Original Article

Evaluation of integrality in primary health care according to care models*

Avaliação da integralidade na atenção primária à saúde de acordo com modelos assistenciais

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Abstract

Objective: This research aims to evaluate the integrality attribute in Primary Care services of a Regional Health Coordination in Rio Grande do Sul. Method: For this, a quantitative approach method is used, developed from February to June 2015, covering 32 municipalities, based on the Primary Care Assessment Tool, applied to users who evaluated services and actions offered. Relative and absolute distribution of variables was performed and measures of central tendency were calculated, as well as Poisson regression to investigate the association. Results: In short, 1070 people were interviewed. As main results, the following stand out: the lowest Municipal Human Development Index (p=<0.001) was associated with a high score for provided (PR=1.73; CI=1.29-2.32) and available services (PR=1.73; CI=1.29-2.32). =1.89; CI=1.60-2.24). For the service available, the mixed care model had a higher score (p=0.001) and, for the service provided, the Family Health Strategy had a better evaluation (p=0.001). Conclusion: Finally, it is concluded that the traditional units have worse evaluations for the integrality attribute when compared to the Family Health Strategy and mixed ones.

Descriptors: Health Evaluation; Primary Health Care; Healthcare Models; Comprehensive Health Care; Integrality in Health

Resumo

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Objetivo: evaluar el atributo integralidad en servicios de Atención Primaria de una Coordenadoría Regional de Salud del Rio Grande do Sul. Método: estudio quantitativo, desarrollado de febrero a junio de 2015, abarcando 32 municipios, con el Instrumento Primary Care Assessment Tool aplicado a los usuarios que valoraron los servicios e acciones ofertadas. Se realizó una distribución relativa y absoluta de las variables y se calcularon las medidas de tendencia central, así como la regresión de Poisson para investigar la asociación. Resultados: entrevistaron a 1070 personas. Como principales resultados, se destacan los siguientes: el Índice de Desarrollo Humano Municipal más bajo se asoció con un alto puntaje para el proporcionado (PR=1,73; IC=1,29-2,32) y servicios disponibles (PR=1,89; IC=1,60-2,24). Para el servicio disponible, el modelo de atención mixta tuvo una puntuación más alta (p=0,001) y, para el servicio prestado, la Estrategia de Salud de la Familia tuvo una mejor evaluación. Conclusión: finalmente, se concluye que las unidades tradicionales tienen peores evaluaciones para el atributo integralidad en comparación con la Estrategia de Salud de la Familia. Descriptores: Evaluación en Salud; Atención Primaria a Salud; Modelos de Atención a Salud; Asistencia Integral a Salud; Integralidad en Salud

Resumen

Objetivo: Esta investigación tiene como objetivo evaluar el atributo de integralidad en los servicios de Atención Primaria de una Coordinación Regional de Salud en Rio Grande do Sul. Método: Para ello, se utiliza un método de abordaje cuantitativo, desarrollado de febrero a junio de 2015, que abarca 32 municipios, basado en la Herramienta de Evaluación de Atención Primaria, aplicada a los usuarios que valoraron los servicios y acciones ofrecidas. Se realizó la distribución relativa y absoluta de las variables y se calcularon las medidas de tendencia central, así como la regresión de Poisson para investigar la asociación. Resultados: se entrevistó a 1070 personas. Como principales resultados, se destacan los siguientes: el Índice de Desarrollo Humano Municipal más bajo (p=<0,001) se asoció con un alto puntaje para el proporcionado (PR=1,73; IC=1,29-2,32) y servicios disponibles (PR=1,89; IC=1,60-2,24). Para el servicio disponible, el modelo de atención mixta tuvo una puntuación más alta (p=0,001) y, para el servicio prestado, la Estrategia de Salud de la Familia tuvo una mejor evaluación (p=0,001). Conclusión: finalmente, se concluye que las unidades tradicionales tienen peores evaluaciones para el atributo de integralidad en comparación con la Estrategia de Salud de la Familia y las mixtas Descriptores: Evaluación en Salud; Atención Primaria a Salud; Modelos de Atención a Salud; Atención Integral a Salud; Integralidad en Salud

Introduction

Primary Health Care (PHC) is a priority in the reorganization of the Unified Health System (in portuguese, Sistema Único de Saúde - SUS), evidencing the principles of integrality, equity, universality and popular participation.¹ Thus, the quality of PHC depends on the operationalization of its attributes: first contact, longitudinality, integrality, coordination, family focus, community orientation and cultural competence.²

Among these, integrality stands out as one of the essential attributes for the services qualification, health systems and care.²⁻³ Integrality is understood as the provision of services that meet the population’s demands in the field of promotion, prevention, cure, care, rehabilitation and palliative care, offered at different points in the care network, regardless of the difficulties of the services.²⁻³
In Brazil, different forms of assistance are developed by different health teams, where the traditional biomedical model and the Family Health Strategy (FHS) model can coexist in the same physical space of the health unit. However, the FHS has been assuming a leading role in population health care, as is the case in the northeast region where family health coverage reaches 81.82%, while in the south region the coverage is 66.82%.

PHC in the exercise of its functions is permanently challenged by underfunding, difficulties related to geographic access, among others, to maintain the quality of care. Research shows that integrality has weaknesses in both dimensions (services provided and available), evidencing a fragmented care and, therefore, not integral.

Several national PHC assessment studies have already been produced using the Primary Care Assessment Tool (PCATool), which addresses aspects of the integrality attribute. The results show unsatisfactory scores and show weaknesses in the services available and provided in the different types of PHC services (FHS, traditional and mixed).

During the literature review, it was possible to observe the reduction of studies evaluating integrality with emphasis on this attribute based on sociodemographic and economic characteristics. In addition, the relevance of the integrality of the health actions provided by the PHC to the population's needs, as well as to the functioning of the SUS, was verified. In this sense, this study aimed to evaluate the integrality attribute in Primary Care services of a Regional Health Coordination of Rio Grande do Sul (RS). In this sense, this study aimed to evaluate the integrality attribute in Primary Care services of a Regional Health Coordination of Rio Grande do Sul (RS).

**Method**

**Study design and context**

This investigation seeks to evaluate the integrality attribute in Primary Care services of a Regional Health Coordination in Rio Grande do Sul (RS). In general, it is configured as a research with a quantitative approach, developed in PHC services in 32 municipalities, distributed in two regions of the 4th Regional Health Coordination (in portuguese, Coordenadoria Regional de Saúde - CRS) of RS, Brazil.

The Verdes Campos region, headquartered in Santa Maria, consisted of 21 municipalities and had 89 teams from Traditional Basic Health Units (BHU) and 52 FHS teams. The Entre Rios region, in turn, with administrative headquarters in Santiago, was composed of...
11 municipalities and had 49 BHU teams and 32 FHS teams.\footnote{13}

The headquarters of the 4th CRS is located in the municipality of Santa Maria/RS, 286 km from the capital Porto Alegre. In 2015, the resident population in the region was 559,498 inhabitants. The RS had, in the same year, a Human Development Index (HDI) of 0.746, considered a high development. The population of adults aged 18 or over was 72.59\%, while the elderly population corresponded to 13.62\% of the total population.\footnote{12} Taking into account that the regional had 84 FHS and that each unit was responsible for 4,000 people, it is stated that the coverage of the FHS in the regional was 60.05\% of the population.\footnote{13}

**Participants**

Adults were included as participants in this research, aging 18 years or over and who had been attending PHC units in the municipalities of the 4th CRS for more than six months. Data collection took place in person from February to June 2015, with individuals who were in the health services.

Data collection was carried out through the application of the PCATool-Brasil, adult version\footnote{8}, carried out by six interviewers from the master's course. In addition to being previously trained, they also had experience with the database and received help from tablets through the EpiPI-InfoNFO software, version 7.0, imported directly in Excel format. Daily, after the fieldwork, the interviewers checked the answers in order to identify blanks in the form. When found, possible errors were corrected or excluded in case correction is not possible. The collection took place during the working hours of the health establishments in rooms defined by the teams in order to preserve the privacy of the participants.

**Variables**

The outcome was the integrality in PHC establishments, consisting of two components/dimensions: “services available", with nine items to be answered, and “services provided", with thirteen items to be answered by women and eleven items by men. The variables scores were defined by means of the average answers of each item of the questionnaire and the values < 6.6 were considered low and ≥ 6.6 high, as suggested by the PCATool-Brasil.\footnote{14}

The response options are presented on a Likert scale, in which "certainly yes = 4", "probably yes = 3", "probably not = 2", "certainly not = 1" and "don't know / don't remember = 9". Eighty-two questionnaires from the services provided dimension and 4 from the available...
services were excluded from the sample, in which the answers “I don't know/I don't remember” (value = 9) added up to 50% or more of the total of variables for the evaluation of integrality; in the others, this option was considered as “probably not”.14

The independent variables were organized into three blocks. The first block focused on the demographic characteristics of the municipalities: the Municipal Human Development Index (HDI-M), stratified into the 50th percentile (0.767 to 0.784 and 0.631 to 0.766) due to the slight variation in the HDI between the municipalities and the region of health (Verdes Campos and Entre Rios). The second block concerns the socioeconomic characteristics of the study participants: biological sex (male and female), age group (18 to 38, 39 to 59 and 60 to 91 years), years of schooling (≤ 8 years and > 8 years), self-reported skin color (white and brown, black, yellow or indigenous), presence of children (yes and no), monthly family income (≤ two minimum wages and > two minimum wages), formal contract (yes and no) and private health plan (yes and no). Finally, the third are the PHC models: FHS, traditional BHU and Mixed BHU (where the traditional model and the FHS model can coexist in the same physical space).

Study size

The sample was calculated based on the population of the municipalities in the study according to the Brazilian Institute of Geography and Statistics (IBGE), considering a sampling error of 3%, prevalence of outcomes of 50% and a significance level of 95%. From this calculation, a minimum sample of 1,065 users was obtained. After data collection, the final sample consisted of 1,076 participants who were interviewed by six master's graduate students at the institution who were trained in relation to the instrument and the research objectives. From the sample calculation, users were selected by convenience, that is, by the people present in the health services. The sample was distributed proportionally according to the care models. Thirty-two people who were invited refused to participate in the study, however the refusals did not make it impossible to reach the minimum number of the sample.

Statistical methods

The scores of both dimensions of integrality (dependent variables) were converted into a continuous scale from zero to 10, using the following formula: (obtained score -1)*10/4-114. Data analysis was performed using Stata version 14.0. First, the relative and absolute distribution of qualitative variables was performed. Then, to encompass the quantitative
variables, measures of central tendency (median, mean and standard deviation) were calculated, attributing the confidence interval 95%CI.

For comparisons between the average scores by models of attention, the ANOVA and Bonferroni tests were applied. A significance level of 5% (p<0.05) was adopted. Poisson regression with robust variance was used to investigate the association between independent variables and high scores. For this, the Prevalence Ratios (PR) and their 95%CI were estimated.

Independent variables were included in the model by levels of determination: Level 1 – macrosocial variables (HDI-M and health region); Level 2 – demographic and socioeconomic variables of individuals (gender, age, skin color, children, income, formal employment and health insurance); and Level 3 – health service variables (PHC models). For confounding control, the effect of each variable was controlled for all other variables at the same or different levels. Backwards selection was applied, eliminating from the adjusted model all variables that presented p ≥ 0.20. Statistical significance was verified by the Wald and heterogeneity test, considering the 5% level. For data analysis, the statistical package Stata 14.0 (StataCorp LP, College Station, United States) was used.

Ethical aspects

Study linked to an umbrella project that was approved by the Research Ethics Committee of the Federal University of Santa Maria (UFSM) (opinion No. 756.292 and CAAE: 34237314.4.0000.5346) on August 14, 2014. In summary, this research complied with the ethical precepts established by Resolution No. 466/12. Thus, all interviews took place by signing the Terms of Free and Informed Consent and Confidentiality.

Results

Altogether, 1,070 users of primary care services participated. After exclusion based on the proportion of answers “I don’t know/I don’t remember”, 988 interviews were considered for the available services dimension and 1,066 for the services provided dimension.

Of the study participants, 51.0% (546) were from municipalities with an HDI of 0.631 to 0.766; 76.9% (823) from the Verdes Campos Health Region; 76.5% (819) were female; 84.9% (909) had children; 69.3% (739) self-reported white skin color; 57.6% (614) had eight years of schooling or less; 65.6% (699) reported a monthly family income greater than R$790.00 (minimum wage during the collection period); 27.0% (287) claimed to have formal employment (with a formal contract); 74.2% (791) did not have health insurance; 41.8% (447) lived in areas...
covered by the traditional UBS; 42.0% (448) were from the FHS services and 16.2% (173) from the mixed care model (Table 1).

Table 1 - Comparison of Primary Health Care integrality scores between care models, according to adult users in the municipalities of the 4th Regional Health Coordination, Santa Maria, Rio Grande do Sul, Brazil, 2015. (N=1070)

<table>
<thead>
<tr>
<th>Attention model</th>
<th>Service Available</th>
<th>Service provided</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score (mean)</td>
<td>Standard deviation</td>
</tr>
<tr>
<td>BHU</td>
<td>6.0a</td>
<td>1.5</td>
</tr>
<tr>
<td>FHS</td>
<td>6.1a</td>
<td>1.6</td>
</tr>
<tr>
<td>Mixed</td>
<td>6.5b</td>
<td>1.6</td>
</tr>
<tr>
<td>BHU</td>
<td>3.3a</td>
<td>2.4</td>
</tr>
<tr>
<td>FHS</td>
<td>3.9b</td>
<td>2.5</td>
</tr>
<tr>
<td>Mixed</td>
<td>3.7a,b</td>
<td>2.6</td>
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</tbody>
</table>

Note: *p value: ANOVA and Bonferroni test (a, b, c) - Statistically significant difference (p<0.05).

Regarding the integrality of available PHC services, users of mixed care models had a higher score (mean = 6.5; SD = 1.6), that is, a statistically significant data compared to other care models. Regarding the integrality of the services provided, the care model that obtained the highest score was the FHS (average = 3.9; SD: 2.5), which differs from the traditional model, but not from the mixed model. However, none of the dimensions of comprehensiveness (services provided: 3.6 and services available: 6.1) obtained a high score (greater than or equal to 6.6).

The prevalence of high scores for available services was 38.6%. In the crude analysis, the municipalities with the lowest HDI, the Entre Rios health region, adult users with eight years of schooling or less and the mixed care model were more likely to have a high score for integrality in the services available. After adjustments, the municipal HDI 0.631 to 0.766 (PR=1.89; 95%CI=1.60-2.24) was associated with the high score, indicating that the lowest HDI presented a better evaluation of users in relation to the integrality of the PHC (Table 2).
**Table 2** – Crude and adjusted regression for the high score of the integrality of the available services of Primary Health Care, attributed by the users, of the municipalities of the 4th Regional Health Coordination. Santa Maria, RS, Brazil, 2015. (n = 988)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Prevalence</th>
<th>cPR</th>
<th>95%CI</th>
<th>p*</th>
<th>adjPR</th>
<th>95%CI</th>
<th>p*</th>
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<td>0,767 to 0,784</td>
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<td>1,60-2,24</td>
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<td>1,00</td>
<td>1,60-2,24</td>
<td><strong>0,000</strong></td>
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<td>0,631 to 0,766</td>
<td>50,00</td>
<td>1,89</td>
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<td>Verdes Campos</td>
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</table>

Note: *p Value - Chi-square for heterogeneity; # cPR – crude Poisson Regression; † 95%CI – Confidence Interval of 95%; ‡adjPR – adjusted Poisson Regression.
The prevalence of high scores for the integrality of the services provided was 16.6%. In the crude analysis, the probability of a high score was higher among the municipalities with the lowest HDI, in the Entre Rios Health Region, for individuals aged 39 to 59 and 60 years or older, compared to the younger ones and for brown-skinned users, black, yellow or indigenous, when compared to whites. After adjusted analysis, an association was identified between HDI from 0.631 to 0.766 (PR=1.73; 95%CI=1.29-2.32), ages between 60 and 91 years (PR=1.60; 95%CI =1.11-2.32) and color/ethnicity brown, black, yellow or indigenous (PR=1.44; 95%CI=1.09-1.91) and high integrality score (Table 3).

**Table 3** – Crude and adjusted regression for the high score of the completeness of Primary Health Care, attributed by the users, of the municipalities of the 4th Regional Health Coordination. Santa Maria, RS, Brazil, 2015. (n=1066)
Discussion

During the evaluation of the integrality attribute, it was found that the available service dimension was better evaluated in all care models compared to the service provided dimension. However, no PHC model achieved high scores for both dimensions. The prevalence of high integrality scores was associated with the lowest municipal HDI, age between 60 and 91 years, brown, black, yellow or indigenous color/ethnicity, and the mixed care model.

It is noteworthy that both the services available and the services provided did not reach satisfactory scores, necessary to attribute the practice of integrality in the different models of care. In other words, this data points to a reduction in the presence of this attribute in the health care of the population in the territory. It can be said that this aspect compromises the ability to solve people's health problems at this level of care.15

A survey carried out in two municipalities in Paraná and in one in Paraíba with 344 family members of child caregivers evaluated comprehensiveness in PHC. The results corroborate the findings of this investigation. In summary, they point out that many indicators were low, based on the cutoff point defined for the scores (≥6.6), demonstrating that the practice of integrality is not being performed satisfactorily in the PHC establishments studied9. These findings may be related to the lack of some services in the health units, such as the insufficiency or non-qualification of human resources, the structural situation of the unit, the fragmentation of health care, among other factors.16-17
Similar data to the findings of this study were found in a survey in the state of Amazonas, covering 395 users registered and attended by the FHS, which had low scores in both components (services available 5.9 and services provided 4.8). The author emphasizes that the comprehensive prevention and health promotion actions in the care of adults, offered by the FHS, are not satisfactory. Furthermore, the services provided dimension obtained lower scores (traditional model 3.3; FHS 3.9 and mixed model 3.7), when compared to the available services dimension. It is noteworthy that, despite the instrument having been validated for use in Brazil, some issues were not adequate to the prevention policies of PHC health services, not being commonly addressed by professionals, such as: i) possession of a firearm and guidelines regarding safety measures regarding their storage, and ii) advice on preventing traffic accidents through the use of seat belts and/or child safety seats. Which may explain the lower scores for the services provided dimension.

Integrity in both the services available and those provided showed a statistically significant association with the municipal HDI, with a higher probability of a high score in research sites with a lower HDI. The study by Kessler (2019) on the attribute of longitudinality in PHC identified similar results, which may be related to the population size of the municipalities: those with the lowest FHS coverage are precisely those with the highest HDI and are classified as having great size. The research by Thum, Baldisserotto & Celeste, which evaluated the impact of the implementation of the e-SUS AB information system on notifications of procedures and consultations through the SIA/SUS in Brazilian cities, shows that most municipalities have a lower HDI-M, per capita income, classified as small and with high FHS coverage (>80%).

In addition to the HDI, skin color and age had a statistically significant association after the analysis adjusted for integrity in the services provided, which indicated a greater probability of services provided to the elderly population and color/ethnicity brown, black, yellow or indigenous. International studies carried out in France and China obtained the same findings and corroborate the evidence presented in this research.

In a study focused on the city of Belo Horizonte, Minas Gerais (MG), showed that the Integrity attribute was among the best evaluated PHC indicators from the perspective of the elderly. Elderly users tend to have greater health needs that lead them to routinely seek PHC units. The greater burden of chronic diseases in the population among the elderly, which is expected, can stimulate continuous monitoring and greater provision of care by the PHC
Based on the result of the highest proportion of high scores for integral services provided to the brown, black, yellow or indigenous population, it is assumed that the health services evaluated in this research promote equity in health, one of the principles of the SUS and the PHC, corroborating the findings of another study. The expansion of the FHS to the outskirts of urban centers and rural communities facilitated access to health facilities and their use, especially for people in vulnerable situations (elderly, low-income people and those with chronic conditions), promoting equity in health.

It was possible to identify that the traditional model obtained lower scores than the other care models in the two dimensions evaluated. Martins et al. (2016) attribute the lowest scores to the traditional model and the highest scores to the FHS because this model prioritizes the implementation of health promotion and prevention practices. In addition, the FHS performance model focused on family and community health, which considers social, economic, environmental and cultural aspects, favors the achievement of the integrality attribute. According to the findings, the advantages that the FHS presents in relation to other care models in national and international contexts are evident.

It is considered as a limitation of the study the fact that the interviews with the participants took place inside the health unit. Although ethical precepts were preserved, ensuring privacy, it is understood that the institutional environment may have influenced users’ responses, causing participants to attribute more positive responses to the service. Participants were selected by a convenience sample, composed of users present at the services. In this sense, it is understood as a limitation the impossibility of capturing people who have greater difficulties in accessing the service or who do so in preference to other services to the detriment of the unit.

The research was developed in only one region of the state, and most municipalities are small, with low HDI, making them very homogeneous and making it difficult to generalize the results to other regions of the state or country. Another limitation is the non-consideration of the conglomerate effect in the analyses, since people from the same basic unit tend to be more similar to each other than those from other units.

This study shows the relevance of the development of evaluation processes in PHC, because integrality is an essential principle that encompasses not only the actions and services received by users, but also the way in which the health professional interacts with
these people, that is, the creation of a link and an integral perspective for the entire life context in which individuals are inserted.

The results of evaluation processes produce subsidies for decision-making and the planning of public health policies considering the integrality of care, in order to encourage managers and health professionals to rethink and improve their professional practice. Thus, the development of studies that make it possible to assess comprehensiveness in PHC, as well as conducting research in other municipalities with different characteristics and scenarios, are essential strategies for the qualification of health services. In line with this, it is necessary to resume current research so that decision-making and public policy planning are rethought, in view of the significant changes that the Brazilian and world scenarios have faced.

Conclusion

This study found that the participants of the PHC network services in the municipalities of the 4th CRS/RS evaluated the comprehensiveness of PHC services as unsatisfactory, as it did not achieve scores with desired values in the two dimensions surveyed. It was also possible to observe that the integrality attribute presents characteristics that made it be poorly analyzed from the user's perspective. Furthermore, it is not present in any of the dimensions studied, not obtaining high scores in both the services provided and those available in PHC.

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