

# Social support and satisfaction of hypertensive patients with primary care: construction of a synthetic index

*Apoio social e satisfação de hipertensos com a atenção básica: construção de um índice sintético*

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**ABSTRACT** The objective was to construct a synthetic index for Family Health Units that contemplates the perception of the satisfaction with the Primary Health Care (PHS) and the social support perceived by hypertensive patients. A Global Synthetic Index was constructed based on a weighted average of the variables that made up the user satisfaction dimension and those that made up the perceived social support with PHS. This index was applied in the hypertensive cohort developed for the municipality of João Pessoa (PB), for two Sanitary Districts, with the application of statistical tests. The axes related to the satisfaction of hypertensive users of PHS had a negative impact on the global synthetic index, while the axes related to social support had a relatively high score. Statistical tests showed that there was a significant difference (significance level of 5%) in the global synthetic indices among the Sanitary Districts of Health. The proposed index was presented as a practical, useful and effective tool, and managers and health professionals can benefit in the decision-making process with its use, in order to achieve better practices among the territories and in the evaluation of actions in the primary care for hypertensive care.

**KEYWORDS** Hypertension. Health status indicators. Social support. Primary Health Care.

**RESUMO** *Objetivou-se construir um índice sintético para Unidades de Saúde da Família que contemple a percepção da satisfação com a Atenção Primária à Saúde (APS) e o apoio social percebido pelos usuários hipertensos. Um Índice Sintético Global foi construído a partir de uma média ponderada das variáveis que compuseram a dimensão satisfação do usuário e das que compuseram o apoio social percebido com a APS. Esse índice foi aplicado na coorte de hipertensos desenvolvida para o município de João Pessoa (PB), para dois Distritos Sanitários, com a aplicação de testes estatísticos. Os eixos relativos à satisfação dos usuários hipertensos da APS influenciaram negativamente o índice sintético global, enquanto os eixos relativos ao apoio social tiveram um escore relativamente alto. Testes estatísticos mostraram que houve diferença significativa (nível de significância de 5%) nos índices sintéticos globais entre os Distritos Sanitários de Saúde. O índice proposto se apresentou como um instrumento de utilização prático, útil e efetivo, e gestores e profissionais de saúde podem ser beneficiados no processo de tomada de decisão com a sua utilização, para efetivação de melhores práticas entre os territórios e na avaliação das ações na atenção primária relativas ao cuidado prestado ao hipertenso.*

**PALAVRAS-CHAVE** Hipertensão. Indicadores básicos de saúde. Apoio social. Atenção Primária à Saúde.

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## Introduction

Systemic Arterial Hypertension (SAH) represents one of the main risk factors for cardiovascular, cerebrovascular and chronic kidney diseases. It is recognized as an important public health problem because it presents low control rates and oligo/symptomatic evolution<sup>1</sup>.

The control of hypertension and the consequent success of the treatment depend on a series of individual factors that predispose subjects to illness and their adhesion to the proposed therapeutics, such as the guarantee of access to treatment, the strengthening of the bond between individuals and health professionals, besides a multiprofessional and community action that can serve as support, follow-up and care for hypertensive patients<sup>2</sup>.

Silva<sup>3</sup> shares this view and adds that blood pressure control and greater satisfaction with the services and practices, that are provided in the follow-up of the hypertensive user in Primary Health Care (PHC), are moving towards a continuous improvement of the treatment given to the hypertensive patient.

The satisfaction of the user with PHC influences the behaviors adopted in the health and illness process, which, together with the subjective aspects of this process, and related to health care outcomes, contribute directly to the success of the treatment of SAH<sup>4</sup>. Thereby, the evaluation of the user's satisfaction regarding the service provided allows to consider the doctor-patient relationship, in addition to assessing the quality of care, relating it to factors such as the improvement in adhesion to treatment and greater adequacy in the use of the service, making it an important indicator of health services evaluation.

To better meet the needs and subjective aspects of the treatment, hypertensive individuals and their families need help and care, which can be provided by the social support networks and the types of social support provided by this network. Thus, receiving some kind of social support to deal with a chronic

condition brings positive repercussions on health, in order to alleviate the limitations that users face during treatment<sup>5</sup>.

Griep et al.<sup>6</sup> define the social network as a social structure through which support is provided; social support refers to the functional or qualitative dimension of the social network. Social support, in turn, is grouped into five types: emotional, informational, material, affective and positive interaction, and is understood as 'being able to have someone to count on to receive this support', feeling valued within a group in which he/she is an integral part.

Some authors<sup>7,8</sup> argue that, in the context of chronic diseases, social support positively influences the health of these users and can be considered relevant in the success of treatment and follow-up of these individuals, in addition to the satisfaction with the services provided by PHC.

Before a moment of personal crisis, the family is the first within the support network from whom the hypertensive seeks attention. However, the family does not always give efficient and adequate responses to this individual. It is at this moment that he/she seeks the support of the formal network. In this situation, PHC should be the first reference of formal support sought by the population for follow-up, health prevention and search for guidelines and information, actions by which the user has been seen as co-responsible in the health-disease process<sup>9</sup>.

The type of support and satisfaction with PHC services, worked together with assessment tools, relate to each other and influence the treatment's success of the person with hypertension. These instruments were separately applied for hypertensive users registered in PHC. The first by Morais et al.<sup>10</sup>, and the second by Paes et al.<sup>11</sup>.

The Thiengo et al.<sup>12</sup> study has demonstrated in its multivariate analysis model that global satisfaction with service can be influenced by a multiplicity of factors and correlated with social support. This relation can be an

important component in the assessment of the health service and in the formulation of coping strategies for health problems.

However, a synthetic index has not yet been developed to aggregate these two perspectives into a single measure. That is, a global measure that allows assessing the satisfaction of the PHC user through a broad range of options that involve fundamental aspects of quality of service and that, simultaneously, covers multiple subjective aspects of the social support network of hypertensive individuals. In this way, a global measure will contribute to a more comprehensive and effective assessment that strengthens PHC actions and that can be used by the Family Health Strategy (FHS) teams.

In this context, the objective was to build a Global Synthetic Index (GSI) that contemplates the perception of satisfaction with PHC and the social support perceived by hypertensive users.

## Methodology

It is a methodological research of quantitative approach. The individuals of the study refer to hypertensives registered in the FHS in the municipality of João Pessoa, which has five Sanitary Districts. The construction of the synthetic index was based on the use of satisfaction instruments with PHC and social

support<sup>10,11</sup>. Then, its implementation was carried out. The term primary care is used in this article as synonymous with PHC.

### Assessment tool of the satisfaction degree of hypertensive patients with PHC

For the dimension related to the satisfaction of the hypertensive patient with PHC, this study was based on the instrument validated by Paes et al.<sup>11</sup>, whose objective was to assess the degree of satisfaction of hypertensive adults with hypertension control in the context of PHC in Brazil.

For this study, in the instrument validated by Paes et al.<sup>11</sup>, the dimensions Adhesion/Bond (D), List of Services (E), Focus on the Family (G) and Orientation to the community (H) were selected. Such choice was based on the observation that these dimensions were more in dialogue with those related to the social support scale, according to previous consultation with five specialists with clinical experience on hypertension, with publication in specialized journals and performance of research (master's and doctoral degree) on the subject. These dimensions and respective variables are specified in *table 1*. Dimensions are identified by uppercase letters, and variables by codes, following the original instrument validated by Paes et al.<sup>11</sup>.

Table 1. Weights associated with each of the variables of the dimensions of the satisfaction and social support instruments

Instrument	Dimension	Variable	Weights	Weight per dimension	Total weight per instrument
Satisfaction	Adhesion/bond (D)	D.1	0.031	0.372	1
		D.2	0.030		
		D.3	0.032		
		D.4	0.040		
		D.5	0.047		
		D.6	0.049		
		D.7	0.044		
		D.8	0.028		
		D.9	0.024		
		D.10	0.047		

Table 1. (cont.)

Satisfaction	List of services (E)	E.1	0.044	0.358	1
		E.2	0.046		
		E.3	0.047		
		E.4	0.031		
		E.5	0.034		
		E.6	0.022		
		E.7	0.009		
		E.8	0.026		
		E.9	0.028		
		E.10	0.040		
		E.11	0.031		
	Focus on the family (G)	G.1	0.045	0.144	
		G.2	0.048		
G.3		0.051			
Orientation to the community (H)	H.1	0.044	0.126		
	H.2	0.032			
	H.3	0.050			
Social support	Material (O)	O.1	0.065	0.211	1
		O.11	0.067		
		O.13	0.079		
	Affective/Social Interaction (P)	O.5	0.077	0.299	
		O.9	0.069		
		P.16	0.067		
		P.18	0.085		
	Emotional/Informational (M)	P.3	0.075	0.490	
		P.7	0.078		
		M.12	0.081		
		M.14	0.086		
		M.15	0.087		
		M.17	0.083		

Source: Own elaboration.

### Assessment tool of the perception of hypertensive on the level of social support

To assess the perception of the hypertensive on social support, the instrument used was adapted for people with hypertension by Morais et al.<sup>10</sup>. It consists of three dimensions, which include 13 questions (variables) on social support: material (O) – three variables on provision of practical resources and material help; affective/positive social interaction (P) – four variables about physical demonstrations of love, affection and about the possibility of having people with the purpose of relaxing and having fun; and emotional/informational (M) – six variables on the ability of the network

to meet individual needs regarding emotional problems and the ability to count on people who advise, inform and guide.

The same target population of hypertensive adults of João Pessoa was used, that were statistically validated as representative of the target population of the initial sample of 2009, by Morais et al.<sup>10</sup>. The dimensions and their respective variables are identified by codes in *table 1* of the same value with the original proposal.

### Weight of dimensions

In order to identify the variables within the dimensions with the greatest variation and to assign the respective weights for each dimension belonging to the two instruments, a factorial analysis was made by extracting

the main components, performed in the original variables.

The weights were, initially, defined by the sum of the coefficients of the factorial scores generated by the factorial analysis model. Then, each coefficient was divided by the sum of all the coefficients, so that the sum of the standardized coefficients was equal to one, according to the following description, for the construction of the global synthetic index<sup>13</sup>.

### Construction of the global synthetic index

For each individual of the research, the responses (scores) of the variables of each dimension of the satisfaction instrument and of the social support instrument were standardized on a scale of 0 to 1, where 1 represents the best result, and 0 represents the worst. The standardization of each of the original instruments variables was performed using the formula:

$$I_{ijk} = \frac{I_{jk} - \text{Min}(ik)}{\text{Max}(ik) - \text{Min}(ik)}.$$

Where:  $I_{ijk}$  – standardized indicator of the score of variable  $i$  for individual  $j$  of dimension  $k$ .  $I_{jk}$  – observed score value of variable  $i$  for individual  $j$  of dimension  $k$ .  $\text{Min}(ik)$  – minimum value of the individual for the score of variable  $i$  of dimension  $k$ .  $\text{Max}(ik)$  – maximum value of the individual for the score of variable  $i$  of dimension  $k$ .

The best situation for each variable may be in sometimes have a standardized score close to the minimum (0), and sometimes close to the maximum (1). For cases in which the score was equal to 0, the best situation was indicated, while 1 indicated the worst situation. In this case, the indicator considered was  $1 - I_{ijk}$ , used here for the adhesion/bond dimension of the satisfaction instrument with PHC.

The combination of the variables' scores of the dimensions of each instrument was calculated by means of the sum of the scores and the variables belonging to each dimension of

the satisfaction instrument with the PHC and the instrument of the social support scale. The averages of each of these sums represent the composite indices for each dimension, ranging from zero to one.

The calculation of the composite indices is given by the following formulas:  $CI_{\text{sati}}$  represents the composite indexes of the instrument satisfaction with the PHC of the health unit:

$$CI_{\text{sati}} = \sum_{i=1}^4 \sum_{j=1}^n I_{ij} P_i$$

For this dimension, there are four variables. Thus,  $1 < j < 4$ , where:  $I_{ij}$  – standardized indicator of variable  $i$  for individual  $j$ .  $P_i$  – Weight assigned to variable  $i$ .  $CI_{\text{support}}$  represents the composite index of the social support dimension of the health unit:

$$CI_{\text{support}} = \sum_{i=1}^3 \sum_{j=1}^n I_{ij} P_i$$

For this dimension, there are three variables. Thus,  $1 < j < 3$ .

Based on the composite indices calculated for each instrument, the GSI was calculated, which allows to evaluate together the degree of satisfaction with the PHC and the social support perceived by the hypertensive user. In this way, it is possible to evaluate how each dimension influences positively or negatively the composition of the final index. The GSI was calculated by the arithmetic average of the composite indexes of the instrument of satisfaction with the PHC and the instrument of social support. Both, independently, range from 0 to 1, with 0 being the worst and 1 being the best.

Thus, the GSI of health unit  $j$  is given by the formula:

$$GSI = \frac{CI_{\text{sati}} + CI_{\text{support}}}{2}$$

Where:  $CI_{\text{sati}}$  – Composite index of the instrument satisfaction with the PHC.  $CI_{\text{support}}$  – Composite index of the instrument social support.

## Implementation of the global synthetic index

The calculation of the GSI for the two Sanitary Districts of the municipality of João Pessoa was carried out. These districts were chosen because they had already been the target of previous studies<sup>14-16</sup>, performed with the cohort of hypertensive patients in the city of João Pessoa who worked with the dimensions proposed in the GSI for the satisfaction instrument.

For this purpose, the remaining sample was used with the individuals belonging to the cohort of hypertensive adults in the municipality in 2016. For the implementation of the collection referring to this cohort, for that year, a previous survey of the names, addresses and health units of individuals research participants from previous years was carried out. In this way, it was possible to quantify the number of users per unit and, consequently, by Sanitary District, reaching a total of 172 hypertensive patients. This phase of data collection was performed in the period from March 1 to August 31, 2016<sup>17-19</sup>.

An analysis of the interviews carried out with the user satisfaction instruments with the PHC and the instrument of social support was accomplished. The CIsati and CIapoi indexes for Sanitary Districts I and V were constructed according to the validated instruments<sup>10,11</sup>.

To facilitate the interpretation of the information provided by the GSI, 3 groups of individuals were constructed according to the GSI value: Group 1 (low): < 0.611 points; Group 2 (average): 0.612 to 0.738 points; Group 3 (high): > 0.739.

After confirming non-normality of the GSI obtained for the units, using the Kolmogorov-Smirnov test, the comparative statistical analysis of the global synthetic indices of each Sanitary District was based on the use of the Mann Whitney test to determine if there was statistical evidence, with a 5% significance, that there was a difference in the global synthetic indices among Health Sanitary Districts<sup>20</sup>.

Initially, the data was entered into a mask in the Microsoft Excel 2007 program and, subsequently, transferred to the R-3.3.2 for Windows program (The R-project for statistical computing).

The research was approved by the Research Ethics Committee under the CAAE n° 49405015.1.0000.5188. All participants signed the Informed Consent Form (ICF), in compliance with the requirements of the National Health Council (Resolution n° 446/2012), and the project followed the flow of authorization for research from the Municipal Health Department of João Pessoa.

## Results

The dimensions and their respective variables presented different weights, which were calculated through the analysis of main components. The dimensions adherence/bond (0.372) and the list of services (0.358), the Satisfaction instrument with PHC, and the emotional/informational support dimension (0.490), of the social support instrument presented the highest weights, as observed in *table 1*. The average was close to the median in all dimensions, showing a uniform distribution and a smaller internal dispersion, confirming the homogeneity of the weights of the variables.

These results allow the individual positioning of the instruments, with respect to their dimensions and, consequently, those that have a magnitude of impact in the instrument, according to each dimension separately.

To give an idea of the type of result of the methodology presented here, some results of the GSI application are presented. *Table 2*, shown below, shows the indices of dimensions by Sanitary District, which reveal that Sanitary District V presented high indices with respect to the dimensions of social support and satisfaction with PHC, when compared to those of Sanitary District I.

Table 2. Composite index according to instruments by dimension and by Sanitary District of João Pessoa (PB)

Instrument/index	Dimension	Sanitary District	
		I	V
Social support	Material Support (O)	0.180	0.189
	Affective support/Positive social interaction (P)	0.240	0.274
	Emotional/Informational Support (M)	0.320	0.430
Satisfaction	Adhesion/bond (D)	0.227	0.242
	List of services (E)	0.210	0.226
	Focus on the family (G)	0.062	0.073
	Orientation to the Community (H)	0.040	0.060

Source: Own elaboration.

The ‘emotional/informational support’ dimension, related to social support, and the dimensions Adhesion/Bond and list of services, with respect to satisfaction with PHC, presented higher scores for the synthetic indexes. These dimensions presented the highest weights among all dimensions of the study.

In the ‘Orientation to the Community’ and ‘Focus on the Family’ dimensions, all synthetic indexes presented lower values in comparison to the others. These items address the integration of health services with churches, neighborhood associations, schools and organized civil society, and refer to the importance of the unit’s professionals to know the people who live with the user and the support network as potential in the care of users with chronic diseases.

Regarding composite indexes of the dimensions by Sanitary District, the results show

that District V was the territory that obtained the best composite index in relation to social support (CIsupport = 0.89) and satisfaction with PHC (CIsati = 0.60). The opposite occurred with Sanitary District I (CIsupport = 0.74, CIsati = 0.54), which reveals that its social support indexes had a relatively high score when compared to satisfaction scores with PHC.

When the dimensions were synthesized in a single measurement, called GSI, it is observed, as shown in *table 3*, below, that Sanitary District I presented the worst classification. The GSI had a direct relationship with the previous results, that is, with the Composite Index of the Satisfaction and Social Support Instruments, and that the composite index of social support positively influences the final index, which already occurs in contrast to the instrument of satisfaction with PHC.

Table 3. Global Synthetic Index of health units by Sanitary District of João Pessoa (PB)

Sanitary District/GSI	Low		Average		High		Total	
	N	%	N	%	N	%	N	%
I	19	45	8	19.3	15	35.7	42	100
V	4	21	2	10.6	13	68.4	19	100

Source: Own elaboration.

Most Basic Health Units (BHU) of the Health District I present the low GSI (45%) in relation to the Health District V (21%). The highest global synthetic indexes (68.4%) in the Coast, Central and South regions of the city, which are part of the Sanitary District V, are also observed in relation to the indices (35.7%) distributed on the outer areas of the city, corresponding to Sanitary District I.

Comparison of GSI between BHU of the Sanitary Districts I and V has showed, from the Mann-Whitney Test, that there was statistical evidence that the mean GSI values were not equal among the Health Sanitary Districts investigated at the level of 5 % significance ( $U = 240.50$ ,  $p\text{-value} = 0.014$ ).

## Discussions

Chronic disease conditions, such as arterial hypertension, imply the development of health care by groups that have different knowledge, based on their socio-cultural construction. It is worth noting that, even within the assessment of hypertensive user satisfaction with PHC, it is a component of social acceptability, and this condition represents the approval of a health service by a population and its social support network, interlinking with the perception of the type of social support provided by this network.

The technique of main components sought to identify latent dimensions, that is, not directly observable. The analysis of main components was used only to obtain the weighting structure of the components of the indicators, and the final indicator does not correspond to the factor score, but is strongly correlated with it, with a Pearson correlation close to 1.

The weights of the variables of each dimension influence the generation of the index, where, generally, more weight is attributed to the indicators with greater contribution or importance<sup>21</sup>. High weights are imputed to data with statistical significance and with a broad response spectrum<sup>22</sup>.

The weighting process is complex and

emphasizes the contribution of some aspects within a set of data in the generation of a result, assigning them more or less weight in the analysis observed<sup>23</sup>.

Sanitary District V presented synthetic indexes with high values, and this point may be related to the fact that the regions linked to this District are constituted of noble neighborhoods, whose residents, in their majority, have a health plan. Belon-Saameño et al.<sup>24</sup> found similar results and suggested that individuals of a higher socioeconomic level feel more independent and self-sufficient in their social life, and perceive themselves, therefore, more supported in situations of need.

Health indexes are essential tools for health decision-making and enable the knowledge about determinants of this sector, by improving and identifying gaps in the overall health status of the population or in specific groups. Its use contributes to the planning of health strategies and the management of the Health System, improving the health of populations<sup>25</sup>.

The differences found among the GSI of the Districts implies recognizing that the health needs of the population occur in a different social context between the territories, which should be known and taken into account in order to reorganize health in the public sector.

Global indexes are constructed due to the need to understand complex phenomena, making them quantifiable and understandable, so that they can be analyzed, used and transmitted, making information accessible<sup>26,27</sup>.

Araújo<sup>14</sup> points out that the family health units that make up the Sanitary District I have been assisting a demand greater than its area of coverage and have a coverage of FHS assistance below the percentage of hypertension registered in the region. This fact may indicate the difficulty of monitoring the hypertensive patients registered by the FHS of this Sanitary District, and there is no interaction with the community assisted, which hampers the bond with the user. Thus, the GSI has reflected on the results, with low synthetic indexes for satisfaction with PHC and social support.



Regarding social support, high scores have been found. In the types of support offered, the focus is directed both to the demands originated by arterial hypertension and to other types of demands that are part of the daily life of these people and that may or may not be related to the chronicity condition of the disease<sup>28</sup>.

When the social support dimensions are implemented, the GSI considerably improves. This support strengthens the care and reinforces the treatment that has been dedicated to hypertensive users registered in the PHC in the city of João Pessoa.

The social support network has the function of encouraging personal attitudes associated with health monitoring, such as the sharing of information, health care in general and help in times of crisis<sup>29</sup>.

The GSI allows BHU to monitor and assess actions, to correct failures and to adapt strategies along the way, reflecting the capacity and attention given in comprehensive care, to the development of social support and satisfaction with PHC of hypertensive users.

The relationship between satisfaction with PHC and the perceived social support studied here goes beyond the formality of clinical care and is convergent with that proposed by the Ministry of Health regarding the humanization of health care and, more specifically, clinical orientation amplified. The expanded view of health professionals increases understanding of the health-disease process, and the expanded clinic proposes acts of listening, bonding, affection, dialogue and information. The GSI can, in a single measure, contemplate the satisfaction of the users with PHC and social support to the hypertensive user, contributing to the evaluation of the care offered by health professionals.

## Conclusions

The GSI presented itself as an instrument of practical, useful and effective use, since it has assessment researches scientifically proposed.

The use of the GSI is an aggregate of the other 2 models, and each of them can be applied independently of the other, which allows to prioritize only one of them, depending on the managers' need.

Managers and health professionals, through the contribution of the GSI, may have subsidies in the decision-making process, as well as the implementation of best practices in the attention and care of hypertensive users. The GSI can be implemented in any health unit, seeking to assess the actions of PHC in the care of the hypertensive in search of better satisfaction and social support.

It was verified, furthermore, that the indexes related to the satisfaction of the hypertensive user with PHC need to be improved and that measures, mainly in the dimensions 'focus on the family' and 'orientation to the community', must be taken. The composite indexes inherent to social support were higher in the present study and should be considered as important indicators for comprehensive care for the hypertensive user, and positively influence the GSI measurement.

The GSI presented, for the most part, values ranging from regular to high. This means that services should be aware of the fact that the treatment of hypertension is not restricted only to drug treatment but to a behavioral change supported by a structured social network and a higher level of satisfaction with PHC. This results in the need for a specific approach of the family health team directed to the support network as a whole, increasing satisfaction with PHC for the improvement of care for users with SAH.

## Collaborators

Morais JD (0000-0002-8383-7871)\* contributes substantially to the design, planning, analysis and interpretation of data; critical revision of the content and approval of the final version of the manuscript. Ribeiro KSQS (0000-0002-5850-7176)\* contributes substantially to the

design, planning, analysis and interpretation of data; critical revision of the content and approval of the final version of the manuscript. Paes NA (0000-0002-0927-9103)\* contributes

substantially to the design, planning, analysis and interpretation of data; critical revision of the content and approval of the final version of the manuscript. ■

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