

Impact of health concepts on healthcare-seeking practices of low-income population in South Coast of Bahia, Brazil**Impacto dos conceitos de saúde nas práticas de busca de atenção à saúde da população de baixa renda no litoral sul da Bahia, Brasil**

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ABSTRACT

Objective: By using geospatial and social perspectives, this paper aimed to show the most prevalent health self-concepts among inhabitants living near a specific community health centre in South Bahia, Brazil, in order to investigate the importance of social determinants and the association between health concepts and self-care habits. Methodology: A descriptive research based on the quantitative approach of using qualitative variables was carried out by using Chi-square and Cramer's V tests. A semi-structured questionnaire was administered to participants (N= 501) with geographic coordinates recorded for geospatial analysis. Results: The most prevalent health concepts were the positive and the most addressed care habits were of those in the 'common sense' category (p = 0.01). The associations with health concepts were considered statistically significant in terms of age (p = 0.001), level of education (p = 0.0004), and household income (p = 0.0125), and an additional criterion of presence or absence of any disease (p = 0.001). The majority of participants (n=323, CI 122–460 p<0.001) reported they have known the precise location of the community healthcare unit. However, those who lived a greater distance from the unit were unaware of its location. Conclusions: Our results

on geospatial analysis corroborate the importance of space planning as an additional social framework for measuring the performance of health policy. Our findings suggest that a more structured and better planning based on health self-concepts and of health service promotion could drive effective strategies that would promote health outcomes in the low- and middle-income communities.

Key words: Education, Health Centers, Health Policy, Self Evaluation

RESUMO

Objetivo: Usando perspectivas geoespaciais e sociais, este artigo teve como objetivo mostrar os autoconceitos de saúde mais prevalentes entre os habitantes que moram perto de um centro comunitário específico de saúde no sul da Bahia, Brasil, a fim de investigar a importância dos determinantes sociais e a associação entre saúde conceitos e hábitos de autocuidado. **Metodologia:** Foi realizada uma pesquisa descritiva, baseada na abordagem quantitativa do uso de variáveis qualitativas, utilizando os testes Qui-quadrado e V de Cramer. Um questionário semiestruturado foi aplicado aos participantes (N = 501) com coordenadas geográficas registradas para análise geoespacial. **Resultados:** Os conceitos de saúde mais prevalentes foram os positivos e os hábitos de atenção mais abordados foram os da categoria 'senso comum' (p = 0,01). As associações com os conceitos de saúde foram consideradas estatisticamente significantes em termos de idade (p = 0,001), escolaridade (p = 0,0004) e renda familiar (p = 0,0125) e um critério adicional de presença ou ausência de qualquer doença (p = 0,001). A maioria dos participantes (n = 323, IC 122-460 p <0,001) relatou ter conhecido a localização precisa da unidade de saúde comunitária. No entanto, aqueles que moravam a uma distância maior da unidade desconheciam sua localização. **Conclusões:** Nossos resultados em análises geoespaciais corroboram a importância do planejamento espacial como uma estrutura social adicional para medir o desempenho da política de saúde. Nossas descobertas sugerem que um planejamento mais estruturado e melhor, baseado nos autoconceitos de saúde e na promoção de serviços de saúde, poderia conduzir estratégias eficazes que promovessem resultados de saúde nas comunidades de baixa e média renda.

Palavras-chave: Educação, Centros de Saúde, Política de Saúde, Auto-avaliação

1 INTRODUCTION

The health self-concepts reflect health promotion strategies based on health education which have a fundamental role in well-being. Health education carries, in its essence, the goal of enlighten realities and to offer an opportunity to lead the autonomy and emancipation of an individual towards its life. Health education must ally different views and concepts about how educational health practices must be done (Falkenberg, 2014). Such understanding must arise from scientific knowledge of the genesis of risks in exposed populations through its socio-political, socioeconomic, cultural, technological, legal, and productive processes (Macinko & Harris, 2015).

Health education and health promotion practices must keep pace with the trends of the healthcare industry because, in essence, it helps to clarify health objectives to propose actions that lead to the autonomy and emancipation of healthier human beings. Education as a vehicle enables individuals in effective decision-making to improve not only themselves, but also their families and others in the community (Falkenberg, 2014). It also helps to raise health awareness and provides illness-related knowledge, thereby creating a basis for a better understanding of illness and disease.

Thus, the knowledge of health concepts seems fundamental to improving the quality of life (Almeida Filho, 2011; Kugbey, 2017; Macinko & Harris, 2015).

To achieve these objectives, health education must reformulate its activities and processes from one which primarily offers only solicited information to one that promotes the resignification of health and disease concepts (Câmara, 2012). Several authors have already established the relevance of studying health self-concepts in scientific and academic environments. However, an adequate discussion of the subject is necessary to provide a more robust sociohistorical context — the objective is to capture the complexity and many relationships involved in the debate of how the conceptualization of health concepts affects the demand of health services in low-income countries (Guimarães Junior, 2015).

The health surveillance model follows the logic of an expanded or more comprehensive health concept, aiming a broad of healthcare activities related to geographic factors, urban planning, and social sciences. Furthermore, health surveillance also aims to improve the level of interventions in various territories (Oliveira, 2015). The health surveillance model is proposed to incorporate the dynamics of the health–disease process as its main function and to adapt its practices and activities to different situations as needed in an area. This is not limited to precautionary measures of injuries or conduction of preventive programmes (Groseclose & Buckeridge, 2017).

Health systems have employed geospatial elements as a criterion to measure the efficiency of health delivery services through organization of the social space (Duarte, 2015) and spreading health awareness. Moreover, to study the health self-concepts of a given population, the geospatial data is treated herein as a socio-demographic variable. When considering space as an aspect for study, proximity is evoked as one of the main principles of an accessible health system.

The scope of this research includes the study of self-concepts of health based on the verification of possible associations with certain characteristics of the population in low- and middle-income regions of South Bahia, Brazil. For this, a methodology of quantitative study with a non-experimental and descriptive approach was adopted. Considering the effective capture of the respondents' opinions and the efficiency of use in the field, the approach was suitable and met the research objectives satisfactorily.

2 METHODS

Area of Study, Participants Selection and Ethical Consideration

This study was carried out between May–December 2016. The health centre José Edites (HCJE), located in the city of Itabuna, South Bahia, Brazil (14°48'31.9"S 39°16'28.1"W), was chosen according to the Director of Municipal Health Department. The selection was made after considering:

(i) the heterogeneous population who attended the centre and (ii) the large geographic area serviced by HCJE to meet the objectives of this research.

The HCJE is located in a downtown neighbourhood (Figure 1); it currently acts as a reference unit for minor health units belonging to an administrative block that provides services to 16,000 inhabitants.

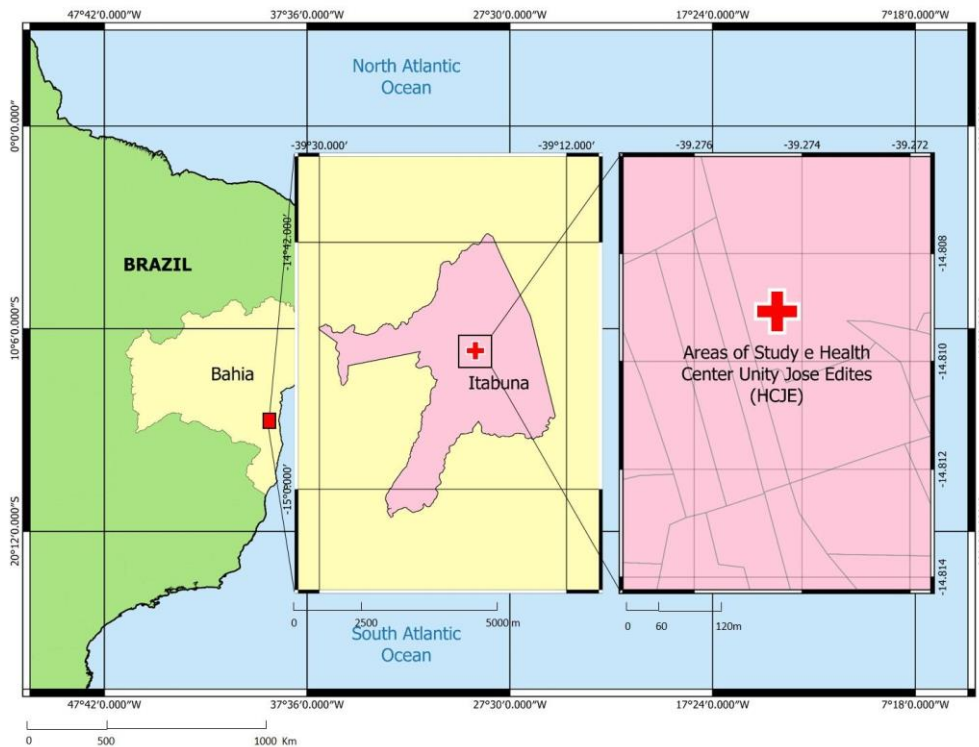


Figure 1: Precise location of the studied population attended by the Health Centre Unity José Edites (HCJE) in Itabuna, South Bahia, Brazil.

The service team was composed of three doctors, three nurses, a dental surgeon, a nutritionist, and several technicians and assistants of nursing and pharmacy. The HCJE also services three teams of five community health agents (CHA) each, which conduct their activities in three micro areas of action (namely 005, 040, and 042 corresponding to the neighbourhoods of São Caetano, Banco Raso, and Jardim Vitória). Figure 1 depicts the HCJE and the total area of study. The residents of the micro areas were considered eligible to participate as they form part of the target population for enrolment with the HCJE. Based on the location of CHA teams, the sample number for these corresponding areas was calculated. Next, considering the average number of families assisted by the CHA (as reported in the health system information), a tolerable error of 5% and loss of questionnaires of up to 15% (Table 1) was considered.

Table 1: Estimated population in the territory of HCJE and sample calculation (n).

| Area | Estimated population or inhabitants* | Calculated eligible participants |
|-------|--------------------------------------|----------------------------------|
| 005 | 6731 | 191 |
| 040 | 4289 | 188 |
| 042 | 4984 | 189 |
| Total | 16004 | 568 |

Source: *data from the Municipal Health Department surveys

The adults and adolescents (through their legal representatives) were aware of the purpose, risks, benefits, and objectives of research. After full comprehension and clearing of any remaining doubts, volunteers who agreed to participate in this research signed the Informed Consent Form (ICF for adults) and/or the Term of Assent (TA for adolescents) as applicable. The inclusion criteria for participation were: they should be residents of the area serviced by the HCJE and signed ICF and/or TA. Those who refused (even after providing consent) to answer one or more questions for any reason were excluded.

The sample size for each area was adjusted in proportion to the number of families served therein, with randomly selected residents being invited to participate in the survey. Briefly, in each micro area the number of instruments to be applied in streets and/or blocks was proportionally distributed. Subsequently, the counting of residences in each locality was carried out, and electronic sortation of household number identification was used to invite participation.

Study Design

We used a quantitative approach with a non-experimental and descriptive design. This approach is based on the assumption that effects and outcomes are determined by their causes. Problems, from a philosophical point of view, are examined from their causal point, and knowledge is structured through actions such as observation and measurement of reality. Thus, in the quantitative approach, the researcher synthesizes the thoughts in variables whose relationships are tested using hypotheses. These conjectures are verified through surveys, which can generate data suitable for analysis by statistical techniques (Creswell, 2003).

This article can be considered as a descriptive study. Descriptive surveys are characterized by the use of standardized data collection techniques. The instruments of data collection recorded the answers of each participant during the interview process. The instrument selected for this process was the questionnaire, which allowed the views of the interviewees to gain relevance. This instrument has been established as a practical and efficient technique for data collection and is considered a suitable means of obtaining data that can be quantified accurately (Gil, 2002).

Questionnaire Design

The questionnaires were designed based on published articles (Câmara, 2012) and the extensive reading and study of articles on the health–disease process, health concepts, and social determinants (Assumpção, 2010; 13 Batistella, 2007. Fleury-Teixeira, 2009. Rocha & David, 2015 Scliar 2007). The final questionnaire has undergone specific adaptations to delineate this research through pre-tests with similar population in the field for the purpose of verifying the clarity, conciseness, comprehension of the questions, response time, and potential discomfort for the respondents.

The final version of the questionnaire considered the demographic characteristics gender, age, level of education, family income, health condition, and exact location of residence. The questions were designed to focus on the central ideas regarding health concepts (negative, positive, and more comprehensive) and care habits (common sense, religious/ mystical, scientific, no care practice, or several alternatives used). Based on the study of (Martin & Angelo, 2018) regarding health conceptualization and habits of care, we opted to maintain open-ended questions so that the respondents could provide full answers giving as much information as they considered needed.

Regarding the concepts of health, the statements of ‘negative concept’ expressed health as opposed to illness and pain, as an idea centred on the medical nature and care actions; the statements of ‘positive concept’ correlated health with the representation of well-being at the physical and mental level, and included not only curative care but also preventive care habits; and the expressions of ‘more comprehensive or extended concept’ incorporated the social aspects and quality of life to health, approaching the meaning of health as one which goes beyond its orthodox understanding.

On the habits of care, the statements of the category ‘common sense’ grouped the preventive actions; the assertions of the ‘religious/mystical’ category included those related to spirituality; finally, the expressions of care of the ‘scientific category’ encompassed curative actions, as well as those directly dependent on health services and/or medical professionals.

Geospatial data

Concomitant to administering the questionnaires, the respondents were georeferenced by the Global Positioning System (GPS) using the Garmin eTrex 10 navigator device. The application point of each questionnaire was demarcated and later a midpoint was selected to represent each surveyed area. The data of collection points were transferred from the GPS to a computer and processed by the QGIS 2.16.2 Software for spatial analysis. The cartographic database was taken from census database of the Brazilian Institute of Geography and Statistics (IBGE, 2010).

Statistical analysis

The statistical analysis of this study was performed using bivariate analysis. Owing to the categorical and non-ordering nature of the variables, the chi-square test was used to evaluate the presence of any association and Cramer's V test was used to evaluate the intensity of any existent association. As parameters for interpretation of the test, associations with a value ≤ 0.2 were considered weak; between 0.2–0.49 were considered moderate; and ≥ 0.50 were considered strong associations (Acock, 2006). The bivariate analysis was complemented by the chi-square test for standardized residual. The residuals are measures calculated for each cell in the contingency tables. When these residuals are greater than 1.96, they show a statistical significance that indicates there are more cases than expected (positive statistical association); and when they are less than 1.96, the statistical significance shown indicates that there are fewer cases than expected (negative statistical association). The residuals between -1.96 and 1.96 do not show a significant difference between expected and observed number of occurrences for the studied phenomenon. The Monte Carlo simulation was used to correct any violations in chi-square principles. We used univariate analysis, with mean and standard deviation calculations to measure the distances. The data obtained were tabulated in a database using the Access 2013 program. The contingency tables were prepared with the Excel 2013 program. Absolute and relative frequencies, association tests, and mean and standard deviation calculations were conducted in the R-3.2.2 program. A significance level of at least 5% was considered in all the performed statistical tests.

3 RESULTS

Table 2 shows the distribution of questionnaires administered to the participants into the 32 micro areas belonging to the HCJE, with an average of 15.66 instruments applied in each micro area. Table 3 presents the demographic characteristics of studied population. Most individuals were women, aged between 54–64 years, with educational level of incomplete elementary school, and an average household monthly income estimated to be less or equal one minimum wage (equivalent to US\$ 256.94/month at the time of the study).

Table 2 – Respondents (n) on each Area and Micro Area of the study.

| Areas | | | | | |
|------------|-------------|------------|-------------|------------|-------------|
| 042 | | 040 | | 005 | |
| Micro area | Respondents | Micro area | Respondents | Micro area | Respondents |
| P1 | 17 | R1 | 14 | Q1 | 15 |
| P2 | 09 | R2 | 18 | Q2 | 17 |
| P3 | 22 | R3 | 16 | Q3 | 11 |

| | | | | | |
|----------------------|-----|----------|------------|----------|-----|
| P4 | 25 | R4 | 21 | Q4 | 14 |
| P5 | 19 | R5 | 12 | Q5 | 17 |
| P6 | 23 | R6 | 26 | Q6 | 14 |
| P7 | 12 | R7 | 09 | Q7 | 15 |
| P8 | 17 | R8 | 18 | Q8 | 13 |
| P9 | 15 | R10 | 20 | Q9 | 11 |
| P10 | 10 | R11 | 11 | Q10 | 10 |
| | | | | Q11 | 21 |
| | | | | Q12 | 09 |
| Parcel P | 169 | Parcel R | 165 | Parcel Q | 167 |
| Total (P+R+Q) | | | 501 | | |

Source: Authors' surveys

The received responses revealed their health perceptions and also indicated them to be carriers of at least one disease condition. The main health complaints reported were arterial hypertension and diabetes (Table 4); the main general complaints reported were arboviruses (such as dengue fever and or chikungunya) and hypertension.

Table 3– Socio-demographic characterization of the population of HCJE in South Bahia, 2016.

| Gender (self declared) | n | f |
|------------------------------------|-----|--------|
| Female | 414 | 82,63% |
| Male | 87 | 17,37% |
| Age (incomplete years) | n | f |
| 17 to 26 | 32 | 6,39% |
| 26 to 36 | 50 | 9,98% |
| 36 to 45 | 62 | 12,38% |
| 45 to 54 | 93 | 18,56% |
| 54 to 64 | 97 | 19,36% |
| 64 to 73 | 85 | 16,97% |
| 73 to 83 | 64 | 12,77% |
| 83 to 92 | 18 | 3,59% |
| Education Levels | n | f |
| Incomplete Elementary School | 177 | 35,33% |
| Elementary School | 57 | 11,38% |
| Incomplete High School | 23 | 4,59% |
| High School | 147 | 29,34% |
| Incomplete Higher Education | 31 | 6,19% |
| Higher Education | 44 | 8,78% |
| Illiterate | 22 | 4,39% |
| Monthly Family Income ¹ | n | f |
| Up to 1 | 218 | 43,51% |
| 1 up to 2 | 163 | 32,53% |
| 2 up to 3 | 63 | 12,57% |
| 3 up to 4 | 26 | 5,19% |
| 4 up to 5 | 14 | 2,8% |

| | | |
|---------------------------|-----|--------|
| More than 5 | 17 | 3,4% |
| Illnesses (self declared) | | |
| Yes | 282 | 56,29% |
| None | 219 | 43,71% |
| Souce: Survey | | |

1 – Minimal Wage: US\$ 256,94 at the time of the study

The most prevalent health concept in the sampled population was the ‘positive’ (55.69%) and the most commonly reported care habits were those of the ‘common sense’ (47.70%) category. Table 5 presents the participants’ opinions regarding aspects of the HCJE. Most of the participants reported they know the location of the HCJE (95.41%) and they have their requirements met there (63.75%).

Table 4 - Main complaints, health concepts and habits of care among studied population of HJCE in South Bahia, 2016

| Individual Complaints | | n | |
|---------------------------|-----|-----|--------|
| Hypertension | | 168 | |
| Other ¹ | | 152 | |
| Diabetes | | 72 | |
| Arbovirosis ² | | 14 | |
| Depression | | 7 | |
| Headache | | 2 | |
| Hanseniasis | | 2 | |
| Tuberculosis | | 1 | |
| General Complaints | | n | |
| Arbovirosis ² | | 294 | |
| None | | 128 | |
| Other | | 48 | |
| Hypertension | | 36 | |
| Diabetes | | 31 | |
| Depression | | 2 | |
| Health Concepts | | n | f |
| Positive | 279 | | 55,69% |
| Negative | 144 | | 28,74% |
| Extended | 67 | | 13,37% |
| Other | 11 | | 2,20% |
| Self-Health Care Based on | | n | f |
| Common Sense | 239 | | 47,70% |
| Scientific | 114 | | 22,75% |
| None | 73 | | 14,57% |
| Other | 62 | | 12,38% |
| Religious/Mystic | 13 | | 2,6% |

1 – none of the alternatives, 2 – Chikungunya and Dengue Fever hyperendemic period

Table 5 - Expectations regarding the health service: location, motivation and health demands.

| HCJE Precise Location | n | f |
|---|-----|--------|
| Yes | 478 | 95,41% |
| No | 23 | 4,59% |
| HCJE Procurement | n | f |
| Yes, randomly | 219 | 45,82% |
| Yes, frequently | 181 | 37,87% |
| No | 78 | 16,31% |
| HCJE Attendance | n | f |
| Yes | 255 | 63,75% |
| Rarely | 116 | 29% |
| No | 29 | 7,25% |
| HCJE Health Demands | n | |
| Doctor's appointment | 331 | |
| Clinical exams authorization | 185 | |
| Vaccination procedures | 129 | |
| Health Professionals' (other than Doctor) appointment | 121 | |

The most cited services for attendance at the HCJE were need for doctor's appointment; requests of clinical, laboratorial, or x-ray examinations; dispensing of medicines by pharmacy; and vaccination procedures. There were significant associations between age ($p = 0.001$), level of education ($p = 0.0005$), family income ($p = 0.0125$), presence or absence of disease ($p = 0.001$), and health concepts. Based on calculation of Cramer's V, the existing associations were classified as weak, except for the level of education and health concepts which was classified as moderate ($v = 0.2215$).

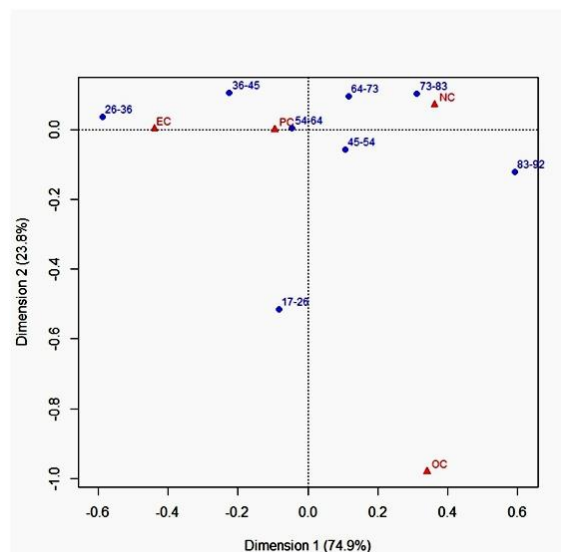


Figure 2: The power of association between the variables and the health concepts EC: Extended/More Comprehensive concept; PC: Positive Concept; OC: Other Concept; NC: Negative Concept.

The mapping analysis regarding health concepts and adopted health habits show that the former is responsible for 98.7% of the total variability of data. The data pertaining to respondents aged 26–36 years and who issued negative concepts were responsible for deviating above the expected value and contributed in greater proportion to the total of chi-square statistic, an association that was ratified by the distances of these points (Figure 2). By residual analysis, we found a stronger association between the more comprehensive health concept and the age group of 26–36 years, and between the negative concept and the age range of 73–83 years. The analysis of the data also highlighted a contrast with association of the age group of 17–26 years and the ‘other’ categories’ of health self-concepts.

The mapping analysis regarding health concepts and the level of education revealed that the information shown in the axes was responsible for explaining 89.4% of the total variability of data. The respondents with higher education levels presented more comprehensive health concepts. It also evidenced another association between individuals that presented the negative concept and incomplete elementary school level. Figure 3 clearly shows the contrast between individuals who reported no schooling (illiterate) and the ‘other categories’ of unpredicted health concepts.

In the mapping analysis performed between the concepts of health and the socioeconomic status, it was found that the information shown in the axes was responsible for explaining 95.7% of the total variability of data. The data of respondents who presented the negative concept and household income higher than US\$1000.00 (or total of five minimum wages) deviated more from the expected values and contributed in greater proportion to the total of chi-square statistics. Both categories as evidenced in Figure 4 were in contrast by the distancing of their points: the category of those having family monthly income estimated at a value greater than US\$1000.00 (or total of five minimum wages) was associated to present more comprehensive concept of health.

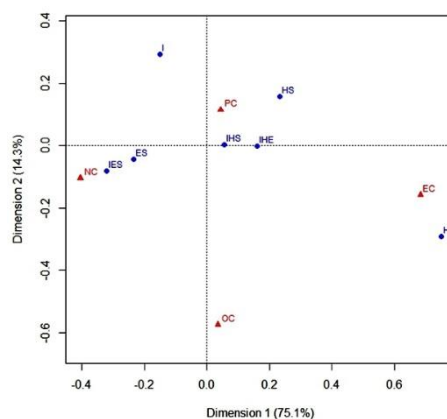


Figure 3: Level of education and health conception: I: Illiterate; IES: Incomplete Elementary School; IHE: Incomplete Higher Education; IHS: Incomplete High School; ES: Elementary School; HE: Higher Education; HS: High School; EC: Extended concept; PC: Positive Concept; OC: Other Concept; NC: Negative Concept.

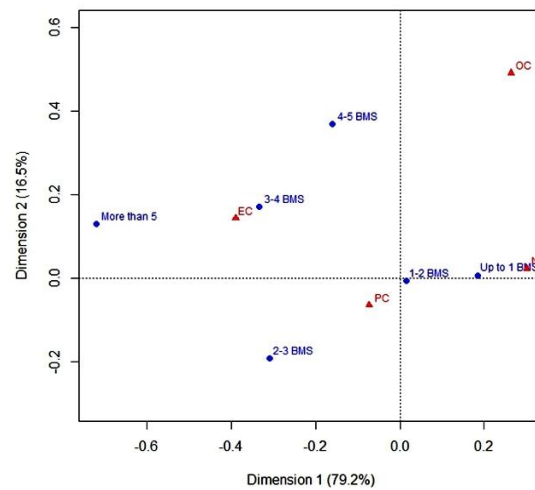


Figure 4: Family income (BMS= Brazilian Minimum Salary) and health conceptions: EC: More comprehensive concept; PC: Positive Concept; OC: Other Concept; NC: Negative Concept.

In the mapping analysis performed between the concepts of health and adopted health habits, the information shown in the axes is responsible for explaining 94.8% of the total variability of data. Those who presented the negative concept and care habits were categorized as belonging to the 'scientific' group and these values deviated more from the expected values, contributing in greater proportion to the overall chi-square statistic, an association also evidenced by the residual analysis. Figure 5 highlights the contrast of those who presented the expanded concept and care habits imbricate in the category of the 'religious / mystical' group

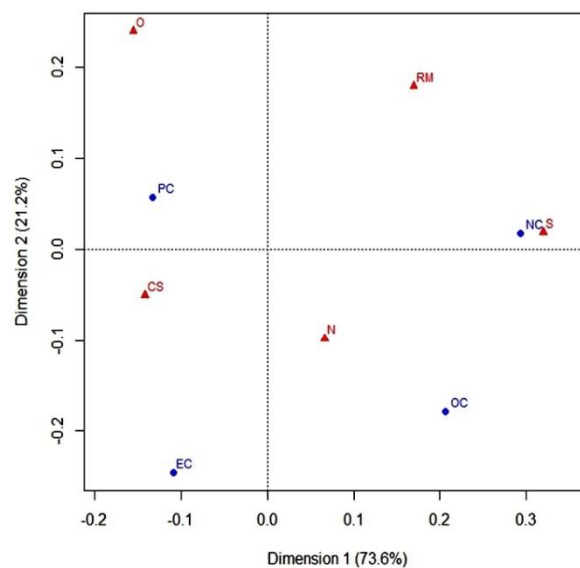


Figure 5: Concepts of health and adopted health habits. EC: More comprehensive concept; PC: Positive Concept; OC: Other Concept; NC: Negative Concept.

The geospatial data analysis in Figure 6 shows the higher prevalence of positive concept and the diversity of presented concepts ratified graphically. It is important to note that individuals who claimed to be familiar with the health unit were proximally set. Conversely, those who stated that they were unfamiliar with the HCJE were located farther away. In all the cases, the respondents resided near to the HCJE. The average distance between the micro areas and HCJE is 501 ± 258.4 meters. In general, the micro area closest to HCJE corresponds to R10 Area 040 (276.4 ± 165.8 meters; $p < 0.01$), having more frequent appointments at HCJE; and the green hotspots represent those who stated using the services only occasionally (Figure 7b) while the farthest one corresponds to the Q4 Area 005 (751.8 ± 192.2 meters; $p < 0.001$).

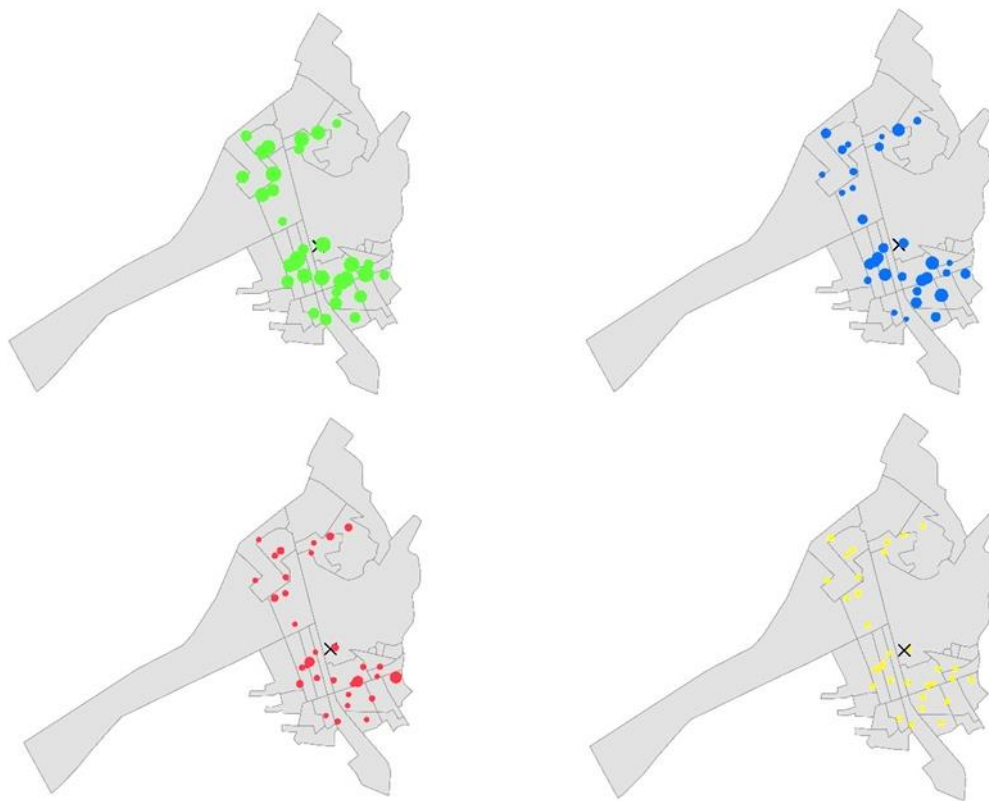
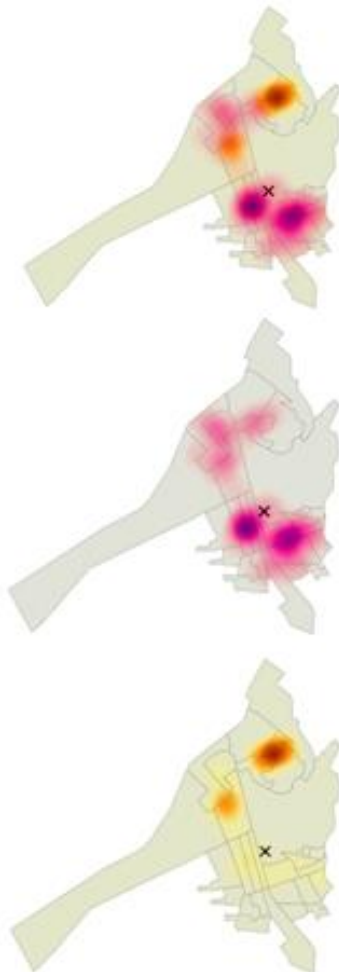


Figure 6: Spatial representation of the health self-concepts distribution in each micro area of HCJE (X). Green = positive; blue = negative; red = more comprehensive health concept. In yellow other/more than one health concept. The radius of each sphere corresponds quantitatively to the number of respondents. The colour scale (Heat Map) was considered as a graphic feature to highlight this difference

The hotspots in pink represent those who confirmed to be familiar with the health care facility while the hotspots in orange represent those who confirmed to be unfamiliar with the same facility (Figure 7a). The participants who attended the HCJE are denoted by the blue hotspots, which represent higher counts of those who confirmed attendance of services provided by the HCJE. The

red hotspots represent those who confirmed more frequent appointments of the services and the green hotspots represent those who confirmed using the services only occasionally

a)



b)

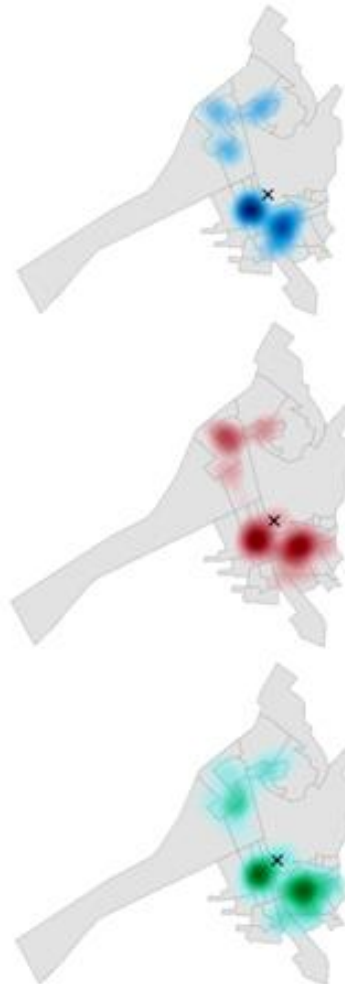


Figure 7: a) Spatial representation of the health self-concepts distribution in each micro area related to the location of HCJE (X); b) Usage pattern of the HCJE (X) by the participants of survey. Green = positive; blue = negative; red = more comprehensive health self-concept. In yellow other/more than one health concept. The radius of each sphere corresponds quantitatively to the number of respondents. The colour scale (Heat Map) was considered as a graphic feature to highlight this difference and it is described in the text.

4 DISCUSSION

Characterization of sample population

The individuals interviewed in this study were mostly women having low levels of education and family income. This sociodemographic representation resembles the reality of poor cities worldwide where women form the majority of the resident population (World Bank, 2017). Furthermore, the largest group in the study consisted of people belonging to the nominal income class who earned up to one minimum wage (varies between one half and full minimum wage if average

monthly household income is considered), and the prevalent level of education varied between uneducated to incomplete elementary school. However, the sociodemographic characterization of the sample population distances itself in terms of the age group of the total city population. While the largest age group in the study was within the range of 54–64 years, the corresponding age group for Itabuna city ranges from 25–29 years (IBGE, 2010).

Prevalence of the Health Self-Concepts and Validated Associations

The positive concept proved to be the most prevalent in the studied population, followed by the negative concept, and lastly, the more comprehensive concept. It was necessary to formulate a fourth category to encompass other concepts, which did not match the concepts provided in the collection data instrument. This data revealed the multiplicity of ways in which health is perceived by the population as well as the coexistence of these in the studied community. Therefore, the difference in the presented health concepts and the existing variety was observed and statically analysed.

In a study conducted by Carvalho & Carvalho (2010), the key word most used to refer to the positive concept of health was ‘well-being’, which syncs with the most prevalent concept of this paper. Nonetheless, according to Merino & Marcon (2007), the notion of being healthy relates not only to the perception of well-being, but also to the absence of diseases, which is the central idea of negative concept and the second-most prevalent concept of this paper. Poverty theorists state that the definition of poverty involves value judgements about what constitutes ‘good’ and ‘bad’ quality of life. Accordingly, the combined objective and subjective assessments of ‘well-being’ or ‘quality of life’ should have replaced the traditional income-related poverty measurements (Gough, 2006).

The positive concept did not show any positive association between the categories representing the respondents’ care habits or use of the health service. This finding correlates to a study (Almeida Filho, 2011), which established the wide dissemination of the WHO health concept among individuals.

Regarding care habits, the participants’ responses, including the category that affirmed that no practice or care activity was adopted, were recorded and matched to the relevant categories of the questionnaire. The category of ‘common-sense’ habits emerged as the most prevalent. Again, it was essential to formulate a new category to group other care habits, which did not correspond to those provided in the instrument, thus reflecting the reality of the varied forms of care present in the studied population.

On the other hand, an association between sociodemographic variables and health concepts was proven. The health concepts could be associated with almost all the tested variables, except for

the gender variable wherein the differences between the categories were not enough to characterize the association. This finding ratifies the relevance of social determinants in the way health is conceived. The fact that health concepts can be influenced by age, level of education, and family income reaffirms the understanding that human beings are influenced by social, historical, political, economic, and cultural dimensions and, as such, health determinants can be maximized or minimized by planned outcomes of these dimensions (Koon, 2016).

The health status of a population is influenced by political, social, and economic forces that are born of societal determinants, and therefore these determinants can justify the disease profile of a population. Shifts in social determinants do not occur naturally, but are driven by a combination of factors including the political environment, social programmes, economic activities, and public administration (Loewenson, 2013).

The negative concept was associated with the age group of 73–83 years with the lowest level of education and some diseases with care habits of the ‘scientific’ category, which included doctor appointments and routine clinical or laboratory examinations. The expanded concept of health, in turn, was associated with the age group of 26–36 years, having higher educational and family income levels.

Considering the reductionist content of the negative concept, its association is justified in the individuals who declared themselves patients and reported the above-mentioned care habits. Put simply, in the absence of any disease, it is expected that respondents with some health conditions to the point of self-declaring themselves as patients would tend to perceive the concept of health as influenced by this circumstance. In a study carried out with elderly people in a speech therapy clinic, it was noticed that some individuals in conceptualizing their health status, included the mention of their diseases and disabilities, corroborating the concept's biological view (Azevedo, 2012).

Since the self-perception of an individual's health status considers his/her culture, hopes, worldview, and identity (Agostinho, 2010), it is possible to establish a connection between this self-perception and the conception of health. A study which was carried out with elderly subjects in another middle-income municipality of Bahia (Pedreira, 2016), reports that individuals with morbidities like arterial hypertension are more likely to present a negative self-perception of their health. Another study relates a higher frequency of negative self-perception of health among elderly people who have suffered previous cerebrovascular events.

In this study, it is possible to suggest an indirect association between the aged and the mentioned care habits. It was found that higher the age group, the more preventive actions analogous to the ‘scientific’ category of this research were prevalent. The authors hypothesized that this may be

owing to a high incidence of chronic diseases (Kugbey, 2017) in advanced age, and this could promote preventive behaviour in this population regardless of the presented health concept.

A positive association between the age group of 17–26 years and ‘other health concepts’ was also observed. This category grouped concepts that were expressed but unanticipated and hence not defined for classification in the research instrument; it also contained responses that demonstrated more than one concept. It is believed that this category of health concepts should correlate with the younger age group of the study because the conceptual formation process is still developing. A study (Nery, 2009) verifies the existence of several concepts of health in adolescents—from those linked to reductionism to a broader view of the subject that addresses the relationship between the human being and environment. The concept of health for these young people is intertwined with biological, social, ecological, and even spiritual factors.

The present study also indicates that the participants had a high level of knowledge regarding the HCJE’s services, its processes, and resolution of treatment needs. It was possible to gauge the population’s awareness regarding its existence because the process of random sampling considered all the residents of the micro areas belonging to the health unit and not necessarily those registered with the facility. The respondents who stated that they were not aware of the health unit were in minority and a small portion of those who were aware of the service chose not to use it. Only a few users of the unit stated that their demands were not met at that location.

In addition, the calculation was done to determine if there was statistical significance between the associations of health concepts and the distance of the people in relation to the health centre. But all associations of both groups have shown to be significant, which reaffirms the value of distance as one of the variables that interfere in the process of conception of individuals’ health, along with the sociodemographic variables. Regarding the question about the type of concept, in particular the positive health concept to be more common due to the proximity of HCJE, it is not possible to make such a statement, since this concept was the most frequent in both far or near micro areas.

Geospatial Approach to Study the Validated Associations

The geospatial data allowed a better clarification of the variables related to the use of the health unit in the studied area. While investigating the association between health self-concepts and familiarity with the healthcare services, it was observed that individuals living farther away tend to be unaware of the health facilities and therefore did not use them. This was true especially for Area 005, which not only has the highest average distance from HCJE but also has the micro area that is a considerable distance away. A similar observation was made by Arcury (2005), who found that distance is a determining factor in the number of routine visits paid per year so that any distance

greater than one kilometre resulted in fewer visits for routine check-ups. Moreover, the researchers associated several variables with the use of the service; they are measured by the number and purpose of visits. In addition to sociodemographic variables, such as gender and ethnicity, the authors highlight factors like drivers' licenses and public transportation which contribute to the increase in the number of routine visits and the number of visits for evaluation of chronic illness respectively.

Disregarding the geographical perspective while analysing the use of health services may have resulted in an ineffective assessment. It goes beyond the discussion of the use of health services for intersectionality, which encourages the paradigmatic and hegemonic alteration of the medical-assistentialist and healthcare models.

5 CONCLUSION

Thus, the hypothesis of this work is accepted. It conjectures that sociodemographic characteristics influence the health self-concepts of a specific population. The most prevalent health concepts were the positive and the most addressed care habits were of those in the 'common sense'. The associations with health concepts were considered statistically significant in terms of age, level of education, and household income. The majority of participants have known the precise location of the community healthcare unit. However, those who lived a greater distance from the unit were unaware of its location. The geospatial analysis corroborates the importance of space planning as an additional social framework for measuring the performance of education-based health policy. A more structured and better planning based on health self-concepts and of health service promotion could drive effective strategies that would promote health outcomes in the low- and middle-income communities to cause an impact on lifestyle and health-seeking behaviours. It includes the comprehension of health self-concepts and how available health services are accessed by individuals.

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