Dimensional structure of the satisfaction of Family Health users

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ABSTRACT
The study aims to analyze the dimensional structure of the instrument SERVQUAL, used to measure the satisfaction of users of public health services at the basic attention. A quantitative study, conducted through surveys answered by 353 users of the Family Health Strategy. The participants were: female (71.7%); aged 31 to 40 years (30.9%) and who completed High School education (43.3%). In the model adjustment analysis, the results were unsatisfactory for the established criteria. A new model was suggested given the specific context of the public health presenting inadequate results for all criteria. The results were satisfactory for convergent and discriminatory validity. The study implicates an indication of a new adjusted model, to comprehend the satisfaction of users of the family health, that should tested in future nursing and public health studies with more in-depth analyses, discussing the findings of this study to consolidate a new analytical instrument.

Descriptors: Patient Satisfaction; Family Health Strategy; Primary Health Care.

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INTRODUCTION

The Unified Health System (SUS) is structured in different levels of health attention that are organized in accordance with the complexity level. The basic attention (BA) is characterized as the main entrance door to the system, and it is responsible by the health of families and hard-to-reach populations through the Family Health Strategy (FHS). The FHS was implemented in Brazil as the main BA reorganization strategy; it is allocated in strategical regions to facilitate the population access to SUS services\(^1\).

For the population to have access to FHS services consistently according to their needs, a bond should exist between health professionals and service users. The established relationships increase the user’s rust and satisfaction\(^1\). Satisfaction in the health field can be seen as a complex process related to individual needs and expectations, involving different aspects of attention. Thus, satisfaction consists of an assessment of various elements of health care, as infrastructure, access, and human resources quality, occupying a differentiated position in the assessment processes of services\(^2\).

Considering that the user’s satisfaction interferes in the level of therapeutic adherence and behaviors towards the health and disease, its measurement is indispensable to assess public policies and health services concerning the quality of service and response capacity of the system. In international contexts, in countries where health considered merchandise and the user a consumer, satisfaction increments implicates to the rise of health services consumption\(^3\). In the Brazilian context, in public health services linked to SUS, the satisfaction is associated with improvements of health state, actively involving the patient in the decision-making regarding their assistance\(^1\).

The Family Health Strategy (FHS) prioritizes actions of protection and health promotion of individuals and family, reaffirming the basic principles of the Unified Health System (SUS) and substituting the traditional biomedical model. However, the level of satisfaction by the user is decisive in the search for services\(^4\). The knowledge of these levels can guide actions and the development of new programs and strategies, a particular way to identify issues and contribute to the improvement of health services.

Considering that the assessment of the attention offered subsidizes the improvement of the health system and that the free and critical participation of users favors the empowering within the system, this study aimed to analyze the dimensional structure of the SERVQUAL instrument, used to assess users’ satisfaction with public health services in the basic attention. The SERVQUAL scale or Service Quality is an analytical instrument widely used to measure the quality of services from the perception of their users\(^5\). When analyzing the gaps or disagreements that interfere with the quality level of services offered to users, the scale points the real divergence between perceptions and expectations, investigating how the service is offered to the user and considering the aspects that need to be improved within an institution\(^6\).

The assessment of users’ satisfaction with health services still is scarce in the academic literature, especially provided by the SERVQUAL application, could contribute with the innovative potential of management instruments use converted in public health analytical instruments from the perspective of its users.
METHODS

Ethical aspects

The Ethics and Research Committee of the UNINOVAFAPI University Center approved the research project with the registration nº 893.065 and CAAE nº 38532614.0.0000.5210. The study participants signed the Informed Consent, and their confidentiality was guaranteed.

Study design and data

A quantitative study was conducted through a survey applied to 353 users of the Family Health Strategy who were assisted in the Teresina/PI (Brazil). The data collection was during January and May 2015. The study was conducted with users of two FHS teams in the east area of the city. At the study time, 927 families were benefited by the two investigated FHS teams. Beyond the assessment of the satisfaction level of users which is a general indication of the scale use, the study aimed to analyze its dimensions for the specific public health context, from its application.

Population and sample: inclusion and exclusion criteria

The following inclusion criteria were followed: to be registered in the FHS; to be 18 years or older; capable of responding a questionnaire and, to have been assisted at least once by one of the FHS teams. The exclusion criterion was to be an FHS employee or of any other service related to the Municipal Health Foundation of Teresina.

To estimate the population of attended individuals, the average of people per family in Teresina was used, calculated in accordance with data from the last census conducted by the Brazilian Institute of Geography and Statistics (IBGE) in 2010 and in accordance with the current estimates of 2018 (average of 3.65 people) with an estimation of 3,384 attended people\(^7\). From the estimative of the attended population which was supporting data for the sample calculation, we used the Formula 1 that guided the number of applied questionnaires.

\[
 n = \frac{Z^2 \times P \times Q \times N}{e^2 \times (N-1) + Z^2 \times P \times Q}
\]

Notes:
- \(Z\) = confidence level (95%).
- \(P\) = expected ascertain quantity (50%).
- \(Q\) = expected error quantity (50%).
- \(N\) = population (3,384 people).
- \(e\) = precision level (5%).
- \(n\) = 345.
Instrument and data collection

The data collection instrument is divided into two sections. The first section has sociodemographic data. In the second, affirmations are presented to measure the constructs. The questions correspond to five quality dimensions, according to the adapted SERVQUAL model, also used in recent studies\(^8\)\(^-\)\(^9\). The investigated dimensions correspond to reliability (variables P1 to P5), promptness (P6 to P9), safety (P10 to P13), empathy (P14 to P18) and tangibility (P19 to P22) (Chart 1). The options for answers are gradual in a Likert-type scale, to measure the level of agreement concerning the affirmations, varying from “totally agree” to “totally disagree”, with five points.

*Chart 1: Five assessment dimensions proposed by the SERVQUAL model.*

<table>
<thead>
<tr>
<th>Construct</th>
<th>Variables</th>
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| **Reliability** | P1. When the local family health strategy promises to perform at a particular time, it does.  
P2. When you have some health issue, the local family health strategy demonstrates an honest interest in resolving it.  
P3. The local family health strategy performs the correct service in the first trial.  
P4. The local family health strategy provides services in the promised date.  
P5. The local family health strategy insists on registering the performed attention. |
| **Promptness** | P6. The local family health strategy employees tell precisely when the health services will be performed.  
P7. The local family health strategy employees provide an immediate service to you.  
P8. The local family health strategy employees are always prompt to help you.  
P9. The local family health strategy employees are never too busy to attend your search for attention. |
| **Safety** | P10. The behavior of local family health attention employees generates trust concerning the conducted service.  
P11. You feel safe in requesting services from the local family health strategy.  
P12. Local family health strategy employees are always polite when dealing with you.  
P13. Local family health strategy employees are knowledgeable to answer your questions regarding health services. |
| **Empathy** | P14. Local family health strategy employees provide individual attention to you.  
P15. The local family health strategy has a convenient schedule to attend you in consultations.  
P16. The local family health strategy has employees who provide you individual attention.  
P17. The local family health strategy employees understand your needs.  
P18. The local family health strategy employees comprehend your specific health needs. |
| **Tangibility** | P19. The basic health unit of the local family health strategy has modern equipment.  
P20. The physical installations of the basic health unit of the local family health strategy are visually attractive.  
P21. The employees working at the basic health unit of the local family health strategy are well dressed and clean.  
P22. The appearance of the physical installations of the basic health unit of the local family health strategy is well kept following the offered service. |

*Source: Created by the authors from the original adapted scale\(^17\).*

**Analyses and statistics**

The statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) software, using descriptive statistics. For the Confirmatory Factorial Analysis of the proposed model (Figure 1), the complementary software SPSS Analysis of Moment Structures (AMOS) was used.
Multivariate analysis

Regarding the analysis of the model, the following criteria were used which values correspond to the pattern recommended in the literature for these types of analyses: GFI (index of adjust quality) and CFI (index of comparative adjust) superior to 0.90; CMIN/DF (relative Chi-square) lower than five and, RMSEA (root of the mean squared error of approximation) lower than 0.08, for model adjustment. For the convergent validity, the Cronbach’s alpha and the CR (compound index of reliability) above 0.7, AVE (extracted average variance) superior to 0.5 and, to the discriminating validity, AVE higher than the MSV (shared maximum variance) and ASV (shared medium variance)\(^{10-12}\). 

RESULTS

Descriptive analysis

The study participants had the following characteristics: 253 (71.7%) were female; aged 31 to 40 years (30.9%); married (46.7%), and the education level was complete High School (43.3%); the family income of 64.1% of the sample was between one to two minimum wage, and 58.9% were unemployed.

Multivariate analysis

In the adjustment analysis of the model, the results were unsatisfactory for the established criteria: GFI = 0.849; CFI = 0.864; CMIN/DF = 3.700; and RMSEA = 0.088. Regarding the convergent and discriminating validities, the model had issues for the convergent validity with the constructs promptness (0.486) and safety (0.478) presenting values lower than 0.5.

Thus, another model was suggested where the variables P1, P6, P12, and P13 were removed. It is assumed that these variables were not adjusted to the construct due to their statements; the P1 and P6 refer to time,
something outside the construct scope. The P12 and P13 were not adequated for the construct safety, because there is the idea of knowledge and education and not safety.

The new proposed model presented adequate results for all criteria: GFI = 0.913; CFI = 0.940; CMIN/DF = 2.617; and RMSEA = 0.068. Additionally, for the convergent and discriminating validities, the results were also satisfactory (Table 1).

<table>
<thead>
<tr>
<th></th>
<th>α</th>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>ASV</th>
<th>Empathy</th>
<th>Reliability</th>
<th>Promptness</th>
<th>Safety</th>
<th>Tangibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy</td>
<td>0.839</td>
<td>0.848</td>
<td>0.53</td>
<td>0.482</td>
<td>0.419</td>
<td>0.728</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>0.828</td>
<td>0.832</td>
<td>0.554</td>
<td>0.402</td>
<td>0.337</td>
<td>0.634</td>
<td>0.745</td>
<td></td>
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</tr>
<tr>
<td>Promptness</td>
<td>0.779</td>
<td>0.782</td>
<td>0.545</td>
<td>0.45</td>
<td>0.395</td>
<td>0.658</td>
<td>0.624</td>
<td>0.738</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety</td>
<td>0.716</td>
<td>0.717</td>
<td>0.559</td>
<td>0.45</td>
<td>0.344</td>
<td>0.599</td>
<td>0.544</td>
<td>0.671</td>
<td>0.748</td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>0.883</td>
<td>0.875</td>
<td>0.636</td>
<td>0.482</td>
<td>0.33</td>
<td>0.694</td>
<td>0.51</td>
<td>0.553</td>
<td>0.521</td>
<td>0.798</td>
</tr>
</tbody>
</table>

DISCUSSION

Measuring subjective constructs through measurement instruments requires time and needs profound analysis. In the case of users’ satisfaction with the health services of SUS, it becomes more complex because it involves many satisfaction dimensions since the physical structure of health services to the health professional’s receptivity. Therefore, it is important to keep focus in the quality assessment of services provided by public institutions in the Primary Health Attention. Especially from the FHS, generating knowledge to base actions and the development of new programs and strategies; or to improve the existing ones as their assessment is a central component for this purpose, as the quality assessment of services through users’ satisfaction is an efficient way to identify flaws and to contribute to the improvement of service quality\textsuperscript{(1,13-16)}.

The SERVQUAL model has dimensions addressing matters related to satisfaction factors of users that can be contextualized to SUS health services: Reliability, Tangibility, Empathy, Safety, and Promptness\textsuperscript{(17)}. Each dimension is proposed to measure the related aspects. Tangibility considers the physical space of services to the appearance of professionals and the practical situation of equipment available in health services. The Reliability is exclusively dedicated to the trust relationship between user and health professionals. The Promptness relates to the dedication of the health professional with the user. Safety involves simple and more complex matters as the simple act to clarify doubts and the maintenance of professional secrecy. Empathy is the professional’s interest in the user in aspects related to individualized assistance\textsuperscript{(8-9,17)}.

For the model adjustment in the present study, Promptness, and Safety constructs had issues with convergent validity with values lower than 0.5. Thus, a new model was suggested where the variables P1, P6, P12, and P13 were removed. Assuming that these variables were not adjusted to the construct due to their statements, P1 and P6 relate to time, something out of the scope of Reliability construct, despite being in Promptness, they are repeated in the content of other variables of the construct.

National studies show complaints of users regarding the delay in attention caused by long lines\textsuperscript{(4)}. On the other hand, strategies to improve the attention prioritizing the waiting time reduction were implemented in the last few years in SUS, for example, the “More Doctors” (“Mais Médicos”) program. The referred program already have positive effects on the satisfaction of users regarding the reduction of wait and promptness\textsuperscript{(18)}.

The physicians in the program were more dedicated to the user through qualified listening\textsuperscript{(18)}. Similar results were observed in another study\textsuperscript{(19)}. In international research that used the SERVQUAL, there was an indication of waiting time for attention as one of the relevant gaps in the analyzed health services\textsuperscript{(14)}. This is considered a recurring issue in the Brazilian unified health service\textsuperscript{(20)}. Thus, the time can be considered a promptness variable when the satisfaction of users is investigated. However, it is not associated with reliability and can be assessed in the remaining variables of the new model proposed in this study.

The variables P12 and P13 were not adequate to the construct Safety, as they correspond to the idea of knowledge and education, not having a close relationship with the proposed dimension. To assess the safety of the health services, the behavior of employees and the users’ feelings regarding the provided service, the other variables were sufficient in the presented adjusted model.

Studies indicate that the satisfaction related to the safety of health services is low in their general aspects, leaving managers the role of investments and incentives to improve safety and assistance quality\textsuperscript{(21)}. Patient’s safety is a theme broadly addressed by the scientific community, with implications in the action of health professionals to decrease risks and to improve safety with the implementation of educational and non-punitive actions, especially for those who get involved in events that could compromise the patient’s integrity\textsuperscript{(22)}.

Besides such actions, the users should perceive the safe environment and feel comfortable to request health services to increase the bond between the community and health professionals. The challenge to make the environment safe emerges and give users a good impression. High levels of users’ satisfaction with health services, in general, have significant relationships with the health quality of people. During the planning and the implementation of health policies, the improvement of users’ satisfaction should be considered\textsuperscript{(19)}. Thus, the SERVQUAL model allows the identification of gaps in the provision of services that can be filled after the management analysis of the situation, broadening the perception of quality of services and consumer’s satisfaction\textsuperscript{(15,23)}.

A study conducted in Iran with hospitalized patients pointed out that the safety construct was the one with more unsatisfactory results which could affect the user’s satisfaction concerning provided services\textsuperscript{(24)}. To feel in a caring environment can be perceived differently according to changes in context.

Studies have been developed in the basic Brazilian attention aiming to assess the satisfaction of users using different methodological approaches. Qualitative research conducted in an FHS in the inner state of São Paulo showed that the FHS had evolved regarding the ability to welcome and resolve community issues\textsuperscript{(25)}. The FHS consolidation in different regions of the country increases the trust of users who look for services, improve the search for services and the safety perception.

The study is limited to its object, as it was developed in an FHS. However, with the adjustments in the analysis model and discussion proposed in this study, the investigation reality and the scale application can be expanded to other FHS’ acting areas and other public and private health services, generating contributions to a broader and more general context. Besides, in-depth discussions are needed to assess the items excluded from the scale in this study and, from a \textit{lato} perspective, to generate or consolidate a new analytical model.
CONCLUSION

As main results, the dimensional structure of the instrument seemed adequate considering the new adjusted proposed model from the removal of a few variables, given the specific context of health services. The study implicates the indication of a new adjusted model, used to comprehend family health users' satisfaction. When tested in future nursing and public health studies, with more in-depth analysis discussing the findings of this study, will consolidate a new analytical instrument, opening space for future comparisons with the results of this research.

The results of the new model (adjusted), through Confirmatory Factorial Analysis, showed to be an adequate model to measure the satisfaction of users attended in the specific context of the Family Health Strategy. The assessment approach of the satisfaction of health services' users, still incipient in studies from the field, given the predominant analytical bias of the organizational management, becomes one of the main contributions of the research because it presents a scale that can be converted in an adequate analytical instrument and the results can be compared to other contexts.

REFERENCES