Avaliação da Satisfação com os Cuidados Anestésicos

Satisfaction with Anesthesia Care

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Abstract

Patients' satisfaction is considered an important indicator of health care outcome and is quickly providing a closer look to our anesthesia practice. Our aim is to apply a validated questionnaire by Moura et al.: "Heidelberg Peri-Anesthetic Questionnaire" on patients' receiving elective procedures in vascular, plastic and general surgery and study the influences of their social-demographic and clinical characteristics on satisfaction outcome.

The patients were given the 32-item consensus version questionnaire, by a member of the study who did not intervene in the patient's anesthesiology team.

A heterogenic sample was used and we found that a four dimensions questionnaire suited better than the five presented originally. The results revealed that all items contribute to instrument internal consistency (Cronbach's α 0,614-0,826). The highest satisfaction was associated with Team Dimension (D1, mean=90,8; ST±=12,0) and the lowest satisfaction with Discomfort (D4, mean=62,1; ST±=21,9). Univariate analysis found compelling influences of gender, school education, previous consult and surgical service in three domains. Moreover, after a multiple linear regression analysis, gender showed influence on Discomfort (D4) and Anxiety/Fear (D2), with men showing less fear (β=11,5; CI 95%: [3,2;19,8]) and less discomfort (β=14,8; CI 95%: [8,2;21,5]). Also, less literate patients were more satisfied with D1 (β=5,8; CI 95%: [0,5;11,1]) as well as patients with pre-anesthetic consult (β=4,4; CI 95%: [0,7;8,0]).

Globally we can determine that patients are satisfied with their anesthesia care and this questionnaire could easily be used in a day-to-day basis and could give a reliable feedback on the anesthesiologists' performance.

Keywords: Satisfaction; Anesthesia; Questionnaire; Surgery; Perioperative period; Dimensions.

Introduction

The Royal College of Anesthetists states that "Reliable patient feedback will be a valuable indicator and source of supporting information of certain professional skills for appraisal and revalidation" [1].

Evaluation of healthcare is essential for quality improvement of services, but assessments usually give preference to technical and physiological reports of outcome. [2] The statement above reflects the importance of both technical and non-technical dimension of outcome. The technical outcome measures the abilities and skills of professionals and diagnostic or therapeutic procedures, whereas the non-technical dimension relates to a newly emerging concept in Anesthesia, the patients' subjective experience: satisfaction [3]. In fact, the majority of papers, published to date in this field of knowledge, compare anesthesia-related incidents and complications and not the quality of outcome, viewed as the satisfaction measure. [4]

Satisfaction is defined as a complex concept, including physical, emotional, mental, social and cultural factors. It is now regarded as a valid measure of outcome of healthcare, as it influences patients' compliance with procedures, treatments, relationship with physicians, among others. [5] As a complex concept, in anesthesia this is further intensified by the effect of drugs on cognition, short time interval of the anesthesia process and sometimes a strong emotional context [5]. Put simply,

satisfaction, based on the theory of expectations, depends on the congruence between patients' expectations and reality. [6]

Anesthesiologists have been working for more than 40 years in the purpose of developing objective measures of patient satisfaction, though there is still lack of uniformly accepted methods for this evaluation. [7]

This study builds on important previous efforts made by Schiff et al., for measuring of patient satisfaction with perioperative services and takes as a foundation a 38-item pilot questionnaire designed as a psychometrically model, which has been proved as a valid and reliable tool. [8]

The questionnaire developed by Schiff et al., does not directly ask patients if they are satisfied with different aspects of care, but instead if certain events occurred during the course of the perioperative period. The events mentioned were proven to address important issues to patients, based on qualitative in-depth interviews with patients and focus group. [8]

Our aim is, regarding the "Heidelberg Peri-Anesthetic Questionnaire" developed by Schiff et al [8] and the Portuguese validation study [9] conducted by Moura et al., to confirm the psychometric qualities of this questionnaire in a more diversified sample,

namely his multidimensional character. Furthermore, our goal consists in evaluating the influence of social-demographic and clinical characteristics, such as pre-operative consult, in satisfaction outcome.

Materials and Methods

Instrument

The "Heildberg Peri-Anesthetic Questionnaire" is a questionnaire developed by Schiff et al [8], to assess patients' peri-anesthetic satisfaction. This questionnaire consists of 38 items that were rated for preference on a four-point Likert scale (from 1 – unimportant - to 4 -very important). Factor analyses identified 5 dimensions to which every question could be assigned [8]: Trust and Atmosphere; Fear; Discomfort; Treatment by Personnel; and Information and Waiting. Internal consistency was demonstrated for the 5 factors (dimensions), with a Cronbach's α: 0,42-0,79.

Regarding avalidation study for Portuguese language developed by Moura et al. [9] we proceeded to study the psychometric properties of "Heidelberg Peri-Anesthetic Questionnaire", in 111 patients in General Surgery, emerging only 3 dimensions, with a Cronbach's α between 0,776-0,875 and a total explained variance of 42,6%.

Seven out of 39 items of the questionnaire were excluded for presenting low commonality values.

Study Design

Our aim is to apply a validated questionnaire by Moura et al. [9] on patients' receiving elective procedures in vascular, plastic and general surgery and study the influences of their social-demographic and clinical characteristics on satisfaction outcome. As suggested in the previous study [9], we added an item to the quality of sleep after surgery. The instrument employment used Schiff et al recommendations [8].

Sample size was determined by the number of participants needed for the development of factor analyses, using the recommendation of 5 participants per each item. [10]

After approval by the Hospital's Ethics Committee, informed consent was obtained from all patients. The hospital of our study covers a population of 3 million people and has 1124 beds.

Within 12-24 hours after surgery, patients were given the 32-item consensus version questionnaire by a member of the study. The anesthesiology team responsible for the patient did not have any knowledge of the study. Patients were informed that they could, at any moment, refuse their participation in the survey, with no burden on the medical care they received. For confidentially purposes, codification of the questionnaires was ensured. Investigators were forbidden to persuade patients to

complete questions or to participate in the study. To maximize the return rate, all questionnaires were administered and collected before patients left the hospital. Questionnaires were delivered every Tuesday through Saturday from 9th July to the end of October.

The inclusion criteria comprised: age older than 18 years, ability to read and write Portuguese and elective surgery in one of three services (Vascular Surgery, General Surgery and Plastic Surgery).

Out patients and those cognitively impaired or unable to read and write Portuguese were excluded. For each patient following data was collected: gender, civil state, highest education level, previous surgeries, type and duration of anesthesia, the existence or absence of a previous anesthesia consult, ASA physical state, surgical risk, time between end of surgery and questionnaire fulfill and the time consumed in completing the questionnaire.

In this study participated 192 patients and their social-demographic and clinical characteristics can be assessed in table 1.

Statistical Analysis

Cronbach's α was calculated for item internal consistency and exploratory factor analysis (EFA) was performed to determine item structure relation. We chose to replace the missing values by mean values to reinforce data analyses. The dimensions were determined after varimax-rotation [11] and the number of dimensions to retain was established by Scree Plot criteria.

To assess EFA adequacy we used Kaiser-Meyer-Olkin (KMO) test and The Bartlett Sphericity test. [12] Only items with factorial load ≥ 0,35 were included in dimensions. Items whose factorial loads were below 0,35 and commonality values below 0,2 were rejected.

Items with negative meaning had reverse score. Score for each dimension was obtained as the sum of the answers for each item that compose that dimension and converted as a percentage (0-100%). Maximum value (100%) represents maximum satisfaction in a dimension.

Data was summarized with mean and standard deviation (SD±). Univariate analysis was performed between patient's characteristics and dimensions found. To estimate the difference significance between mean values of the dimensions and social-demographic and clinical values we used T-student test and Variance Analysis.

Variables that revealed significance for $p<0.20$ in univariate analyses were included in a multiple linear regression model. Relation between patients' characteristics and dimensions was determined by regression coefficients and respective confidence intervals 95% (CI 95%).

For statistical analysis we used the software Statistical Package for the Social Sciences (SPSS) version 20.0. A value of $p < 0.05$ was considered statistically significant.

Results

Construct Validity and Internal Consistency

Initially we verified if item distribution suited 5 dimensions such as found by Schiff [8]. However, the 5 dimension solution like it was presented in the original version of the scale proved to be inadequate, as the 5th dimension would be composed of only two items with different theoretical contents, reason why we preferred the 4 dimension solution.

Analysis of the Scree Plot graphic (Figure 1) suggested, in a more clear way, the 4 dimension solution proves to be more accurate.

Bartlett Sphericity test showed statistic significant results ($p < 0{,}001$), indicating the items shared a common variance and KMO measure was 0,767, suggesting the variables measured more than one component. [12]

The validated scale remained with 30 items that had an expressive load in just one dimension. We excluded 8 items that obtained commonality values <0,2 and factor load $<|0{,}35|$ (10, 16, 17, 18, 21, 22, 23, 30, 31).

The four dimension solution explained 43,5% of total variance. The 1st principal component with eigenvalue of 5,9 explained 20,2% of total variance. The 2nd principal component with eigenvalue of 2,6 explained 9,1% of variance. The 3rd principal component with eigenvalue of 2,1 explained 7,3% of variance and the 4th with eigenvalue of 2,0 explained 6,9% of variance, resulting in 43,5% of explained variance. (Table 2)

The results obtained revealed that all items contribute to instrument consistency. Cronbach's α coefficient values for 4 dimensions presented consistency internal indexes between 0,614 and 0,826: D1 (Dimension 1) (α = 0,826), D2 (Dimension 2) (α = 0,776); D3 (Dimension 3) (α = 0,665) e D4 (Dimension 4) (α = 0,614).

Peri-anesthetic satisfaction

Considering the 4 dimension mean, in a scale from 0 to 100 points, we verified the dimensions presented the following mean values: D1 (mean=90,8, ST±=12,0); D2 (mean=68,1, ST±= 26,5); D3 (mean=82,4; ST±=18,7); D4 (mean=62,1; ST±=21,9) (Figure 2).

Effect of social-demographic and clinical characteristics in peri-anesthetic satisfaction

Univariate analyses demonstrated D1 dimension is influenced by highest education level (p=0,021) and pre-anesthetic consultation (p=0,012). D2 is influenced by gender (p=0,002) and surgical service (p=0,010). D4 is influenced by gender (p<0,001). (Table 3)

After multivariate analysis, highest level of education and pre-anesthetic consultation maintained a significant effect in D1 domain. Patients which did not finish high school were more satisfied with D1 compared with graduate and post-graduate patients (β=5,8; CI 95%: [0,5;11,1]). Correspondingly, patients that attended a pre-anesthetic consult had higher levels of satisfaction in D1 (β=4,4; CI 95%: [0,7;8,0]). (Table 4)

After multivariate analysis, gender and civil state maintained the significant effect in D2. Men felt less fear than women (β=11,5; CI 95%: [3,2;19,8]). Furthermore, singles also felt braver than married patients (β=8,9; CI 95%: [0,03;17,8]). (Table 5)

Significant effects were not found in D3. (Table 6)

Posterior to multivariate analysis, only gender provided a significant effect on D4, with men showing less discomfort than women (β=14,8; CI 95%: [8,2;21,5]).

Discussion

Patient satisfaction is an important indicator of health care outcome and provides an insight of service quality in anesthesiology. As competition increases for patients in our career, satisfaction appears as a very important concept. [13]

Furthermore, as patient satisfaction is proved to correlate with patient behaviors and compliance, more satisfaction will probably mean improved continuity of care. [13]

Many studies emphasized lack of standardized and valid instruments to assess patient satisfaction in anesthetic care. [6] The development of satisfaction questionnaires is relatively recent, as patient satisfaction was acknowledged as an indicator of the quality of practice for specialties such as anesthesia. Therefore, these questionnaires should be used to assess patient satisfaction as an outcome of anesthesia care. [6]

Most of previous projects to develop questionnaires on patient satisfaction paid little or no attention to involvement of patients when developing the question items and used single-item questions and yes/no or Likert response formats, which have yielded uniformly high scores, thus lacking reliability and validity. [4,6]

When multi-item scales are used, we can achieve more discrimination. [3] However, lower scores are significant only if those items represent the determinants most important to patient satisfaction, which is represented by content validity. Otherwise, evaluations reproduce only the biases of the physicians who constructed them. [6]

The "Heidelberg Peri-Anesthetic Questionnaire" has undergone validation at three different hospitals [8]. Besides considering potential confounding variables and cognitive methods, it puts emphasis on patients' concerns.

This original questionnaire was previously translated to Portuguese language and validated in another study [9]. We decided to proceed with this validated study and explore the effects of different social-demographic and clinical factors on satisfaction in anesthesia practice.

As we used a more heterogenic sample than Moura et al., we found 4 dimensions which suited better than the 5 dimensions presented by Schiff et al [8], therefore excluding 2 items of the questionnaire.

The questionnaire in this study was given to Portuguese patients in Hospital de São João EPE, Porto.

The results of confounding variable analysis showed that there are statistical significant relationships between pre-anesthetic consult, highest school education, gender and civil state and different dimensions. In literature, the effects of these characteristics on satisfaction are inconsistent.

In a recent European study [14], regarding fear and anxiety with anesthetic experience, there were no significant differences regarding gender, age, literacy and previous surgeries, which is similar to our study (Fear and Anxiety = D2).

Regarding gender, we realized men are more satisfied when compared to women only on D2 and D4, reproducing the results of Moura et al, which also displayed better values for men only in these two dimensions. We also established a correlation between pre-anesthesia consults and D1, evidencing these patients were more satisfied due to communication and better doctor-patient relationship. In Moura et al [9], values of satisfaction on D1 are also significantly influenced by pre-anesthesia consult, although we found a more sustained evidence (p=0,012 in our study vs p=0,040 in Moura et al.). Therefore, this proved to be an accurate and strong conclusion in both studies. In our study, D1 is also influenced by highest education, supporting that the higher education is associated with less satisfaction. This is a variable not studied by Moura et al [9] and

that has proven its influence on the results and should therefore be regarded in future studies, as a potential confounding factor.

There was no significant effect of type and duration of anesthesia, pointing the satisfaction was universal regarding the different procedures. We also did not find relationships between surgical service, surgical risk and satisfaction, and, more surprisingly, there was no significant effect of ASA physical state on each satisfaction dimension. However, many previous studies supported a positive correlation between health status and satisfaction. [4]

As in other studies [14] we did not prove a significant correlation between the results and number of previous surgeries.

The authors of the original scale [8] and Moura et al [9] noted patients submitted to regional anesthesia had some limitations filling the questionnaire, a bias not sustained in our work.

The results here displayed support that this questionnaire could easily be used in a day-to-day basis and could give a reliable feedback on anesthesiologists performance, with a mean fulfilling time of 10,5 minutes.

However, we should also notice that high levels of satisfaction are found in many studies, independently of the evaluation instrument for satisfaction used. Fung et al [6] referred satisfaction could be perceived as a sense of gratitude towards the medical staff. In fact, "social desirability bias" is a recognized concept that transmits the tendency of respondents to answer questions in a manner that will be viewed favorably by other. This bias poses a serious problem with our study and others alike, interfering with interpretation of results. To minimize this "social desirability bias" we followed Moura et al [9] recommendations and the questionnaire was given to the patient by a member of the study, who did not intervene in the anesthesia care. Also, the patient was left alone filling the questionnaire.

Our study also presents limitations: the small sample size (192 patients) probably contributed to a low power to detect differences between dimensions and effects of variables. Although promising and consistent with previous results shown by Moura et al. [9] in the same hospital, other studies should be conducted in larger samples and other Portuguese hospitals.

Further studies are then needed to confirm these effects and validate this instrument to other Portuguese hospitals. As Schiff et al suggested [8] we could also cross-validate this questionnaire with others regarding aspects such as social desirability, hospital stay and surgery aspects (wound infection, etc), improving its performance of evaluating the professional's work. Probably other important correlates

of satisfaction will be recognized with detailed research with patients either in-hospital ones or after they returned home. [13]

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		Count	Column N %
Sex	Male	72	37,7%
	Female	119	62,3%
Civil State	Single/widow/divorced	55	29,3%
	Married/civil union	133	70,7%
Highest education	Did not finish high school	128	67,0%
	High school diploma	38	19,9%
	College degree	25	13,1%
	Post-graduate study	0	0,0%
ASA Physical State	ASA I	51	27,4%
	ASA II	93	50,0%
	ASA III	42	22,6%
	ASA IV-V	0	0,0%
Surgical risk	Minor	81	43,3%
	Medium	87	46,5%
	Major	19	10,2%
Anaesthesia type	General	166	88,8%
	Other	21	11,2%
Anaesthesia time	≤ 120 min	95	52,2%
	>120 min	87	47,8%
Pre-anaesthesia consult	No	121	63,4%
	Yes	70	36,6%
Previous surgeries	0	30	16,0%
	1 - 2	78	41,7%
	3+	79	42,2%
Surgical service	General	111	59,4%
	Vascular	29	15,5%
	Plastic	47	25,1%

Table 1- Distribution of patients' Social-Demographic and Clinical characteristics.

Column N- column number.

Item	Team	Fear/Anxiety	Loneliness	Discomfort
P2	**,690**	-,080	,072	-,014
P6	**,487**	-,270	-,078	,043
P19	**,620**	,058	-,001	,048
P20	**,714**	-,098	-,073	-,056
P24	**,573**	-,073	-,226	,113
P25	**,470**	-,021	-,086	,093
P34	**,565**	-,060	-,162	-,160
P35	**,634**	-,049	-,042	-,113
P36	**,531**	,096	-,328	-,252
P37	**,546**	,036	-,200	-,159
P38	**,793**	-,118	-,092	-,058
P39	**,725**	-,147	-,063	-,148
P7	-,169	**,711**	,086	-,066
P8	-,092	**,835**	-,027	-,026
P9	,061	**-,559***	-,008	-,142
P11	,032	**,774**	,074	-,012
P14	-,141	**,622**	,258	,166
P1	-,016	-,075	**,616***	,181
P3	-,076	,030	**,699***	-,108
P4	-,155	,002	**,721***	-,078
P5	-,270	,188	**,503***	-,131
P12	-,062	,212	**,498***	,227
P13	-,175	,208	**,426***	,112
P15	,017	,173	-,137	**,523***
P26	-,109	,016	,089	**,416***
P27	,072	,230	-,262	**,467***
P28	-,067	-,018	,077	**,664***
P29	,062	-,075	-,048	**,603***
P32	-,084	,229	,186	**,440***
P33	-,147	-,148	,171	**,565***
Eigenvalues	5,9	2,6	2,1	2,0
% Explained Variance	20,2	9,1	7,3	6,9

Table 2 – Items factorial loads on the 4 dimension solution with varimax rotation

	Team (D1)		Fear/Anxiety (D2)		Loneliness (D3)		Discomfort (D4)	
Variables	Mean(SD)	p value	Mean (SD)	p value	Mean (SD)	p value	Mean (SD)	p value
Gender								
Male	90,9 (12,1)	0,959	75,6 (23,2)	0,002*	84,8 (17,7)	0,160	71,2 (22,0)	<0,001*
Female	90,8 (11,9)		63,6 (27,5)		80,9 (19,3)		56,4 (20,1)	
Civil state								
Single/divorced/widow	91,2 (11,4)	0,791	72,1 (26,0)	0,194	84,4 (18,9)	0,304	60,6 (22,3)	0,520
Married/civil union	90,7 (12,1)		66,6 (26,8)		81,3 (18,9)		62,9 (21,8)	
Highest education								
Not finish high school	92,4 (10,8)	0,021*	69,7 (25,9)	0,436	82,9 (19,6)	0,852	63,3 (22,9)	0,176
High school diploma	89,8 (12,1)		66,5 (26,8)		81,3 (16,7)		63,7 (17,1)	
College degree	85,4 (14,4)		62,7 (26,6)		81,1 (17,7)		54,7 (21,9)	
Physical state								
ASA I	89,4 (12,9)	0,177	62,9 (32,0)	0,180	79,3 (20,0)	0,106	56,4 (20,4)	0,106
ASA II	90,8 (12,1)		70,1 (22,6)		82,4 (20,1)		63,1 (22,7)	
ASA III	93,9 (9,4)		72,2 (27,8)		87,6 (12,9)		65,6 (22,4)	
Surgical risk								
Low	91,7 (12,4)	0,572	67,0 (27,6)	0,435	83,6 (18,0)	0,797	61,1 (23,1)	0,904
Medium	90,2 (11,5)		68,3 (26,4)		82,0 (18,5)		62,2 (21,9)	
Major	92,7 (10,8)		75,7 (24,5)		81,0 (24,3)		63,4 (20,5)	
Type of Anaesthesia								
General	91,1 (11,6)	0,882	67,3 (26,9)	0,103	81,9 (19,2)	0,156	61,8 (21,5)	0,956
Local	90,7 (13,2)		77,4 (24,4)		88,1 (14,8)		62,1 (27,5)	
Duration of anaesthesia								
≤ 120 minutes	91,6 (11,9)	0,518	70,5 (26,5)	0,231	81,6 (21,0)	0,594	61,8 (22,0)	0,984
> 120 minutes	90,5 (11,5)		65,7 (27,2)		83,1 (16,5)		61,7 (22,3)	
Pre-anaesthesia consult								
Without consult	89,1 (12,2)	0,012*	66,1 (26,9)	0,161	82,4 (19,5)	0,990	61,6 (22,0)	0,764
With consult	93,6 (11,0)		71,7 (25,6)		82,4 (17,6)		62,6 (22,0)	
Previous surgeries								
0	88,1 (12,6)	0,401	69,8 (21,3)	0,897	80,9 (17,0)	0,879	63,5 (23,0)	0,710
1-2	91,6 (10,5)		67,1 (25,3)		82,0 (19,8)		63,2 (21,2)	
> 2	90,6 (13,2)		67,7 (29,9)		82,9 (18,6)		60,6 (22,1)	
Surgical Service								
General	90,4 (12,2)	0,180	67,0 (25,5)	0,010*	81,2 (19,4)	0,318	60,7 (20,5)	0,293
Vascular	94,8 (7,7)		81,8 (21,7)		87,2 (20,0)		67,8 (27,0)	
Plastic	90,4 (12,6)		63,7 (30,2)		83,0 (16,7)		61,0 (22,5)	

Table 3 – Comparison of Satisfaction Scores according to Social-Demographic Data and Clinical Characteristics

Team (D1)	B (CI 95%)	*P value*
Highest education		
Did not finish high school	5,8 (0,5;11,1)	0,033
High school diploma	4,1 (-1,8;10,0)	0,173
College degree	Reference	
Physical state		
ASA I	0,1 (-5,7;5,8)	0,975
ASA II	-0,6 (-5,0;5,8)	0,804
ASA III	Reference	
Pre-anaesthesia consult		
No	Reference	
Yes	4,4 (0,7;8,0)	0,021
Surgical Service		
General	Reference	
Vascular	3,7 (-1,2;5,6)	0,596
Plastic	1,2 (-3,2;5,6)	0,139

Table 4 – Association with D1 domain with patients' characteristics

Fear/anxiety(D2)	B (CI 95%)	*p Value*
Gender		
Female	Reference	0,007
Male	11,5 (3,2;19,8)	
Civil state		
Married	Reference	
Single/divorced/widow	8,9 (0,03;17,8)	0,049
Physical State		
ASA I	0,9 (-12,0;13,9)	0,888
ASA II	5,8 (-4,4;16,1)	0,267
ASA III	Reference	
Anaesthesia Type		
Regional	Reference	
General	0,7 (-13,6;14,9)	0,923
Pre-anaesthesia Consult		
No	Reference	
Yes	5,9 (-2,6;14,4)	0,173
Surgical Service		
General	Reference	
Vascular	12,2 (-0,2;24,5)	0,053
Plastic	-2,1 (-12,2;8,0)	0,678

Table 5 – Association with D2 domain with patients' characteristics

Loneliness(D3)	B (CI 95%)	*P value*
Gender		
Female	Reference	0,007
Male	2,5 (-3,4;8,4)	
Physical state		
ASA I	-6,4 (-14,8;2,1)	0,141
ASA II	-4,0 -11,3;3,2)	0,275
ASA III	Reference	
Anaesthesia type		
Regional	Reference	
General	-2,7 (-11,9;6,5)	0,562

Table 6 – Association with D3 domain with patients' characteristics

Discomfort (D4)	B (CI 95%)	*p Value*
Gender		
Female	Reference	<0,001
Male	14,8 (8,2;21,5)	
Highest Education		
Did not finish high school	5,7 (-4,0;15,4)	0,245
High school diploma	8,0 (-2,7;18,7)	0,142
College degree	Reference	
Physical state		
ASA I	-2,1 (-12,2;8,0)	0,684
ASA II	1,6 (-6,4;9,6)	0,686
ASA III	Reference	

Table 7 – Association with D4 domain with patients' characteristics

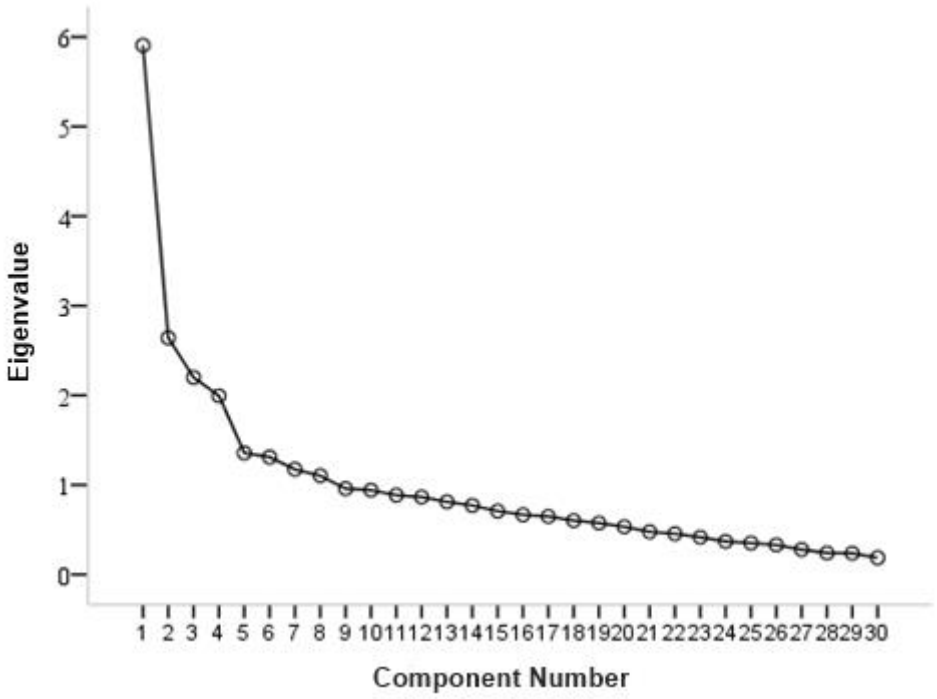

Figure 1 - Scree Plot of eigenvalues

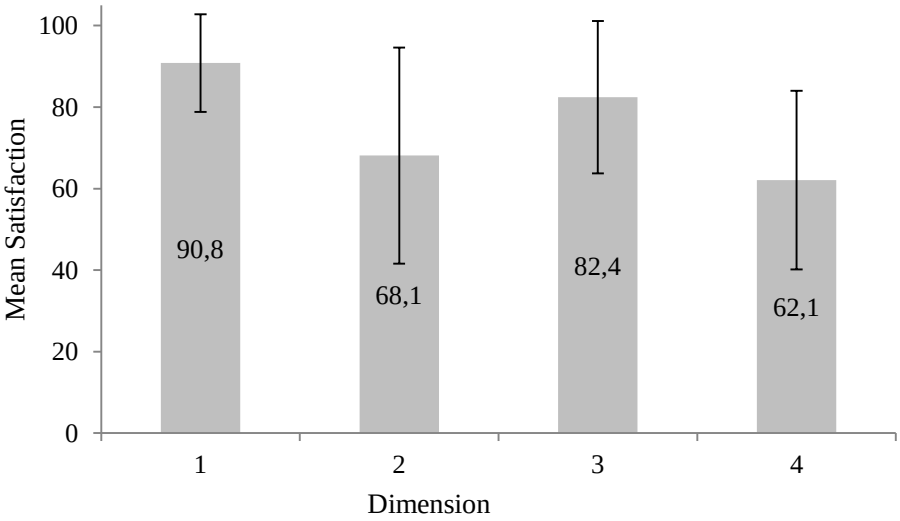

Figure 2 – Distribution of the 4 scale dimensions