primary Health Care teams, from all the Brazilian macro-regions and states that took part in the PMAQ-AB.

Data collection using a standardized instrument tested beforehand took place between May and December 2012 with the aid of tablet-type portable computers. To this end, evaluators were selected who took part in a one-week training process focused on the activities they would later undertake in the field. The evaluators were trained in a uniform manner, based on a field manual prepared by the Ministry of Health's Primary Health Care Department.

The data used in this study relate to Module II (PMAQ external evaluation Instrument), the objective of which was to evaluate health team work process, service organization and care for service users. A member of each Primary Health Care team was interviewed and documents were reviewed at each primary health care center. Each health team chose one of its members who they deemed to have most knowledge about information regarding the health center to be interviewed.

With regard to the independent contextual variables (Municipal level), we used data from the 3,327 municipalities where the health teams worked, comprising demographic, socioeconomic and health service information. We used secondary official United Nations Development Program (UNDP)¹¹ and Ministry of Health² databases. The following contextual variables were used in this study:

a) Macro-region (North; Northeast; Midwest; South; Southeast);

(Source: PMAQ-AB, 2012).

b) Municipal profile;

- 20% poverty (municipalities with 20% or more of the population living in extreme poverty);

- G100 (the 100 municipalities with more than 80,000 inhabitants, having the lowest levels of public revenue *per capita* and high social vulnerability);

- Capital or metropolitan region;

- Other locations;

(Source: Health Ministry/Education Ministry Interministerial Ordinance No. 1369, dated July 8th 2013).

c) Family Health Strategy population coverage (more than 4,000 people; up to 4,000 people);

(Source: Ministry of Health, 2012).

d) Gini Index;

(Source: UNDP, 2010).

The individual independent variables (Health Team level) were selected from the PMAQ-AB:

a) Holds team meetings (yes; no);

b) Carried out a study of spontaneous demand in the last 12 months (yes; no);

c) Considers service user opinions in order to reorganize and qualify the work process (yes; no);

d) Carries out continuing education actions that meet the team's demands and needs (yes; no).

The study outcome was 'user embracement by the health team' (yes; no). As there is no validated instrument for service user embracement in the literature, we took as our basis four questions from block II.15 'Embracement of spontaneous service user demand' of the PMAQ-AB external evaluation instrument;¹⁰ i.e., for the outcome to be positive (Yes, practices service user embracement), the answers to all the following questions had to meet the requirements shown in brackets:

i) *Is service user embracement implemented in the health center? (Yes);*

ii) *In which work shifts is service user embracement practiced? (morning; afternoon);*

iii) *How frequently does service user embracement happen? (5 or more days a week);*

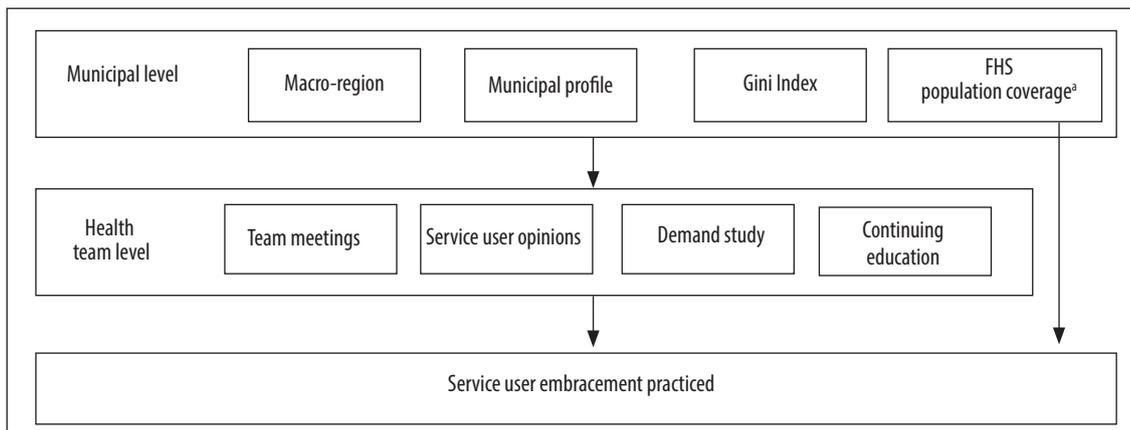
iv) *Are the needs of all service users coming to the health center spontaneously to get care listened to and assessed? (Yes).*

A theoretical model was built to explain the relationships between the variables, given that there is no source of information in the literature containing an explanatory theoretical model addressing this subject, nor information from the epidemiological point of view (Figure 1). As such, to this end, we used sources that addressed the concept and definition of service

user embracement in Primary Health Care,^{2,4} as well as aspects of health service evaluation^{12,13} and social determinants of health.^{14,15}

The data were analyzed with the aid of the Stata 11 computer program. Analyses were performed on the absolute and relative frequencies of the variables studied. Multilevel Poisson regression^{16,17} (*xtpoisson* command, and the *re* subcommand for random effects) was used to obtain the crude and adjusted prevalence ratios, with their respective 95% confidence intervals

(95%CI) and 5% level of significance. Two-stage stepwise hierarchical modeling¹⁸ was used: Model 1 (the contextual variables were used to adjust the model) and Model 2 (the contextual variables with $p < 15\%$ from Model 1 were used, plus the Health Team level variables). We used deviance to analyze the fit of the models. Deviance is a statistical measure that assesses the significance of the estimated coefficients and is based on the likelihood-ratio test, which serves to verify the quality of the fit of the proposed model.



a) FHS: Family Health Strategy.

Figure 1 – Theoretical model for Primary Health Care teams to practice service user embracement, according to individual and contextual characteristics

The study project was approved by the Federal University of Rio Grande do Sul Research Ethics Committee: Opinion No. 21904, issued on March 13th 2012.

Results

A total of 17,479 health teams were contacted by the evaluators; 277 were excluded because they did not answer the questionnaire and 3,451 were excluded because of missing information with regard to the outcome (Figure 2). The final study included 13,751 health teams for analysis. The majority of the questionnaires were answered by nurses (91.8%), team coordinators (88%) and Family Health team members (97.2%). Prevalence of service user embracement being practiced by the health teams taking part in the PMAQ-AB was 78.3% (95%CI 77.6;79.1).

With regard to the contextual characteristics of the health teams studied, the majority of the municipalities

were located in the South and Southeast regions (61.3%), had population coverage of up to 4,000 people (77.5%), did not belong to special municipal profile groups (41.3%) and had an average Gini Index of 0.52 (standard deviation, SD=0.06) (Table 1). In relation to Health Team level characteristics, the majority held team meetings (98.9%), took service user opinions into consideration with regard to their health practices (90.6%) and the continuing education actions provided met the needs of the teams (78.3%); however, the majority did not carry out studies of spontaneous demand (58.5%) (Table 2). In the crude analysis of the variables, the highest prevalence rates of service user embracement being practiced were found in the Southern macro-region, in state capitals and their metropolitan regions (Table 1) and among those teams that did carry out studies of spontaneous demand (Table 2).

In the hierarchical analysis, after adjustments between the contextual factors (Table 1: Model 1), the

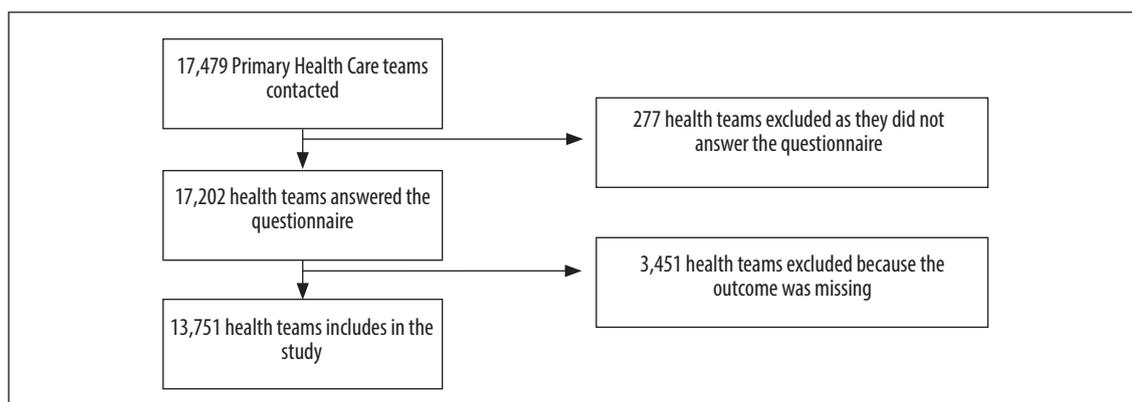


Figure 2 – Flowchart showing Primary Health Care team inclusion in and exclusion from the study sample, Brazil, 2012

Table 1 – Characteristics of the Primary Health Care team sample (n=13,751), service user embracement prevalence and crude and adjusted analyses for the contextual variables, Brazil, 2012

Variables	n (%)	Service user embracement prevalence (95%CI) ^a	Crude PR ^b (95%CI) ^a	Model 1 Adjusted PR ^b (95%CI) ^a	p-value ^c
Macro-region					
Northeast	3,918 (28.5)	62.1 (60.6;63.6)	1.00	1.00	
North	655 (4.8)	71.3 (67.7;74.6)	1.13 (1.03;1.25)	1.15 (1.03;1.27)	<0.01
Midwest	739 (5.4)	84.2 (81.3;86.6)	1.34 (1.23;1.47)	1.31 (1.18;1.44)	<0.01
Southeast	6,049 (43.9)	84.1 (83.1;84.9)	1.33 (1.26;1.41)	1.29 (1.21;1.38)	<0.01
South	2,390 (17.4)	90.6 (89.4;91.7)	1.44 (1.35;1.53)	1.37 (1.27;1.48)	<0.01
Municipal profile					
20% poverty	2,343 (17.0)	64.5 (62.5;66.4)	1.00	1.00	
G100 ^d	770 (5.6)	70.5 (67.2;73.6)	1.08 (0.98;1.21)	0.98 (0.88;1.09)	0.82
Capital/metropolitan region	4,969 (36.1)	82.7 (81.6;83.8)	1.29 (1.22;1.38)	1.07 (0.99;1.15)	0.07
Other locations	5,669 (41.3)	81.2 (80.2;82.2)	1.25 (1.19;1.33)	1.04 (0.97;1.12)	0.21
FHS population coverage^e					
More than 4,000 people	2,919 (22.5)	78.4 (76.9;79.9)	1.00	1.00	
Up to 4,000 people	10,085 (77.5)	78.4 (77.6;79.2)	0.98 (0.94;1.03)	0.99 (0.94;1.03)	0.69
Gini Index ^f	0.52 (0.06)	0.51 (0.06)	0.38 (0.27;0.52)	0.77 (0.53;1.12)	0.19

a) 95%CI: 95% confidence interval.

b) PR: prevalence ratio.

c) Refers to adjusted prevalence ratios.

d) G100: the 100 municipalities with more than 80,000 inhabitants and with the lowest levels of public revenue *per capita* and high social vulnerability social.

e) FHS: Family Health Strategy.

f) Average (standard deviation).

Notes:

Model 1 – only the contextual variables in the adjustment in the block itself.

Chi-square test to obtain p-value (significance $p < 0.05$).

Table 2 – Characteristics of the Primary Health Care team sample (n=13,751), service user embracement prevalence and crude and adjusted analyses for the Health Team level variables, Brazil, 2012

Variables	n (%)	Service user embracement prevalence (95%CI) ^a	Crude PR ^b (95%CI) ^a	Model 2 Adjusted PR ^b (95%CI) ^a	p-value ^c
Holds team meetings					
No	142 (1.1)	76.1 (68.4;82.3)	1.00	1.00	
Yes	13,603 (98.9)	78.3 (77.6;79.1)	1.08 (0.67;1.71)	1.06 (0.83;1.37)	0.61
Carried out demand study					
No	8,048 (58.5)	75.8 (74.9;76.8)	1.00	1.00	
Yes	5,703 (41.5)	81.8 (80.8;82.8)	1.29 (1.16;1.43)	1.05 (0.97;1.14)	0.16
Considers service user opinions					
No	1,301 (9.4)	72.9 (70.4;75.2)	1.00	1.00	
Yes	12,449 (90.6)	78.9 (78.2;79.6)	1.31 (1.11;1.52)	1.03 (0.99;1.08)	0.10
Carries out continuing education actions					
No	2,500 (21.7)	75.6 (73.9;77.3)	1.00	1.00	
Yes	9,029 (78.3)	80.8 (80.1;81.6)	1.05 (0.99; 1.10)	1.03 (0.98;1.09)	0.18

a) 95%CI: 95% confidence interval.

b) PR: prevalence ratio.

c) Refers to adjusted prevalence ratios.

Notes:

Model 2 – contextual variables with p<15% from Model 1 (excluding 'Family Health Strategy population coverage' and the 'Gini Index') plus the Health Team level variables.

Chi-square test to obtain p-value (significance p<0.05).

highest prevalence rates of service user embracement being practiced were found among teams in the Southern macro-region (PR=1.37 – 95%CI 1.27;1.48), taking the Northeast region as a reference. There was no statically significant difference between the Health Team level factors (Table 2: Model 2).

Deviance in the empty model (without the independent variables) was -13372.662, while it reduced to -11166.318 in the multiple analysis.

Discussion

Service user embracement in Brazil was found to have unequal distribution, influenced above all by regional differences forming health iniquities, thus highlighting the importance of spatial inequalities in health service availability.

A possible explanation for macro-regional differences in the prevalence of service user embracement by Primary Health Care teams could be related to the regional development profile, i.e. the way in which the macro-regions developed historically. The social, economic, demographic and cultural construction of a given region has a direct implication for the organization of its social policies, including its health

policy, and consequently impacts health production and the work process of health teams.^{4,8,14} Public policy can be understood as a process of translating government agendas and society's concerns into actions, which will produced results/changes in the real world. This entire process is permeated by interaction between individuals, institutions, ideologies and interests,^{19,20} notwithstanding the various definitions of what Public Policy might be, for which there is no single definition nor even the best definition.

In this context, the literature provides some sources for developing theories about differences in health service availability, which can assist in explaining the unequal distribution of service user embracement by Primary Health Care teams found in this study.

The first of these sources of theorization is the Inverse Care Law,²¹ according to which availability of health care tends to vary inversely to the population's needs, and operates more completely when medical care is most exposed to market forces. As such, according to the Inverse Care Law, resource distribution is not articulated with social health needs. The force that generates and sustains the Inverse Care Law is operated by the market, its cultural and ideological aspect is permeated by the thoughts and ambitions of health professionals, and

this justifies the positions taken. The more health services are reorganized outside of the logic of the market economy, the more successful they will be in redirecting Health resources equitably. For this they must serve Public Health interventions which, in turn, require effective social and political changes.²¹

The second source of theorization is the Inverse Equity Hypothesis² and is based on one of the principles of the Inverse Care Law, which states that new Public Health programs and interventions initially reach people who are socioeconomically better off, thus increasing inequities between rich and poor. This iniquity will only be minimized when the better-off population has reached acceptable levels of health, and when access to health services is greater among the less well-off. Even with Public Health actions directed towards the most vulnerable populations, it is hard to achieve a reduction in inequities if the better-off population has not yet reached low levels of mortality and morbidity. In other words, quality Public Health is more available to and more used by people who need it less.²²

In this way, the historical imbalance in the development of Brazil's macro-regions may have interfered in the production of public policies and application of resources in the area of Health, being reflected by unequal disease burden between different segments of the population, and also in the insufficient availability of health services.²³ Based on the understanding that service user embracement in Primary Health Care is a mechanism of the National Primary Health Care Policy and that it is one of the attributions of health teams in providing care, it is important that political and institutional instruments be mobilized so as to seek organizational arrangements that enable the national policy to be adapted to local needs, so as to minimize the inequities existing between macro-regions.^{8,24}

Based on an analysis of the situation in each region, it is important to debate not only on the health needs of its population, but also the management needs indicated by the municipalities, so that it is possible to organize a regional network of health actions and services that operates with adequate funding, based on epidemiological, geographical and socioeconomic criteria.²⁵ Epidemiology, as a discipline related to the study of health events,^{26,27} plays an important role in which service use and availability is of great relevance; given the evidence of differences in the distribution of

indicators of health team work processes, such as service user embracement provided in Primary Health Care. The document entitled 'Master Plan for the Development of Epidemiology in Brazil' pays special attention to concentrating efforts on evaluation of health programs, services and interventions, given that it notes that there are few epidemiological studies dedicated to evaluating the impact of health interventions. This characteristic of the Master Plan reflects its intention to support reporting and dissemination of experiences of health action and service evaluation.²⁸

In relation to the finding, which was not statistically significant, regarding the health team work process variables in the final model, it is probably due to the high proportion of these variables among the teams and the fact of its becoming effective being linked to practicing service user embracement, i.e.: the majority of health teams that reported practicing service user embracement also carried out other work process organization actions, such as team meetings and continuing education actions.

Once the strategic function of service user embracement in health policies and in providing care to SUS users has been perceived, reflection is needed on the possibility of using service user embracement as a component of health service evaluation. Considering the complexity in defining/conceptualizing it and the key role of understanding it as a light technology, a living work in action in the process of producing health, service user embracement can be seen as one of the items integrating evaluation of health service quality, measured through the perceptions of health workers and service users of their work and care process, and not in a normative manner ignoring the meanings attributed by the stakeholders involved. A similar example to be considered lies in studies that investigate people's ethnicity, whereby despite using a closed question, the interview is conducted from the perspective of self-reporting, considering and respecting the subjectivities and opinions of the interviewees. Similarly, including the theme of service user embracement in instruments used to evaluate health services will be possible when the aspects of health worker and service user subjectivities and perceptions are taken into consideration when building such instruments. Through continuing education strategies, these issues can be discussed with the purpose of qualifying the work process.

Moreover, the macro-regions could be addressed as the focal point of organizing, planning and

reprogramming actions and resources intended for health care, equating existing iniquities with the practice of service user embracement, in the health service work process. It would be possible to think of levels of evaluation, such as, for instance: (i) an initial evaluation at macro-region level; (ii) a second evaluation, of a socioeconomic and demographic nature, based on the municipalities within each macro-region; and (iii) a third evaluation comprising health teams within each municipality.

A limitation of this study is the fact of the outcome being self-reported and there being no validated instrument in the literature with which to measure it. The information was collected by the health teams that took part in the PMAQ-AB and was therefore not based on probabilistic sampling of the teams. It is also important to consider the possibility of information bias, although training in data collection was given. Finally, there is also the possibility of confounding, residual bias and selection bias. With regard to possible selection bias, the number of teams that did not answer the questionnaire was low and, probably, had minimum implications for the results of the study.

In conclusion, there is unequal distribution of service user embracement in Primary Health Care in Brazil, as

well as the influence of contextual effects, in particular regional differences, in the origin of health iniquities. Nevertheless, it should be taken into consideration that there is no validated instrument in the literature for the 'service user embracement by health teams' outcome; as such, validating an instrument for this outcome can increase the robustness of the findings. The information presented is important for informing policy reorientation, as well as debates on service user embracement strategies, which, together with the other Primary Health Care actions, should be taken into account when evaluating interventions aimed at enhancing services and, moreover, minimizing regional health iniquities.

Authors' contributions

Giordani JMA, Hugo FN and Hilgert JB contributed to the study concept and design, data analysis and interpretation and drafting the first version of the manuscript. Amaral Jr. OL and Giordani JMA contributed to data interpretation and critically reviewing the manuscript. All the authors have approved the final version and are responsible for all aspects thereof, including the guarantee of its accuracy and integrity.

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