Design And Validation of a Patient Loyalty Questionnaire to the Private Service Doctor

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Abstract
The objective of this research was to design and validate a questionnaire to assess the patient's loyalty to the doctor. An instrumental study was carried out that followed five phases of literature review, operationalization, construction, content validity and construct validity, reliability. A ratio of 1:24 was assumed, obtaining a total of 586 patients by simple random probabilistic sampling. Aiken's V of 0.86 was obtained for the questionnaire in general. The CFA goodness-of-fit indices were presented with 20 items (3 fact-20 items), CFI = 0.928 < 0.95, SRMR = 0.037 < 0.05, RMSEA = 0.000 < 0.05, NNFI = 0.918 < 0.95 and GFI = 0. .90 < 0.95. The factor loadings underlying the satisfaction (0.637 to 0.832), trust (0.518 to 0.967) and commitment (0.499 to 0.851) factors in each of its items. The reliability observed by Cronbach's alpha was 0.956 for the 20 items and the reliability of two halves was 0.888. Finally, it is concluded that the instrument loyalty of the patient to the doctor (LdP) is reliable, valid and easy to apply, as well as designed to allow evaluation in health contexts.
Keywords: Patient loyalty, customer loyalty, loyalty, medical service, questionnaire validation study

1. Introduction

Customer loyalty is a relationship marketing metric; it allows managing the customer care process with the objective of generating retention, attracting and creating sustainable competitive advantages for services [1,2]. Customer loyalty is a good dreamed by companies, but few have been able to make it tangible [3]. The loyal customer is the one who buys from the service provider whenever possible and continues to recommend it to his close circle [4].
Loyal customers establish an emotional bond with the service they receive and attach value to it [5]; they also associate with the service provider, generating feelings towards their service, because they obtain satisfaction and interpersonal relationships that include trust, familiarity, care, friendship and sympathy [6,7]. The commitment generated in the user turns him/her into a promoter of the service, generating repurchase, promotion or word-of-mouth communication behaviors [8].
Seventy percent of the decisions made by customers are based on the way they are treated, since gentle treatment generates loyalty [9]. Indeed, patient loyalty relationships were evaluated from perceived value and commitment [10]. Satisfaction can build relationships of trust and loyalty, the latter being expressed as behavioral and attitudinal [11]. Similarly, there is no relationship between price equity and loyalty; but there is a relationship between corporate image and loyalty [12].
The following are indicators of loyalty: professional competence, satisfaction, quality, compassionate professionals, accurate medical billing, effective communication skills, promptness in service delivery, willingness to support others, and brand image [13]. In existing approaches, loyalty, as a multidimensional marketing variable, has been approached from behavioral, attitudinal, and relational points of view [14]. It is established that loyalty is neither a punctual valuation of a transaction nor a momentary attitude but is established by the valuation of long-lasting relationships that are built between the service provider and the customer from their person-to-person interaction [15] and through mediating variables such as trust and commitment [16].
To maintain a long-term relationship, quality relationships must be generated, based on satisfaction, trust, commitment to the relationship, tending to generate value between the parties involved through the customer experience that is memorable and based on how the customer is made to feel [17]. A doctor-patient exchange relationship allows both parties to value something that the other member of the dyad possesses, both parties

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recognize the mutual benefits of maintaining a long-term relationship [18]. These relationships allow for reciprocity that is characterized by trust, commitment, and loyalty.

In this context, the dimensions of loyalty are shaped by customer satisfaction, trust, behavioral commitment and perceived value [17,18,19,20,21].

Satisfaction as an antecedent of loyalty is the comparison between expectations and perceptions of service outcome [16]; it can refer to organizational aspects, care received and its impact on health status [22,23]; it is closely linked to reliability, responsiveness, security, empathy and tangible elements [24].

Trust in a physician is a psychological state that allows a relationship to be established between two people [16]. It is when a patient perceives his or her provider on the basis of his or her competence, reliability in his or her actions and the confidentiality of his or her care [25].

Behavioral commitment has a strong emotional component that translates into promises of loyalty that generate a state of attitudinal dependence, mainly due to the affective component that leads the patient to become involved with the service provided by the physician [8]; the patient assumes the relationship as valuable because he considers his health and his personal image to be transcendental and vital assets [16]. Commitment generates loyalty and loyalty translates into repurchase and recommendation behaviors [26].

In Peru, there are no studies on patient-physician loyalty or standardized instruments for this purpose that take into account an approach based on quality relationships as determinants of long-term relationships. There are some Latin American approaches from this approach; for example, a questionnaire was developed to measure patient loyalty with the dimensions of loyalty, commitment, satisfaction and trust [8].

In the literature, there is abundant information and studies on the quality of medical services and patient satisfaction; but very little has been written on why a patient prefers a physician and decides to see and recommend him or her. Therefore, it was thought that designing an instrument to measure patient loyalty would help to detect which areas of the relationship ensure and hinder loyalty. Taking the results of the instrument as a starting point, it would be possible to establish strategies to promote recommendation, positive comments, the good image of the physician and to protect private care from competition. Consequently, a study was carried out with the aim of designing and validating a questionnaire to assess patient loyalty to the physician.

2. Methodology

Design

This was an instrumental study that followed five phases: the first was a literature review through documentary analysis of the various databases on the subject in which loyalty, loyalty and relationship marketing were investigated in order to define the construct. This allowed us to continue with a second phase of operational definition and construction of the operationalization matrix. The third phase allowed the construction of the items considering simplicity, presence of a single attribute, comprehension, and clear and simple language. This was based on a review of the literature and interviews with patients considered loyal to aspects that they consider important for their permanence and preference for the same physician. The fourth phase gave rise to content validation by means of expert judges and criteria such as pertinence, relevance and clarity, seeking concordance between judges by means of Aiken's V. In the fifth phase, we proceeded to the psychometric analysis, calculating construct validity through factor analysis and reliability through Cronbach's Alpha and two-half tests.

Variable

Loyalty, from the relational approach, is defined as the maintenance of long-term relationships based on relationship quality, satisfaction, trust, commitment to the relationship, tending to generate value between the parties involved through the customer experience that is memorable and based on how the customer is made to feel [27].

Sample

For the validity of the instrument, the experts were nine professionals with experience in research, psychometrics, and health services management. The psychometrics literature recommends that scales be tested on representative samples in order to ensure construct validity and reliability. It is established as a rule that this can be a ratio of 10 participants for each item; the ideal is 20 participants for each item [28]. For the purposes of the present study, a ratio of 1:24 was assumed, obtaining a total of 586 patients by simple random probability sampling, drawing lots for all patients who were seen in an outpatient department of a private clinic in Lima (Peru). The inclusion criteria were to be a continuing patient and to have attended outpatients three times in the last six months with the same physician. Exclusion criteria included patients who did not agree to participate in the study, patients who were minors and those who did not respond to the survey.

Instrument

The initial questionnaire consisted of 24 items distributed in three domains which were as follows: satisfaction with 8 items [22,23,24]; confidence with 5 items [16,25,30] and commitment with 7 [29].

3. Data Analysis

The results were analyzed with the SPSS-25 statistical package and JASP (v.0.14.1). Content validity was performed by expert judgment (09), using Aiken's V test; construct validity was performed by exploratory and confirmatory factor analysis. For reliability,

Cronbach's alpha and two-half test were performed.

Ethical aspects

In order to preserve the ethical aspects with the institution where the instrument was applied, a letter was presented to request permission from the indicated institution, obtaining the authorization of the head of outpatient consultation to apply the questionnaire. The patients were approached prior to informed consent in order to guarantee transparency and strict respect for the voluntary participation of the study participants. Questionnaires were applied in person and by means of a Google form.

4. Results

The designed questionnaire was assessed by 9 experts who gave their opinion on the clarity, pertinence and relevance of each item, obtaining a content validation by Aiken's V of 0.86 for the questionnaire in general; 0.88 for the satisfaction dimension, 0.85 for the trust dimension and 0.84 for the commitment dimension as shown in Table 1.

For construct validity, the sample consisted of 586 participants: 74.1%, adults (30-59 years) and 25.9%, young people (18-29 years); 75.9% were female; 58.8% attended monthly; 31.9% attended every two months and the rest every three months.

The AFE grouped the items into 4 factors (Table 2): factor 1 contains factor loadings between 0.484 and 0.861 and underlies items 1, 2, 3, 4, 5, 6, 7, 8, and 9. Factor 2 evidenced factor loadings between 0.472 to 0.828 and contained items: 18, 19, 20, 21, 22, 23 and 24; factor 3 presented factor loadings between 0.529 to 0.972 and contained items: 13, 14, 15, 16 and 17. Finally, factor 4 had factor loadings from 0.844 to 0.984 corresponding to items 10 and 11, respectively. Item 12 did not have factor loadings for any factor.

The confirmatory factor analysis (CFA), taking into account that the sample data were ordinal in nature, with a number of response options greater than or equal to five, did not present a normal distribution [30]. The DWLS (Weighted Least Squares Means and Variance Adjusted) estimator available in JASP (v.0.14.1) [31] was used, which is suitable for establishing the maximum likelihood of inventories with Likert-type categorical ordination. In reference to goodness of fit, the process was performed by using the comparative fit indices (CFI), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), non-standardized fit index (NNFI). Also, RMSEA (0.00 ≤ RMSEA ≤ 0.05), CFI (0.90 ≤ CFI ≤ 0.95), NNFI (0.90 ≤ NNFI≤ 0.95) and SRMR (0.05 ≤ SRMR ≤ 0.08) and GFI (0.95 ≤ GFI ≤ 1.00) values were considered as indicators of good structural fit [31]. Likewise, for reliability, the Cronbach's Alpha statistic was applied.

The AFC grouped the items into 3 factors made up of 20 items. The comparative fit index (CFI = 0.928 < 0. 95) represented an acceptable fit, the standardized root mean square residual (SRMR = 0.037 < 0.05) evidenced a perfect fit, root mean square error of approximation (RMSEA = 0.000 < 0.05) allowed affirming that the fit is perfect, non-normed fit index (NNFI = 0.918 < 0.95) presented an acceptable fit, goodness of fit index (GFI = 0.90 < 0.95) allowed affirming that the fit is acceptable (Table 3).

Table 4 shows the factor loadings underlying the factors satisfaction (minimum value = 0.637; maximum value = 0.832), trust (minimum value = 0.518; maximum value = 0.967) and commitment (minimum value = 0.499; maximum value = 0.851) in each of their items. As a consequence of this confirmatory factor analysis, it was found that the eigenvalue of the 3 factors is equal to 1.

According to the confirmatory factor analysis, the clusters of the associations between the dimensions were presented in Figure 1 indicating the factor saturations of the items. The contribution of each item to each factor was evidenced, as well as the correlation between factors; satisfaction with commitment 0.79, satisfaction with trust 0.85, trust with commitment 0.85; in turn, the contribution of each factor to the patient loyalty variable (LdP) was evidenced as satisfaction 0.82, trust 0.94 and commitment 0.85.

Finally, when Cronbach's alpha test was applied, the reliability observed was 0.956, i.e., highly reliable for the 20 items that made up the instrument; the satisfaction dimension 0.932, trust 0.917 and commitment 0.871.

Likewise, in Table 5, it was observed that the final instrument was composed of 20 items.

5. Discussion

The findings of the first phase of the literature search allowed us to find studies and constructs of loyalty applied to the business environment, business marketing, the tourism sector and physical commerce, as well as online; we proceeded to define which domains could make up the questionnaire always under the relational approach, considering satisfaction, trust and commitment as the domains to be included in the questionnaire, then we proceeded to the design of the instrument; We agreed with a study that establishes that a quality relationship with the patient improves loyalty and commitment mediated by the trust that generates a perceived value of the patient towards his or her relationship with the physician [10]; along the same lines, the relationship between satisfaction, trust and loyalty was explored [11]. Evaluating loyalty from these three dimensions corresponded entirely with the relational approach and the quality of relationships [21,32, 33,34,35].

The second and third phases gave rise to the design of the instrument consisting of 24 items, distributed in three domains: satisfaction with 8 items; trust with 7 items and commitment with 7 items.

In the fourth phase, the content validity and the results issued by the judges (09) were analyzed using

Aiken's V, which showed a value of 0.86 for the instrument in general, higher than the minimum required of 0.62 [36].

In the fifth phase, we proceeded to the evaluation of the construct analysis, for which the instrument was applied to a sample of 586 patients who met the inclusion criteria, then we proceeded to the exploratory analysis with Promax rotation. As a result, the data were adjusted to four factors and not to three as initially proposed. In addition to verifying the absence of factor loading for item 12, which was part of the trust domain and explored the relationship between quality-price of medical care perceived by the patient; this result was similar to that found by Astuti and Syah (2017) [12], who were able to establish that there was no relationship between price equity and satisfaction or between price equity and loyalty. Perhaps this finding may explain why some patients see their trusted physicians despite costs. It seems that the existing links between providers and customers may allow loyalty relationships to be built that overcome possible difficulties in the relationship and lead to mechanisms to overcome them, including price [7].

As mentioned above, the exploratory analysis grouped the items into four factors, factor four being detached from the trust factor, and grouping only two items, 10 and 11, which maintained high factor loadings of 0.844 and 0.984, respectively, and also evaluated the reputation of the health professional as an indicator of trust; However, within the recommendations for the development of instruments, it was not appropriate for a dimension to be measured with only two items, in addition to the fact that there should be equity in the structure of the instrument in terms of the number of items; therefore, these items were eliminated. Item one presented a factor load of 0.484 and was therefore eliminated because its load was low in relation to the other items, this item explored the accessibility to get appointments and care by the treating physician. According to the literature consulted, loyalty depends, to a large extent, on the ability of individuals to freely choose their vendor or service provider, since, if there is no free choice of provider, it is not possible to speak of loyalty, due to the impossibility or restriction of changing the service provider by choice, as well as the fact that this professional is accessible when required, clearly differentiating from public services where both possibilities are not real [8].

In the fifth phase, the confirmatory factor analysis was performed, which coincided completely with the exploratory analysis and showed the three dimensions in agreement with Barra et al. (2011) [8], who designed a questionnaire to measure loyalty based on the determining factors and considered trust, satisfaction and commitment as dimensions of patient loyalty. It should be noted that the trust dimension was made up of seven items that explore indicators of the competence of the medical professional (knowledge, skills and experience), reliability in his or her actions (information received and search for the best result) and confidentiality in the treatment of patients [8,16,25,30].

Within this same analysis, it was found that item one had a factor load of 0.484 and item 18, a factor load of 0.472; therefore, it did not meet the established criterion of accepting items that obtained factor loads equal to or greater than 0.50, so they were eliminated. In the case of item 1 of the satisfaction dimension, which explores the patient's accessibility to the private physician, we express our agreement because it is based on the availability of the physician to the patient, who has the possibility of choosing which physician to see, as well as the availability of a greater number of shifts and schedules, as well as more time for the doctor's attention, who has no administrative burden and who is focused on a response capacity that reflects the willingness to help users, in addition to the speed and agility of the service [24]. Thus, the satisfaction dimension was made up of eight items.

Item 18 explored the commitment to encourage friends and family to see the physician and is part of the recommendation behavior, based on the commitment that the patient builds based on his or her experiences and that makes him or her a true disseminator of the service received [26]; a loyal customer has favorable intentions and these are linked to positive expressions about their provider; therefore, they recommend him/her, being so important the construct, it is preserved as part of the dimension and of the instrument which, finally, presented 20 items as visualized in the cluster image [5].

Regarding the reliability of the patient loyalty instrument, a high reliability of 0.956 was obtained by Cronbach's Alpha test; and 0.932 for the satisfaction dimension; 0.917 for the trust dimension and 0.871 for the commitment dimension; all these values allowed establishing that the patient loyalty questionnaire to the private service physician was reliable.

As a limitation of the research, the lack of an exploration of the elements that loyal patients consider important for them to have developed their loyalty was taken into account, since the study was based entirely on existing literature and existing instruments.

It is concluded that the final 20-item private duty physician patient loyalty instrument obtained was shown to be a reliable, valid and easily applied instrument, designed to allow assessment in both clinical and research settings. The questionnaire could be used in private and public healthcare settings as part of the continuous improvement of patient management. It is suggested to give continuity to the study of quality doctor-patient relationships based on the relational approach and the generation of loyalty.

6. Conflict of Interest

The authors declare that they have no conflicts of

interest.

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References

Agarwal R, Mehrotra A, Misra D. Customer happiness as a function of perceived loyalty program benefits - A quantile regression approach. *Journal of Retailing and Consumer Services*. 2022; *64*(July 2021), 102770. https://doi.org/10.1016/j.jretconser.2021.102770

El-Adly M. Modelling the relationship between hotel perceived value, customer satisfaction, and customer loyalty. *Journal of Retailing and Consumer Services*. 2019; *50*(July 2018), 322–332. https://doi.org/10.1016/j.jretconser.2018.07.007

3. Alcaide J. Fidelización de clientes 2ª - Juan Carlos Alcaide - Google Libros. In *ESIC Business&Marketing school*. 2015; p. 364). https://books.google.es/books?hl=es&lr=&id=87K_CQAAQBAJ&oi=fnd&pg=PA11&dq=Alcaide,+J.+(2010).+Fidelización+de+clientes.+Madrid:+ESIC+Editorial.&ots=RlZjMzD3Cv&sig=POoq8EoStCl3XWxMoMEOXRqr230#v=onepage&q&f=false

4. Kandampully J, Suhartanto D. Customer loyalty in the hotel industry: The role of customer satisfaction and image. *International Journal of Contemporary Hospitality Management*. 2000; *12*(6), 346–351. https://doi.org/10.1108/09596110010342559

5. Dick A, Basu K. Customer Loyalty: Toward an Integrated Conceptual Framework. *Revista de La Academia de Ciencias Del Marketing*.1994; *22(2)*, 99–113. https://doi.org/10.1177/0092070394222001

6. Fournier S, Yao J. Reviving brand loyalty: A reconceptualization within the framework of consumer-brand relationships. *International Journal of Research in Marketing*. 1997; *14*(5), 451–472. https://doi.org/10.1016/s0167-8116(97)00021-9

7. Gremler D, Brown S. Service loyalty: Its Nature, Importance, and Implications. *Advancing Service Quality: A Global Perspective*, *January*. *1996*; 171–180.

8. Barra C, Torres E, Vásquez-Parraga A. Formation and background of patient loyalty in the context of private medical services. Management studies.. 2011; *18*, 49–78. https://doi.org/10.5354/0719-0816.2011.56377

9. Mckean J. *Customers Are People ... The Human Touch* (John Wiley). https://books.google.com.pe/books?id=Jyz3T4-KpRYC&printsec=frontcover&dq=McKean:+"Customers+Are+People:&hl=es&sa=X&redir_esc=y#v=onepage&q=McKean%3A "Customers Are People%3A&f=false. 2003

10. Huang I, Du P, Lin L, et al. The Effect of Perceived Value, Trust, and Commitment on Patient Loyalty in Taiwan. *Inquiry (United States)*. 2021; *58*. https://doi.org/10.1177/00469580211007217

11. Liu S, Li G, Liu N, et al. The Impact of Patient Satisfaction on Patient Loyalty with the Mediating Effect of Patient Trust. *Inquiry (United States)*. 2021; *58*. https://doi.org/10.1177/00469580211007221

12. Astuti F, Syah T. Determinants of patient loyalty in west Jakarta government hospital, obstetry and gynecology clinic. *International Journal of Economics, Commerce and Management*. 2017; *V*(6), 714–727. http://ijecm.co.uk/

13. Zhou W, Wan Q, Liu C, et al. Determinants of patient loyalty to healthcare providers: An integrative review. *International Journal for Quality in Health Care*. 2017; *29*(4), 442–449. https://doi.org/10.1093/intqhc/mzx058

14. Delgado E. Current state of brand loyalty research: a theoretical review. Management and Organization: Journal of Management, Organization and Business Administration. 2004; *0*(30), 16–24. https://doi.org/https://doi.org/10.37610/dyo.v0i30.120

15. Grönroos C. From Marketing Mix to Relationship Marketing: Towards a Paradigm Shift in Marketing. *Asia-Australia Marketing Journal*. 1994; *2*(1), 9–29. https://doi.org/10.1016/s1320-1646(94)70275-6

16. Morgan R, Hunt S. The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*. 1994; *58*(3), 20. https://doi.org/10.2307/1252308

17. Duque-Oliva E, Ramírez-Angulo P. Conceptual evolution and relationship between engagement and loyalty. Sum of Business. 2014; *5*(12), 169–179. https://doi.org/10.1016/s2215-910x(14)70039-4

18. Evanschitzky H, Wunderlich M. An examination of moderator effects in the four-stage loyalty model. *Journal of Service Research*. 2006; *8*(4), 330–345. https://doi.org/10.1177/1094670506286325

19. Chen Y, Mandler T, Meyer L. Three decades of research on loyalty programs: A literature review and future research agenda. *Journal of Business Research*, *124*(November 2020). 2021; 179–197. https://doi.org/10.1016/j.jbusres.2020.11.057

20. Meyer-Waarden L. The effects of loyalty programs on customer lifetime duration and share of wallet. *Journal of Retailing*. 2007; *83*(2), 223–236. https://doi.org/10.1016/j.jretai.2007.01.002

21. Meyer J, Allen N. A three-component conceptualization of organizational commitment. *Human Resource Management Reviw*. 1991; *1*(1), 61–89. https://doi.org/1https://doi.org/10.1016/1053-4822(91)90011-Z

22. Moliner M, Sánchez J, Rodríguez R, et al. Perceived relationship quality and post-purchase perceived value: An integrative framework. In *European Journal of Marketing. 2007;* (Vol. 41, Issues 11–12). https://doi.org/10.1108/03090560710821233

23. Dorigan G. Promoção da satisfação e lealdade dos pacientes em instituições de saúde: revisão integrativa. *Revista de Gestão Em Sistemas de Saúde*. 2021; *10*(1), 1–20. https://doi.org/https://doi.org/10.5585/rgss.v10i1.17719

24. Berry L, Parasuraman A, Zeithaml V. Servqual: A multiple-item scale for measuring consumer

perceptions of service quality. *Journal of Retailing*. 1988; *64*(1), 12–40.
25. Anderson L, Dedrick R. Development of the Trust in Physician scale: A measure to assess interpersonal trust in patient-physician relationships. *Psychological Reports*. 1990; *67*(3 II), 1091–1100. https://doi.org/10.2466/pr0.1990.67.3f.1091
26. Betancur D, Montoya K, Tavera J. Correlational study of the factors that influence the recommendation and loyalty of patients of aesthetic medicine Medellin Colombia , 2014. Management Notebooks. 2017; *33*(58), 3–17. https://doi.org/DOI: 10.25100 / cdea.v33i58.4527
27. Duque-Oliva E, Ramírez-Angulo P. Conceptual evolution and relationship between engagement and loyalty. Suma de Negocios. 2014; *5*(12), 169–179. https://doi.org/10.1016/s2215-910x(14)70039-4
28. Clark L, Watson D. Constructing validity: New developments in creating objective measuring instruments. In *Psychological Assessment*. 2019; (Vol. 31, Issue 12, pp. 1412–1427). https://doi.org/10.1037/pas0000626
29. Zeithaml V, Berry L, Parasuraman A. The Behavioral Consequences of Service Quality. *Journal of Marketing*. 1996; *60*(12), 31–46. https://doi.org/10.3969/j.issn.0372-2112.2016.12.004
30. Lloret-Segura S, Ferreres-Traver A, Hernández-Baeza A, et al. The exploratory factor analysis of items: A practical guide, revised and updated. Annals of Psychology. 2014; *30*(3), 1151–1169. https://doi.org/10.6018/analesps.30.3.199361
31. Hoffmann A, Stover J, De la Iglesia G, et al. Polycorrelations and tetrachoric correlations in exploratory and confirmatory factorial studies. Psychological Sciences.2013; *VII*(2), 151–164. https://doi.org/10.22235/cp.v7i1.1057
32. Kalsingh M, Veliah G, Gopichandran V. Psychometric properties of the Trust in Physician Scale in Tamil Nadu, India. *Journal of Family Medicine and Primary Care. 2017; 6(1), 34*, *6*(1), 34. https://doi.org/10.4103/2249-4863.214966
33. Team J. *JASP 0.14.1*. https://jasp-stats.org. 2020
34. Sarmiento J. Relationship quality in relationship marketing: a content analysis of the dimensions that define it. Spaces. 2017; *38*(46), 12. https://www.revistaespacios.com/a17v38n46/a17v38n46p29.pdf
35. Correia S, Miranda F. Quality and satisfaction in the hospital emergency department: Analysis of a hospital in central Portugal. European Research in Management and Business Economics. 2010; *16*(2), 27–41. https://doi.org/https://doi.org/10.1016/S1135-2523(12)60110-5
36. Lawshe, C. A Quantitative Approach To Content Validity. *Personnel Psychology*. 1975; *28*(4), 563–575. https://doi.org/10.1111/j.1744-6570.1975.tb01393.x

Table 1. Aiken's V coefficient for expert judges' opinion

Item	9 experts			Aiken's V		
	Clarity	Pertinence	Relevance	Sum per item	Aiken's V	Dimensions
P1	9	9	9	9	0.9	Satisfaction= 0.88
P2	9	9	9	9	0.9	
P3	9	9	9	9	0.9	
P4	9	9	9	9	0.9	
P5	9	9	9	9	0.9	
P6	9	9	9	9	0.9	
P7	9	9	9	9	0.9	
P8	9	9	9	9	0.9	
P9	9	8	8	8	0.8	
P10	9	9	9	9	0.9	Confidence =0.85
P11	9	9	9	9	0.9	
P12	9	9	9	9	0.9	
P13	9	9	9	9	0.9	
P14	0	6	6	6	0.6	
P15	9	9	9	9	0.9	
P16	9	9	9	9	0.9	
P17	9	8	8	8	0.8	
P18	9	9	9	9	0.9	Commitment=0.84
P19	9	9	9	9	0.9	
P20	9	9	9	9	0.9	
P21	9	9	9	9	0.9	
P22	9	9	9	9	0.9	
P23	0	6	5	5	0.5	
P24	9	9	9	9	0.9	
Aiken's V coefficient of the questionnaire					0.8625	

Factor Loadings					
	Factor 1	Factor 2	Factor 3	Factor 4	Uniqueness
p1	0.484				0.560
p2	0.720				0.438
p3	0.861				0.387
p4	0.780				0.404
p5	0.703				0.274
p6	0.787				0.327
p7	0.805				0.373
p8	0.764				0.280
p9	0.693				0.341
p10				0.844	0.273
p11				0.984	0.200
p13			0.529		0.377
p14			0.610		0.413
p15			0.719		0.235
p16			0.658		0.274
p17			0.972		0.150
p18		0.472			0.423
p19		0.520			0.581
p20		0.623			0.380
p21		0.554			0.600
p22		0.928			0.423
p23		0.538			0.347
p24		0.607			0.540
Note. Applied rotation method is promax.					

Table 3. Results of the confirmatory factor analysis				
Index	Perfect fit criterion	Acceptable fit criterion	Research finding	Results
	0-3	3-5	2,28	Perfect fit
RMSEA†	0,00 ≤ RMSEA† ≤ 0,05	0,05 ≤ RMSEA† ≤ ',10	0,000	Perfect fit
CFI‡	0,95 ≤CFI‡ ≤ 1,00	0,90 ≤ CFI‡ ≤ 0,95	0,928	Perfect fit
NNFI§	0,95 ≤NNFI§ ≤ 1,00	0,90 ≤ NNFI§≤ 0,95	0,918	Perfect fit
SRMR||	0,00 ≤ SRMR|| ≤ 0,05	0,05 ≤ SRMR|| ≤ 0,08	0,037	Perfect fit
GFI	0,95 ≤ GFI ≤ 1,00	0,90 ≤ GFI ≤ 0,95	0,90	Perfect fit
†RMSEA = root mean square error of approximation, ‡CFI = comparative fit index, §NNNFI = non-standardized fit index, ||SRMR = standardized residual root mean square, GFI = goodness-of-fit index,				

Tabla 4 Item factor loadings								
							95% Confidence Interval	
Factor	Indicator	Symbol	Estimate	Std. Error	z-value	p	Lower	Upper
Satisfaction	p2	λ11	0.637	0.031	19.914	< .001	0.556	0.677
	p3	λ12	0.832	0.025	21.581	< .001	0.495	0.593
	p4	λ13	0.785	0.028	22.073	< .001	0.563	0.673
	p5	λ14	0.679	0.024	25.206	< .001	0.565	0.661
	p6	λ15	0.766	0.028	23.322	< .001	0.598	0.708
	p7	λ16	0.795	0.025	22.592	< .001	0.523	0.622
	p8	λ17	0.741	0.026	24.581	< .001	0.599	0.703
	p9	λ18	0.675	0.025	23.671	< .001	0.541	0.639
Commitment	p18	λ21	0.621	0.029	19.046	< .001	0.499	0.613
	p19	λ22	0.544	0.030	16.489	< .001	0.434	0.551
	p20	λ23	0.637	0.025	22.777	< .001	0.521	0.619
	p21	λ24	0.499	0.036	15.884	< .001	0.500	0.641
	p22	λ25	0.851	0.032	18.183	< .001	0.518	0.644
	p23	λ26	0.647	0.027	23.686	< .001	0.588	0.694
	p24	λ27	0.669	0.034	18.182	< .001	0.547	0.679
Confidence	p13	λ31	0.518	0.026	22.293	< .001	0.526	0.628
	p14	λ32	0.608	0.023	21.438	< .001	0.444	0.533
	p15	λ33	0.714	0.021	26.482	< .001	0.504	0.585
	p16	λ34	0.678	0.023	25.720	< .001	0.553	0.645
	p17	λ35	0.967	0.021	27.576	< .001	0.530	0.611

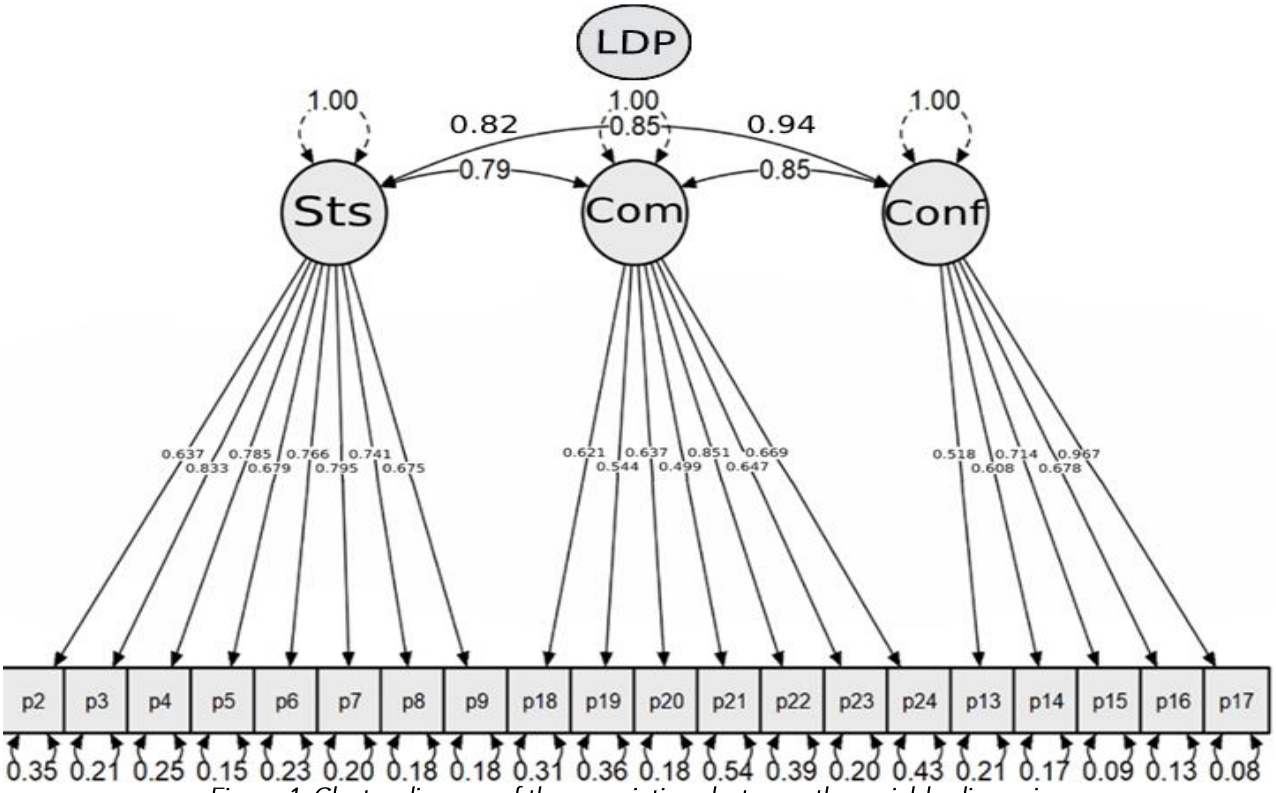

Figure 1. Cluster diagram of the associations between the variable dimensions

Tabla 5. Reliability of the Patient Loyalty instrument by two halves Reliability of the Patient Loyalty Instrument by Cronbach's Alpha

	Reliability statistics	
	Cronbach's alpha	N of items
loyalty instrument	,956	20
satisfaction dimension	,932	8
trust dimension	,917	5
commitment dimension	,871	7