

Components of dental clinic patient loyalty as perceived by the dentist

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Abstract

The dental clinic market has been subject to different changes while have led to the development of a new business model for the sector. These changes have been the great increase in the number of dentists, new business models, the demand of new services, churn patients, among others. With the purpose of stopping patient churn, the main objective of this research is to investigate the perception that the dentist has of the behavior of Loyal Patient (LP) and Non-loyal Patient (NLP) in dental clinics. The study analyzes the data obtained from a survey collected among 220 Spanish dentists who were active during 2012. The main findings obtained from the Principal Components Analysis (PCA) are: (i) the dentist perceives that the behavior of the LP is driven by three components: “Same dental clinic and recommendation”, “Patient willingness” and “Low sensitivity to prices”; (ii) the dentist perceives that the behavior of the NLP is driven by three components: “High sensitivity to prices”, “High churn and few recommendation” and “Less visits”. This study allow to understand patient loyalty in dental clinics by a holistic approach, evaluating the dentist's perception; at the same time, it helps in decreasing negative bias in the dentist in order not to condition their professional behavior when a new patient arrives at the clinic.

Keywords: Dentist; Dentist perception, Multivariate analysis, Principal Component Analysis, Loyalty, Loyal patient, Non-loyal patient

1. Introduction

Until the first decade of this century the dental market was led by the traditional clinic model; a small consulting room, characterized by a reduced group of patients and dentists, with low financial capacity, and with a close patient-doctor relationship. Between the nineties and the first decade of this century important changes took place in the dental sector such as the great increase in the number of dentists, a strong price stagnation, the appearance of a large number of dental franchises (sometimes created and owned by non dentists), among others.

These changes have originated a market with excess on the supply side (so stated by dentists) as well as new types of dental clinics offering new services, lower prices and different quality in treatments and last, a new kind of patient.

The appearance of dental franchises has brought the use of new financial and price systems, as well as loyalty strategies which had not been applied previously. It has also revolutionized the application of aggressive commercial strategies.

In this context, the need has appeared on the supply side, particularly in the most traditional clinics, of keeping the best patients to prevent patient churn tempted by loyalty tactics, which means an additional challenge to traditional clinics that cannot easily deal with applying the usual business procedures.

Additionally, there exists clinical evidence that the readiness of patients to be treated is also influenced by the dentist. Research in dental health indicates that the dentist plays a co-creator role in the patients behavior, by means of dentist-patient communication (Hamasaki, Soh, Takehara, & Hagihara, 2011; Shigli & Awinashe, 2010; Sondell, Söderfeldt, & Palmqvist, 2002), among others.

However, literature on patient loyalty in dental clinics has focused to date on the measurement of patient behavior and not on the dentists as manager's perceptions (Caruana

& Fenech, 2005; Holt & McHugh, 1997; Mariani & Zavarrone, 2011), which is also an essential component to understand in a holistic way the behavior of dental patient loyalty.

This research paper focuses on dentist's perception of patient loyalty and thus a direct perspective of management in dental clinics. Moreover, the study contributes to establishing patient's loyalty by focusing on three components: "Same dental clinic and Recommendation", "Patient willingness" and "Low sensitivity to prices" for loyalty patient and "High sensitivity to prices", "High churn and no recommendation" and "Less visits" for non-loyal patient. Mainly, to investigate on the components through which the dentist perceives the behavior of loyal or non-loyal patients in his/her clinic.

2. Customer Loyalty

Customer loyalty studies begin by searching for an economic goal: a repeated purchase. Moreover, some researchers have focused on the preferential attitude of consumers towards a specific brand. Basically, the interest of many researchers and entrepreneurs as far as loyalty is concerned is to differentiate coherent behavior of consumers brand, establishing bounds which may improve the economic results of products or services. Customer loyalty is based on the study from three perspectives: Attitudinal loyalty, Behavioral loyalty, and through the combination of both factors applying different measures for evaluation (attitudinal and behavioral).

The first perspective, attitudinal loyalty, is the favorable attitude towards a given brand or the intention of purchase. It considers cognitive aspects of the patient such as: previous knowledge about the brand, value give to the brand (Jacoby & Kyner, 1973; Oliver, 1999), emotional situations, moods, feelings (Dick & Basu, 1994), impulses, expectations and switching costs, purchase intentions (Dall'Olmo Riley, Ehrenberg, Castleberry, & Barwise, 1997). Among the social aspect of the customer, factors such as social pressure (environment), social hierarchy, recommendations, social motivations, (family, friends,

community), effort made to be integrated in the community (McAlexander, Schouten, & Koenig, 2002).

The second perspective, behavioral loyalty, studies the repeated purchase (Ehrenberg & Goodhardt, 2002). Other works evaluate loyal customer based on market share, product sales, among others (Kin & Yim, 1999).

The third perspective is a combination of factors which consist in evaluating customer loyalty through attitudinal and behavioral factors. Examples of the former being repeated purchases, revisits, spending, etc. and of the latter a favorable attitude towards the brand, intention of revisiting, etc. (Uncles, Dowling, & Hammond, 2003). Other authors suggest that loyalty is multidimensional (McMullan & Gilmore, 2008).

Additionally, there are factors, which can be considered as prior and consequence of the customer loyal behavior. For example, satisfaction appears as a direct prior of the purchase intention (attitudinal perspective) (McMullan & Gilmore, 2008) and indirectly through service quality (Dagger, Sweeney, & Johnson, 2007). Additional research shows that the perception of service quality, confidence, satisfaction and recommendation of the customer are prior to loyalty both from the behavioral and attitudinal points of view (Dagger et al., 2007; Kassim & Abdullah, 2010; Noyan & Şimşek, 2014).

Customer loyalty also facilitates cross-selling, i.e., selling the client other services provided by the same supplier, also called cross-buying (Dagger et al., 2007; Kassim & Abdullah, 2010). At the same time, some authors suggest the opposite relationship, based on the fact that other services offered to the client increase customer retention and favour loyalty (Akura & Srinivasan, 2005; Liu-Thompkins & Tam, 2013), in dental clinics as well (Baldwin & Sohal, 2003).

Other factors are prior to a long client-firm relationship, for instance: switching barriers, recommendation (Blut, Beatty, Evanschitzky, & Brock, 2014), risks in purchase decisions, or

even the influence of attitudinal loyalty (intention) in the creation of behavioral loyalty (action) (Bandyopadhyay & Martell, 2007).

Moreover, prior research suggests that customer loyalty is influenced by other relationships, albeit neither specifically prior nor consequence of loyalty. For example, satisfaction and service recommendation (Noyan & Şimşek, 2014; Oliver, 1999), application of Relational Marketing strategies (Berry, 2002; Sin et al., 2005).

2.1 Dental patient loyalty

Research on patient loyalty in dental clinics is not widespread (Caruana & Fenech, 2005; Holt & McHugh, 1997; Mariani & Zavarrone, 2011; Patterson, 2007), unlike the case of other areas such as patient satisfaction and service quality (DeMoranville & Bienstock, 2003; Hsu & Pan, 2009; Palihawadana & Barnes, 2004; Ueltschy, Laroche, Eggert, & Bindl, 2007). However, works suggests that there exists significant correlations of age and occupation with patient loyalty, namely the larger the age the larger the loyalty (Makarem C, Coe M, Makarem, & Coe, 2014).

Other authors claim that the patient that has completed his/her treatment has a significant loyalty ratio, and **that the service provider is an important driver of patient retention.** (Makarem C et al., 2014). Attention and care of the patient, "dentist puts you at ease", pain control, "safety conscious" and explaining the treatments are presented as important predictors of patient retention in dental clinics (Holt & McHugh, 1997), which **evidences the importance of the dentists personal skills and behavior.** Other studies insist on the importance of satisfaction in dental clinics as prior to patient loyalty (Caruana & Fenech, 2005).

In the service sector, **friendship and trust with the provider are influential on the development of a loyal behavior** (McAlexander et al., 2002). For dentist, friendship with the patient and service recommendation could positively influence the visits to the clinic. It is

stated that depending on the type of patient they will be priors or consequence of their behavior (Chiou, 2006; McAlexander et al., 2002). The care in personal relationships favour patient satisfaction, which results in recommendations to new patients (Benito, 2012; Prados, 2012).

Dentists also claim that there are different patient profiles and thus different behaviors.

They suggest that the figure the loyal patient exists as somebody who follows the dentist's medical advice and who gives priority to dental health over price, showing a favourable willingness to treatment. On the opposite side, there exists the non-loyal patient, he /she that only considers cost (Benito, 2012; Prados, 2012). At the same time, its shown by studies that financial problems constituted the most common reasons for non-retention. Older age, having insurance, and living within a sixty-mile radius were significant drivers of patient retention (Makarem C et al., 2014).

3. Methodology

3.1 Sample characteristics

The sample comprised 230 dentists of which 45.6% are men and 54.4% are women. The age of the **patients** can be stratified into 30 or less (27.8%), 31 to 40 (30.8%), 41 to 50 (18.5%), 51 to 60 (20.3%), 61 and over (2.6 %). As for the type of clinic, the dentist may choose among more than one type in the instrument (survey), in such way that the following percentages add up to more than 100. Namely, the dentist worked in private or owned clinics (42.5%), non owned private clinics (45.7%), which indicates a non-uniform distribution along entrepreneurial and employee dentists. As for dental franchises, they account for 9.1% of the sample and the rest are polyclinics (10%), specialized (10.4%), social security (3.5%), hospitals (2.6%), individual clinics (6.1%), shared (2.2%) and family businesses (8.7%). The dentists had undergraduate studies (82.6%), Masters (51.7%) or PhD (33%).

3.2 Design and Instrument Pretesting

The data have been obtained by means of a survey including 60 questions, which have been classified in 6 sections. The first section is related to the dental clinic type which includes 9 questions answered as intervals and the rest are direct. It studies service quality, patient costs, publicity and business communication. The second group is concerned marketing-related issues, based on aspects of Relational Marketing (Berry, 2002), measured in a Likert scale extended from 1 strongly disagree to 7 strongly agree. The third section is devoted to the behavior of Loyal Patient (LP) and the fourth to the behavior on Non Loyal Patient (NLP). In order to build constructs LP and NLP the survey is based on revised literature measuring aspects of behavioral loyalty such as repeat purchasing behavior, higher spending and lower sensitivity to prices. At the same time, it measures aspects of attitudinal loyalty such as switching barriers, recommendation, service willingness, friendship, family ties with the service, and satisfaction. The items are scaled in natural numbers from seven-point Likert scale (1 strongly disagree to 7 strongly agree). The fifth section refers to possible new business features, including some services which the dentist would be willing to provide (cross-selling). The sixth and last deals with the demographics of the respondent which includes both direct and interval answer questions. The survey was initially performed on a pilot sample with the purpose of assessing issues such as how easily and quickly the items could be read, understood and answered.

The authors carried out a qualitative assessment of the survey by means of a validation of content by an expert panel, which included three dentists and two business marketing researchers, that is five experts overall. Additionally, the study also includes a quantitative assessment of the instrument by means of a reliability analysis of the scales (Cronbach alpha) for both LP resulting in a score of α 0.83 and NLP α 0.83 with the purpose of analyzing the internal consistency of the constructs. The result is the ultimate survey.

Surveys carried out on active dentists from the Madrid Board of Dentists (Ilustre Colegio Oficial de Odontólogos y Estomatólogos de la I Región Madrid) in 2012. The survey was collected in dental clinics, the Madrid Board of Dentist and dental schools of universities, in Madrid-Spain.

3.3 Multivariate Descriptive Analysis and Principal Component Analysis

Initially the study included univariate and multivariate descriptive statistics analysis for all questions in the survey. For constructs LP and NLP the univariate analysis will include, for completion, a quantification of uncertainty in the form of bootstrap confidence intervals.

For these same constructs the study performs a multivariate descriptive analysis based on the analysis of the correlations between the questions involved in the constructs , followed by Principal component analysis (PCA) and Factor analysis (Duntenman, 1989; Mardia, Kent, & Bibby, 1979).

Principal components analysis allows to reduce the dimension of the data, i.e, the number of variables, with minimum loss of information. A new and smaller set of variables (the principal components) are linear combinations of the original ones and summarize their information optimally. They also facilitate the analysis of the information in the survey: on the one side, they allow for the identification of latent or unobserved variables, which can however reveal themselves as important for the analysis and can thus facilitate interpretation, given also that they are uncorrelated.

The identification of principal components takes place through the analysis of covariances or correlations. Here the choice was correlations, which requires prior standardization of the data so that all variables are on equal footing.

Subsequently, inference is introduced with the application of factor analysis with the varimax rotation criterion to make factor interpretation easier, since those which are involved

in some of the original variables are not so in others and viceversa. The SPSS package is the tool applied for all statistical analyses.

4. Results

4.1 Descriptive Analysis

In Table 1 and Table 2 we show the descriptive statistics for the variables under study, which correspond to items related with constructs of LP and NLP.

At the same time, the study includes a chi-square goodness of fit test for the items of the constructs. The results indicate non normality for all 26 items in the study.

Bootstrap confidence intervals complete the quantification of uncertainty, and the results appear in Table 1 (for the LP items) and Table 2 (for the NLP items).

Table 1 here

Table 2 here

4.2 Principal Component Analysis Results

The correlation analysis carried out before the PCA showed high correlations between the questions of the LP construct. 1) Item LP3 and LP6 (0.59), aspects which measure the patient recommendation and whether his/her family are treated in the clinic as well. 2) Items LP7 and LP8 (0.66) aspects which measures the willingness to be treated and to hire new services. 3) Items LP3 and LP12 (0.62) aspects which measure patient recommendation and satisfaction. As for the NLP construct, 4) the item NLP1 and NLP3 (0.54) aspects measuring the propensity of the patient for non-recommendation of the clinic.

Secondly, the results from PCA in this research highlight three components for the LP construct (as perceived by the dentist) which explain 57.9% of variability of the data in the survey (Figure 1), and also three components for the NLP construct (as perceived by the dentist) explain 59.7% of the variability in the data of the survey (Figure 2).

As for the LP construct, the results brought out a first component called "Same Dental Clinic and Recommendation" which explains a 24.3% of the variability in the data. This component is defined by the group of variables with their different weights in the component matrix: "He/she still comes to our dental clinic in spite of 'better service' offered by other clinics" (0.71); "It is hard for him/her to switch dental clinics" (0.66), "He/she recommends the dental clinic to other people" (0.75); "He/she attends frequently the dental clinic" (0.49); "He/she has attended the dental clinic for a long time" (0.71); "His family (offspring, parents, siblings, etc) are also treated in our dental clinic" (0.63); "He/she is satisfied with the dental clinic and the service provided" (0.58).

The second component (LP), called "Patient willingness" explains a 16.8% of the variability explained by the data. This component is defined by the group of variables with their corresponding weights in the component matrix "he/she is more willing to be treated in the dental clinic" (0.82); "He/she is more willing to hire new services in the dental clinic" (0.84); "He/she has established a close relationship with staff or dentist in the dental clinic" (0.45).

The third component (LP) called "Low sensitivity to prices" explains 16.7% of the variability in the data. This component is defined by the group of variables with the corresponding weights in the component matrix: "He/she pays more in his/her visits" (0.78); "For the dental clinic the cost of the patient per visit is usually lower" (0.78); "He/she has low sensitivity to prices" (0.77).

As for the NLP construct, the first component extracted, called "High sensitivity to prices", explains a 21.2% of the variability explained by the data. This component is defined by the group of variables with their corresponding weights in the component matrix: "He/she pays less for the services in his/her visits" (0.69); "For the dental clinic the cost per patient is

usually higher" (0.75); "He/she has no personal friendship with staff or dentists in the dental clinic" (0.69); "He/she is more sensitive to prices than other patients" (0.77).

The second component (NLP) called "High Churn and few recommendation" explains a 20.7% of the variability explained by the data. This component is defined by the group of variables with their corresponding weights in the component matrix: "He/she is prone to switch dental clinic when offered 'better services'" (0.86); "He/she easily switches dental clinics" (0.81); "He/she usually very little recommends the dental clinic to other people" (0.70); "He/she is unlikely to be treated in the dental clinic" (0.43), "He/she is unsatisfied with the dental clinic and the service provided" (0.57).

The third component (LP) called "less visits" explains a 17.7% of the variability in the data. This component is defined by the group of variables with their corresponding weights in the component matrix: "His/her visits are sporadic (0.74)"; "He/she has only been attending the dental clinic for a short time" (0.74); "He/she has no relatives attending the dental clinic (0.66); "He/she is more cautious when hiring new services in the dental clinic" (0.47).

Finally, from the PCA we checked the coherency between the items of constructs LP and NLP as shown by the Cronbach analysis (pretest), which confirms the reliability of both the design and the measurements of the survey.

Figure 1 Component number LP construct

Figure 2 Component number NLP construct

Table 3 Rotated Component Matrix

5. Discussion

The main added value of this research is the analysis of dentist's perception of patient loyalty in their clinics.

The results of the research show that dentist's perception is multidimensional (Bobalca, 2013). The first component of the LP construct gives great weight to aspects of behavioral

loyalty such as service repeat, recommendation and patient satisfaction which are studied under attitudinal loyalty (Ehrenberg & Goodhardt, 2002; Kin & Yim, 1999).

The second component of the LP construct gives great weight to patients willingness to be treated and to hire new services, those aspects being confirmed by the literature on attitudinal loyalty (Bandyopadhyay & Martell, 2007).

For dentists the third component of patient loyalty is low sensitivity to prices. This indicates that, for the specialist, the price of services and the patient's economic feasibility conditions drives him/her towards not switching dentists. However, research carried out from the patient's perspective in dental clinics show that the economic status of the patient conditions loyalty only for older patients, that is not for all of them (Makarem C et al., 2014). Other works do not find price to be a driver for patients (Vargas P., 2015).

Although, for loyal patients, dentists perceive that price ranks as the third component in weight, as opposed to the case of non-loyal patients where it is the component with the largest weight. This indicates that the dentist perceives that there exist at least two different patient profiles, first the one who searches for the best prices and second he/she who does not. The results envisage the non-loyal patient as the one who is just concerned about economic optimality. To what extent is this last aspect related to non-loyal patients behavior? Research in service quality in dental clinics shows that patients (non-loyal ones as well) look for empathy, that is, that the dentists show special interest on his/her illness and value punctuality in appointments (Baldwin & Sohal, 2003; Hsu & Pan, 2009; Jones & Huggins, 2014). However, for professionals, non-loyal patients will always look for the best prices and will give little value to other features of service (Benito, 2012; Prados & Benito, 2012).

The second component of the NLP construct gives great weight to variables related to attitudinal loyalty. In this direction, dentists are capable of detecting non-loyal patients if

he/she is either not willing to be treated, has switched clinics very frequently or does not recommend the clinic.

The third component of NLP is characterized by a large weight of the behavioral loyalty groups, such as service repeat and, to a lesser degree, by aspects of attitudinal loyalty, such as the society where the clinic lives (McAlexander et al., 2002). In this direction, the dentist perceives that the non- loyal patient visits the clinic less frequently, which highlights low social and affective bounds of the patient to the clinic.

On the other side, correlations show that dentists perceive that: 1) if the patient and his/her family attend the clinic, he/she will recommend the service. This indicates that, for dentists, care of patients is important not only individually but also in the role of family doctor. 2) For dentists, patient's willingness to treatment drives hire of new services. This last issue is of great interest, given that it would allow for to detection of cross-selling patients (Liu-Thompkins & Tam, 2013). 3) For dentists, recommendation is a key aspect of dental clinic management. Dentists perceive that if a patient is satisfied, he/he will then recommend the clinic or viceversa. Moreover, for the non loyal patient, they notice that recommendation is irrelevant.

The recommendation to patients is presented for the dentists as a very important variable which conditions the behavior of loyal patients. Willingness to be treated paves the way for hiring new services and sensitivity to prices should be taken care of and managed very closely on the arrival of new patients, in such way that it does not condition future returns of a "seemingly" non-loyal patient. The dentist is thus a co-creator in loyal patient's behavior.

6. Conclusions and further research

For dental clinics, to be able to retain patients, particularly if he/she is a good one, is more valuable than getting a new one. It is known that getting a new customer requires typically high investment in marketing, advertising and human resources, while retaining a client can

be reduced costs and efforts. Moreover, when a loyal and satisfied patient may be a prescriber for the dental clinic, and bring new customers without having to pay for extra marketing strategies. Regarding this, the study the components of dental patient loyalty as perceived by the dentist, adding the point of view of oral health specialists. Mainly in dental clinics where there exists an aggressive competition, as dental franchise.

Dentist is a doctor and manager at the same time, generally without strategic knowledge and does not usually have the background to face the currently competition. Unfortunately, among this kind of practitioners there exist some who see marketing actions as unethical resource. This perspective collides with the attitude of dental franchise managers, who do not share these concerns and take advantage of this.

This research is particularly relevant as far as the identification of these components allow for taking measures involving them to achieve specific goals and to compare them with patient perceptions. A comparison will confirm the gaps in the dentist-patient relationship which a priori are highlighted by this research. This will detect the most important aspects of patient loyalty in the dental clinic.

Moreover, an interesting area of research is the assessment of the influence assigned by the dentist to price and to the economic status of the patient. This issue should be studied in more depth in future research on dental patient loyalty.

Another promising field of research is the assessment of constructs studied in this study by means of alternative techniques, such as for example, fuzzy logic, in such way that the study analyses diffuse information that a person, in our case the dentist, tried to quantify in the agreement-disagreement scales proposed in the survey.

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Apendix

Items Loyal Patient (LP)

LP1. He/she still comes to our dental clinic in spite of ‘better service’ offered by other clinics

LP2. It is hard for him/her to switch dental clinics

LP3. He/she recommends the dental clinic to other people

LP4. He/she attends frequently the dental clinic

LP5. He/she has attended the dental clinic for a long time

LP6. His family (offspring, parents, siblings, etc) are also treated in our dental clinic.

LP7. He/she is more willing to be treated in the dental clinic

LP8. He/she is more willing to hire new services in the dental clinic

LP9. He/she pays more in his/her visits

LP10. For the dental clinic the cost of the patient per visit is usually lower

LP11. He/she has established a close relationship with staff or dentist in the dental clinic

LP12. He/she has low sensitivity to prices

LP13. He/she is satisfied with the dental clinic and the service provided

Items Non Loyal Patient (NLP)

NLP1. He/she is prone to switch dental clinic when offered 'better services'

NLP2. He/she easily switches dental clinics

NLP3. He/she usually very little recommends the dental clinic to other people

NLP4. His/her visits are sporadic

NLP5. He/she has only been attending the dental clinic for a short time

NLP6. He/she has no relatives attending the dental clinic

NLP7. He/she is unlikely to be treated in the dental clinic

NLP8. He/she is more cautious when hiring new services in the dental clinic

NLP9. He/she pays less for the services in his/her visits

NLP10. For the dental clinic the cost per patient is usually higher

NLP11. He/she has no personal friendship with staff or dentists in the dental clinic

NLP12. He/she is more sensitive to prices than other patients

NLP13. He/she is unsatisfied with the dental clinic and the service provided

Table 1 Descriptive Analysis and Bootstrap of LP

| | Statistic | Bootstrap ^a | | | |
|---------------------|-----------|------------------------|----------------|-----------------------------|-------|
| | | Bias | Standard error | BCa 95% Confidence Interval | |
| | | | | Lower | Upper |
| N | 213 | 0 | 0 | 213 | 213 |
| LP1 Mean | 6.12 | .00 | .09 | 5.94 | 6.30 |
| LP1 Std. Deviation | 1.260 | -.004 | .117 | 1.037 | 1.485 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP2 Mean | 5.50 | .00 | .11 | 5.27 | 5.71 |
| LP2 Std. Deviation | 1.624 | -.006 | .094 | 1.435 | 1.807 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP3 Mean | 6.15 | .00 | .09 | 5.97 | 6.32 |
| LP3 Std. Deviation | 1.280 | -.005 | .127 | 1.025 | 1.512 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP4 Mean | 5.49 | .00 | .09 | 5.31 | 5.67 |
| LP4 Std. Deviation | 1.365 | -.004 | .078 | 1.207 | 1.508 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP5 Mean | 5.82 | .00 | .09 | 5.63 | 5.98 |
| LP5 Std. Deviation | 1.216 | -.004 | .085 | 1.050 | 1.382 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP6 Mean | 6.07 | .00 | .09 | 5.90 | 6.23 |
| LP6 Std. Deviation | 1.236 | -.004 | .106 | 1.023 | 1.445 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP7 Mean | 5.44 | .00 | .10 | 5.24 | 5.62 |
| LP7 Std. Deviation | 1.402 | -.003 | .082 | 1.234 | 1.566 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP8 Mean | 5.12 | .00 | .11 | 4.91 | 5.34 |
| LP8 Std. Deviation | 1.573 | -.005 | .086 | 1.405 | 1.732 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP9 Mean | 3.15 | .00 | .12 | 2.89 | 3.38 |
| LP9 Std. Deviation | 1.876 | -.004 | .065 | 1.737 | 1.996 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP10 Mean | 3.58 | .00 | .13 | 3.32 | 3.84 |
| LP10 Std. Deviation | 1.911 | -.006 | .061 | 1.787 | 2.024 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP11 Mean | 5.28 | .00 | .10 | 5.08 | 5.48 |
| LP11 Std. Deviation | 1.484 | -.005 | .085 | 1.307 | 1.655 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP12 Mean | 4.14 | .00 | .11 | 3.91 | 4.36 |
| LP12 Std. Deviation | 1.712 | -.005 | .069 | 1.571 | 1.846 |
| N | 213 | 0 | 0 | 213 | 213 |
| LP13 Mean | 6.07 | .00 | .09 | 5.90 | 6.23 |

| | | | | | |
|--|-------|------|------|------|-------|
| Std. Deviation | 1.189 | .000 | .098 | .997 | 1.378 |
| a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples | | | | | |

Table 2 Descriptive Analysis and Bootstrap of NLP

| | Statistic | Bootstrap ^a | | | | |
|----------------|-----------|------------------------|----------------|-----------------------------|-------|--|
| | | Bias | Standard error | BCa 95% Confidence Interval | | |
| | | | | Lower | Upper | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP1 Mean | 6.16 | .00 | .09 | 5.96 | 6.33 | |
| Std. Deviation | 1.409 | -.004 | .117 | 1.162 | 1.628 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP2 Mean | 5.97 | -.01 | .10 | 5.77 | 6.16 | |
| Std. Deviation | 1.454 | -.003 | .108 | 1.230 | 1.661 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP3 Mean | 5.48 | .00 | .10 | 5.25 | 5.68 | |
| Std. Deviation | 1.575 | -.001 | .085 | 1.405 | 1.727 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP4 Mean | 4.78 | .00 | .12 | 4.53 | 5.00 | |
| Std. Deviation | 1.758 | -.009 | .066 | 1.625 | 1.883 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP5 Mean | 3.78 | .00 | .13 | 3.53 | 4.01 | |
| Std. Deviation | 1.827 | -.004 | .067 | 1.690 | 1.951 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP6 Mean | 4.06 | .00 | .12 | 3.83 | 4.31 | |
| Std. Deviation | 1.798 | -.006 | .067 | 1.667 | 1.922 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP7 Mean | 4.90 | -.01 | .11 | 4.67 | 5.11 | |
| Std. Deviation | 1.710 | -.003 | .072 | 1.561 | 1.847 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP8 Mean | 4.57 | .00 | .10 | 4.37 | 4.77 | |
| Std. Deviation | 1.535 | -.006 | .075 | 1.394 | 1.676 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP9 Mean | 3.41 | .00 | .12 | 3.17 | 3.65 | |
| Std. Deviation | 1.762 | -.009 | .062 | 1.633 | 1.877 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP10 Mean | 3.69 | .00 | .12 | 3.42 | 3.92 | |
| Std. Deviation | 1.798 | -.010 | .067 | 1.657 | 1.921 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP11 Mean | 4.13 | .00 | .12 | 3.91 | 4.35 | |
| Std. Deviation | 1.728 | -.008 | .069 | 1.587 | 1.861 | |
| N | 219 | 0 | 0 | 219 | 219 | |
| NLP12 Mean | 4.49 | .00 | .11 | 4.27 | 4.70 | |

| | | | | | | |
|-------|----------------|-------|-------|------|-------|-------|
| | Std. Deviation | 1.638 | -.005 | .067 | 1.503 | 1.759 |
| | N | 219 | 0 | 0 | 219 | 219 |
| NLP13 | Mean | 5.44 | .00 | .11 | 5.21 | 5.67 |
| | Std. Deviation | 1.703 | -.005 | .084 | 1.526 | 1.862 |

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Figure 1 Component number LP construct

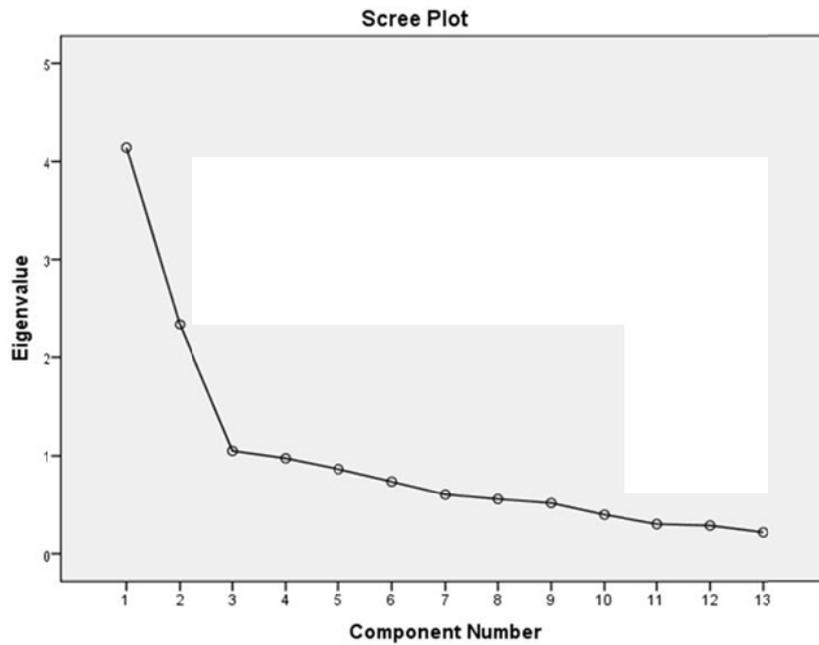


Figure 2 Component number NLP construct

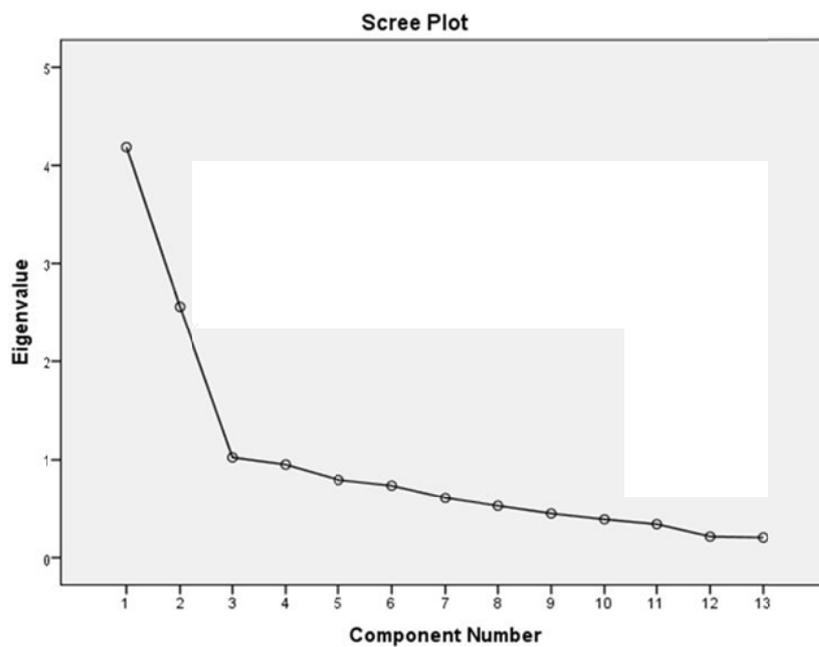


Table 3 Rotated Component Matrix

| Loyal Patient Items | Component (a) | | | Non Loyal Patient Items | Component (b) | | |
|------------------------|---------------|------|------|----------------------------|---------------|------|------|
| | 1 | 2 | 3 | | 1 | 2 | 3 |
| LP1 | .713 | | | NLP1 | | .864 | |
| LP2 | .661 | | | NLP2 | | .816 | |
| LP3 | .751 | | | NLP3 | | .709 | .346 |
| LP4 | .493 | | | NLP4 | | | .741 |
| LP5 | .712 | | | NLP5 | | | .748 |
| LP6 | .633 | .464 | | NLP6 | | | .665 |
| LP7 | | .820 | | NLP7 | .354 | .434 | |
| LP8 | | .843 | | NLP8 | .337 | | .474 |
| LP9 | | | .775 | NLP9 | .698 | | .365 |
| LP10 | | | .775 | NLP10 | .751 | | |
| LP11 | | .458 | | NLP11 | .693 | | |
| LP12 | | | .772 | NLP12 | .771 | | |
| LP13 | .582 | | | NLP13 | .426 | .571 | |

Extraction Method: Principal component analysis.
Rotation Method: Varimax with Kaiser Normalization.
(a) Rotation converged in 5 iterations.
(b) Rotation converged in 6 iterations.