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Patient Satisfaction with Outpatient Clinical Services: Antecedents and Consequents

Maria Francisca Rente Abecasis

Master in Business Analytics

Supervisors:

Doctor Raul Manuel da Silva Laureano, Associate Professor, ISCTE Business School

Master Teresa Rebelo Pinto, Psychologist and Somnologist, TRP Clinic – Sleep and Psychology

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Department of Quantitative Methods for Management and Economics

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Abstract

Patient satisfaction (PS) is a key indicator of healthcare quality, reflecting patients' experiences and perceptions of care. Despite the importance of patient satisfaction (PS) in the evaluation of healthcare quality, there is limited research in Portugal's outpatient services that explores the factors influencing PS and its outcomes. This study addresses this gap by investigating the antecedents and consequences of PS at *Clínica TRP*, a sleep psychology and mental health clinic. A conceptual model was developed hypothesizing that sociodemographic factors (age, sex, marital status, education, occupation) and clinical service factors (number of visits, treatment outcomes, perception of multidisciplinary approach) influence PS, which in turn affects patient loyalty and word-of-mouth referrals. Data were collected from 60 patients through an online link to the questionnaire, which gathered information on sociodemographic characteristics, clinical service factors, and satisfaction (PSQ-18). The analysis, which employed linear regression, cluster analysis, and decision tree methods, revealed that education level, occupation, perception of the clinic's multidisciplinary approach, and how patients learned about the clinic significantly influence PS. Moreover, highly satisfied patients are more likely to return and recommend the clinic, confirming that PS drives loyalty and positive word-of-mouth behaviour. These findings offer practical recommendations for clinic managers and healthcare providers to enhance service quality by focusing on key factors that drive PS. Implementing these insights can foster patient retention, improve clinic performance, and contribute to better patient-centred care in outpatient settings.

Keywords: Data Analytics, Outpatient, Patient, PSQ-18, Satisfaction

JEL Classification System: C10, I10, M3

Resumo

A satisfação do paciente (SP) é um indicador-chave da qualidade dos cuidados de saúde, refletindo as experiências dos pacientes. Apesar da sua importância, existe uma investigação limitada nos serviços ambulatórios em Portugal que explore os fatores que influenciam a SP e os seus resultados Este estudo aborda esta lacuna, investigando os antecedentes e consequentes da SP na Clínica TRP, uma clínica de psicologia do sono e saúde mental. Foi desenvolvido um modelo conceptual que hipotetiza que fatores sociodemográficos (idade, sexo, estado civil, educação, ocupação) e fatores do serviço clínico (número de visitas, resultados do tratamento, perceção da abordagem multidisciplinar) influenciam a SP, que por sua vez afeta a lealdade do paciente e as recomendações boca a boca. Os dados foram recolhidos de 60 pacientes através de um link online para o questionário, que incluía informações sobre características sociodemográficas, fatores do serviço clínico e satisfação (PSQ-18). A análise através de regressão linear, clusters e métodos de árvore de decisão revelou que a educação, ocupação, perceção da abordagem multidisciplinar e a forma como os pacientes conheceram a clínica influenciam significativamente a SP. Além disso, pacientes altamente satisfeitos têm maior probabilidade de voltar e recomendar a clínica, confirmando que a SP impulsiona a lealdade e um comportamento positivo de boca a boca. Os resultados fornecem recomendações práticas para gestores e profissionais de saúde melhorarem a qualidade do serviço, com ênfase nos fatores que impulsionam a SP. Implementar estas perceções pode promover a retenção de pacientes, melhorar o desempenho da clínica e contribuir para um cuidado mais centrado no paciente, no contexto ambulatório.

Palavras-chave: Ambulatório, Análise de Dados, Paciente, PSQ-18, Satisfação

JEL Classification System: C10, I10, M3

List of Acronyms & Abbreviations

β – Regression Coefficient

AOR – Adjusted Odds Ratio

Adjusted R^2 – Adjusted coefficient of determination

CI – Confidence Interval

DT – Decision Tree

e.g., – For example

KW – Kruskal-Wallis

LR – Linear Regression

M – Mean

MW – Mann-Whitney U

N.A. – Not applicable

OS – Overall Satisfaction

p – p-value

PSQ-18 – Patient Satisfaction Questionnaire

PS – Patient Satisfaction

RF – Random Forest

RMSEA – Root Mean Square Error of Approximation

SD – Standard Deviation

SEE – Standard Error of the Estimate

SEM – Structural Equation Modelling

SLR – Systematic literature review

SPPF – Single Population Proportion Formula

SQ – Service Quality

STE – Standardized total effect

WoM – Word of mouth

WoS – Web of Science

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1. Introduction

This chapter presents the research topic, namely patient satisfaction (PS) in outpatient clinical services, and outlines the key elements that form the basis of the study. It emphasises the importance of the subject, presents the research question and problem, outlines the objectives, and concludes with a summary of the dissertation's methodology and structure.

1.1. Theme and its importance

According to the World Health Organization, the foundation of any health system lies in the provision of high-quality healthcare services (World Health Organization, 2010). In today's healthcare environment, patients have access to a diversified range of healthcare providers, professional assessments, and readily available health information (Bezerra de Oliveira et al., 2022). Consequently, both patients and regulatory agencies expect high-quality services to meet the increasing healthcare system demands.

The core objective of healthcare facilities is to enhance patient well-being, with considerable emphasis on patient experience and satisfaction. To address this challenge, the healthcare industry has adjusted its business practices to strike a balance between efficiency and patient-centred care fostering both overall well-being and responsiveness (Sofianos, 2023). In competitive markets, private healthcare providers must not only strive to meet patient needs but also cultivate patient loyalty to maintain their competitive edge (Ferreira et al., 2023).

The evaluation and measurement of PS has become a vital process for optimising the quality of healthcare systems. This approach acknowledges patients, viewed as customers, as key contributors in improving the service quality (SQ) (Nguyen & Nagase, 2021). Higher PS scores have been linked to better clinical outcomes, enhanced patient retention, and more efficient patient-centred care (Dunlap et al., 2022). Patients are more likely to conform with treatment plans, make efficient use of healthcare resources, and dedicate themselves to their recovery process when they satisfied with the care they receive (Fortin et al., 2018; Woodward et al., 2017).

1.2. Research problem

Despite extensive research on PS in healthcare, the key drivers of satisfaction in outpatient clinical settings remain unclear (Wang et al., 2023). Given that patients' needs and experiences vary widely, differences in satisfaction levels can arise across individuals and providers (Stamboglis & Jacobs, 2020). These variations highlight the importance of using validated and standardized tools for assessing PS to ensure consistency and reliability. The comparability of results across various research and circumstances may be compromised using non-standardized, ad hoc scales, as noted by Miglietta et al. (2018). Therefore, employing established, validated scales is essential to assess PS and enable meaningful comparisons between different settings accurately.

Although some studies on PS have been conducted in Portugal, there is still limited evidence regarding the factors influencing satisfaction and the potential outcomes in outpatient care. The present study aims to address the gaps identified in the existing research on this topic by answering the following question: What are the key antecedents that influence PS in outpatient clinical services, and how does it affect subsequent patient behaviours?

1.3. Objectives and contributions

In light of the formulated research question, three specific objectives were defined. These are as follows: i) to evaluate PS; ii) to identify the antecedents of PS; iii) to characterize the relationship between PS and its consequents, as outlined in Figure 1.1.

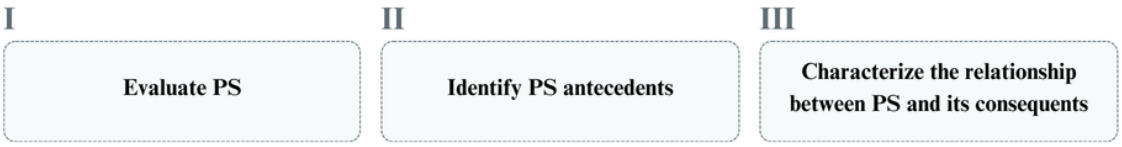


Figure 1.1: Specific objectives of the research

1.4. Methodological approach

This research was undertaken as a case study of Clinic TRP – Sleep & Psychology, a specialized outpatient clinic focusing on sleep psychology and mental health services. A questionnaire was developed and administered to a sample of 60 patients at the clinic. The techniques used to process the data and achieve the defined objectives include descriptive statistics, regression analysis, cluster analysis, and decision tree (DT) analysis.

1.5. Dissertation structure

The dissertation is structured into five chapters, to investigate the antecedents and consequents of PS in outpatient clinical services. This chapter introduces the topic, elucidates its significance, delineates the research problem and questions, and outlines the objectives and contributions of the study. The second chapter, which includes a systematic literature review (SLR), examines the concept of PS, including how it can be assessed, and the impact of various factors on satisfaction levels. Moreover, it analyses the current state of knowledge regarding the consequences of PS. The third chapter provides a detailed overview of the methodology adopted, outlining the data collection instrument, procedures, data processing, and analytical techniques utilized. Chapter four presents the results of the data analysis and discusses the findings of the existing literature. Finally, chapter five concludes with the study's contributions, its limitations, and suggestions for future research.

2. Literature review

The literature review is divided into two main parts. The first part, a systematic literature review (SLR), focuses on the evaluation of PS, particularly within the context of ambulatory care. The second section of the review examines the impact of PS on patient loyalty and word-of-mouth (WoM) referrals.

PS serves as a key measure of the quality and outcome of a healthcare system. It reflects a patient's experiences and perceptions, specifically the degree to which their expectations, desires, and needs are met or exceeded by the healthcare services they receive (Kidanemariam et al., 2023; Okonta & Ogaji, 2020; Yong et al., 2021). Furthermore, it serves as an invaluable indicator of the quality of care, frequently employed to assess the efficacy of healthcare delivery (Romanowicz et al., 2022; Yan et al., 2021). Building on this, the SLR explores how satisfaction has been measured in outpatient settings and identifies key factors influencing PS.

2.1. Systematic Literature Review of Patient Satisfaction

A SLR is a research methodology frequently used in the healthcare field and is becoming increasingly popular (Halman & Oshlack, 2023). It involves the systematic collection, identification, and critical assessment of existing research studies (Carrera-Rivera et al., 2022). According to Putrada et al. (2022), the process consists of three main stages: (i) establishing the research question; (ii) designing the research strategy and selection process; and (iii) conducting data extraction and synthesis. Therefore, the protocol was developed to guide the article selection and analysis process, allowing for a systematic examination of the current literature. The review strategy is based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology, which was updated in 2020 by Page et al. (2021), to ensure completeness and transparency in systematic reviews.

2.1.1. Protocol for the Systematic Literature Review

For the success of the investigation, it is essential to obtain answers from the literature to the following question: “What measurement scales have been used in previous studies to assess PS with outpatient clinical services, and what factors have been identified as significant determinants of satisfaction?”. This is further broken down into the following sub-questions: (i) what are the contexts and objectives of the studies?; (ii) what

methodologies are used?; (iii) what are the results?; (iv) what are the study contributions, limitations and suggestions for future research?.

The Web of Science (WoS) platform (https://www.webofscience.com/) was selected as the source for the articles due to its reputation as a leading platform for scientific citation searches, discoveries, and analytical information on a global scale (Li et al., 2018), which distinguishes it from other databases (Xames & Topcu, 2024).

A database search was conducted automatically using specific terms related to the article's title and topic. The title query included the terms "patient satisfaction," "outpatient," and "outpatient satisfaction," with the term "covid" excluded. This exclusion was made in light of the preliminary search results, which indicated that a significant proportion of publications referred to satisfaction with telemedicine. Additionally, to focus on empirical studies measuring PS, the search was limited to the terms 'instrument', 'questionnaire', 'test', 'measure*', or 'scale' within the topic (title, abstract, and keywords).

The article selection process involved the application of exclusion and inclusion criteria. A total of 129 articles were initially identified following the application of the query. After the exclusion criteria were applied, which included articles published before 2018, articles published in languages other than English, and articles that were not fully available (i.e., all open access/green published), the number of articles was reduced to 34.

Following the application of additional refining based on the inclusion criteria, a total of twenty publications were included in the review. The inclusion criteria required that the articles evaluate the overall PS with healthcare, except for satisfaction with a specific medication or intervention. Furthermore, articles that included an empirical component were included in the review. To determine whether the articles met the requisite criteria, a manual review of the abstracts and methodologies was conducted.

The criteria for article selection were established following an examination of several articles that conducted SLRs, to ensure alignment with best practices in the field (e.g., Mohamad Jawad et al., 2022; Rani et al., 2023; Shakeel et al., 2019). To optimise the quality and relevance of the selected articles, these criteria were subjected to iterative improvement.

A critical analysis of the selected articles was then conducted, focusing on the sub-questions outlined earlier. Subsequently, the quality of the articles was evaluated based on their contribution to achieving the objective, as outlined in Table 2.1. The assessment consisted of 15 items, each presented as a question, with a scoring system of 0 if the question is not addressed, 0.5 if it is partially addressed, and 1 if it I s fully addressed. This procedure, recommended by Kitchenham et al. (2009) has been followed by numerous researchers, including Alamri et al. (2022) and Felix & Lee (2019). The phases involved in the SLR process, from the initial search to the quality evaluation, are illustrated in Figure 2.1.

Table 2.1: Quality criteria for article evaluation

What are the contexts and objectives of the studies?	1.1 Does the article clearly describe the context in which the study was conducted? 1.2 Does the article clearly articulate the study objective?
What methodologies are used?	2.1 Does the article provide a clear definition of PS within the context of the study? 2.2 Does the article properly characterize the sample? 2.3 Does the article explain the data collection method and the types of data collected? 2.4 Does the article clearly describe and justify the instrument used to assess PS? 2.5 Does the article identify and explain the independent variables considered in the study? 2.6 Does the article clearly define the dependent variable being measured? 2.7 Does the article explain the statistical/analytical techniques used?
What are the results?	3.1 Does the article report and interpret the mean PS scores? 3.2 Does the article identify and quantify the factors that significantly influence PS? 3.3 Does the article assess the quality of the models used?
What are study contributions, limitations, and future research?	4.1 Does the article clearly describe the contributions of the study? 4.2 Does the article clearly describe the limitations of the study? 4.3 Does the article provide and justify the future recommendations?

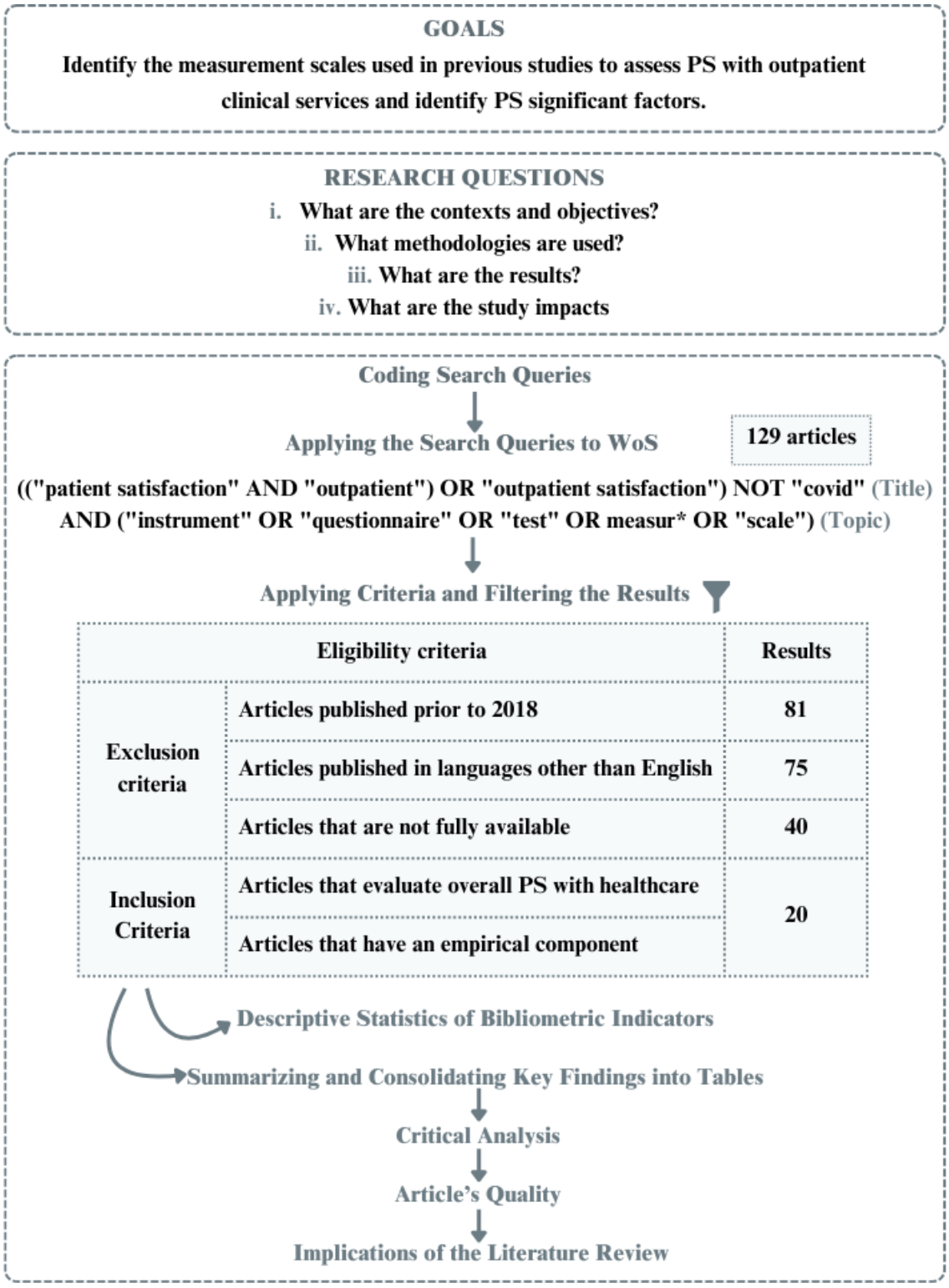


Figure 2.1: SLR process

A summary of the twenty articles selected for this SLR can be found in Table 2.2. A unique identification number (ID) has been assigned to each article to facilitate reference and further analysis.

Table 2.2: Articles included in the SLR

Id	Year	Title	Journal	Authors
1	2023	Improving Patient Satisfaction and Associated Factors at Outpatient Department in General Hospitals of Central Zone, Tigray, Northern Ethiopia, June 2018-August 2019: Pre- and Postinterventional Study	*Biomed Research International*	Kidanemariam, G.; Gebrekidan, H.; Dagnazgi, EA.; Asfaw, K.
2	2023	Measuring Patient Satisfaction with Four Items: Validity of the Client Satisfaction Questionnaire 4 in an Outpatient Population	*BMC Psychiatry*	Pedersen, H.; Skliarova, T.; Attkisson, CC.; Lara-Cabrera, M.L.; Havnen, A.
3	2023	Factors Affecting Patient Satisfaction at a Plastic Surgery Outpatient Department at a Tertiary Centre in South Africa	*BMC Health Services Research*	Sofianos, C.
4	2022	Measuring Patient Satisfaction in an Outpatient Psychiatric Clinic. What Factors Play a Role?	*Annals of General Psychiatry*	Romanowicz, M.; Oesterle, T.S.; Croarkin, P.E.; Sutor, B.
5	2022	Magnitude of Patient Satisfaction and its Associated Factors at the Outpatient Psychiatry Service of Dilla University Referral Hospital, Southern Ethiopia, Dilla, 2020	*PLoS ONE*	Kassaw, C.; Eskeziya, A.; Anbesaw, T.
6	2022	Factors Associated with Outpatient Satisfaction in Provincial Tertiary Hospitals in Nanchang, China: A Structural Equation Modeling Approach	*International Journal of Environmental Research and Public Health*	Zhou, X.J.; He, Q.W.; Li, Q.; Kuang, J.; Han, Y.L.; Chen, J.Y.
7	2021	Patient Satisfaction with Outpatient Care in China: A Comparison of Public Secondary and Tertiary Hospitals	*International Journal for Quality in Health Care*	Yan, J.J.; Yao, J.S.; Zhao, D.H.
8	2021	Validation of a Patient Questionnaire Assessing Patient Satisfaction with Orthopedic Outpatient Clinic Consultation	*Journal of Patient Experience*	Waters, S.; Edmondston, S.; Gucciardi, D.F.
9	2021	Patient Satisfaction in Outpatient Radiology: Effects of Modality and Patient Demographic Characteristics	*Journal of Patient Experience*	Ajam, A.A.; Xing, B.; Siddiqui, A.; Yu, J.S.S.; Nguyen, X.V.
10	2021	Patient Satisfaction Towards Dentist-Patient Interaction Among Patients Attending Outpatient Dental Clinic Hospital Universiti Sains Malaysia	*Pesquisa Brasileira em Odontopediatria e Clinica Integrada*	Yong, A.J.; Mohamad, N.; Saddki, N.; Ahmad, W.M.A.W.; Alam, M.K.
11	2020	Relationship Between Patient Satisfaction and Willingness to Comply with Physicians' Recommendation in Referral Surgical Outpatient Clinic in Nigeria	*Journal of Patient Experience*	Okonta, K.E.; Ogaji, D.S.
12	2020	Predictors of Patient Satisfaction and Outpatient Health Services in China: Evidence from the WHO SAGE Survey	*Family Practice*	Zhang, H.; Wang, W.H.; Haggerty, J.; Schuster, T.
13	2020	Patient Satisfaction and Associated Factors among Outpatient Health Service Users at Primary Hospitals of North Gondar, Northwest Ethiopia, 2016	*Advances in Public Health*	Eshetie, G.; Feleke, A.; Genetu, M.
14	2020	Outpatient Satisfaction at Private General Hospitals in Ho Chi Minh City, Vietnam	*Journal of Asian Finance Economics and Business*	Giao, H.N.K.; Thy, N.T.A.; Vuong, B.N.; Kiet, T.V.; Lien, L.L.T.P.
15	2019	Factors of Patient Satisfaction in Adult Outpatient Departments of Private Wing and Regular Services in Public Hospitals of Addis Ababa, Ethiopia: A Comparative Cross-Sectional Study	*BMC Health Services Research*	Geberu, D.M.; Biks, G.A.; Gebremedhin, T.; Mekonnen, T.H.
16	2019	Effects of a Comprehensive Reservation Service for Non-Emergency Registration on Appointment Registration Rate, Patient Waiting Time, Patient Satisfaction and Outpatient Volume in a Tertiary Hospital in China	*BMC Health Services Research*	Xie, W.H.; Yang, X.F.; Cao, X.J.; Liu, P.Y.
17	2019	How Perceived Quality of Care Affects Outpatient Satisfaction in China: A Cross-Sectional Study of 136 Tertiary Hospitals	*INQUIRY The Journal of Health Care Organization Provision and Financing*	Hu, L.L.; Ding, H.; Hu, G.Y.; Wang, Z.J.; Liu, S.Y.; Liu, Y.L.
18	2019	Comparison of Outpatient Satisfaction Survey Scores for Asian Physicians and Non-Hispanic White Physicians	*Jama Network Open*	Garcia, L.C.; Chung, S.; Liao, L.; Altamirano, J.; Fassiotto, M.; Maldonado, B.; Heidenreich, P.; Palaniappan, L.
19	2019	Factors Associated with Patient Satisfaction in Outpatient Department of Suva Sub-divisiona Health Center, Fiji, 2018: A Mixed Method Study	*Frontiers in Public Health*	Chandra, S.; Ward, P.; Mohammadnezhad, M.
20	2018	Patient Satisfaction with Outpatient Physical Therapy in Saudi Arabia	*BMC Health Services Research*	Algudairi, G.; Al-Eisa, E.S.; Alghadir, A.H.; Iqbal, Z.A.

The articles span from 2018 (Algudairi et al., 2018) to 2023 (e.g., Pedersen et al., 2023), reflecting a range of recent research contributions in the field (Figure 2.2).

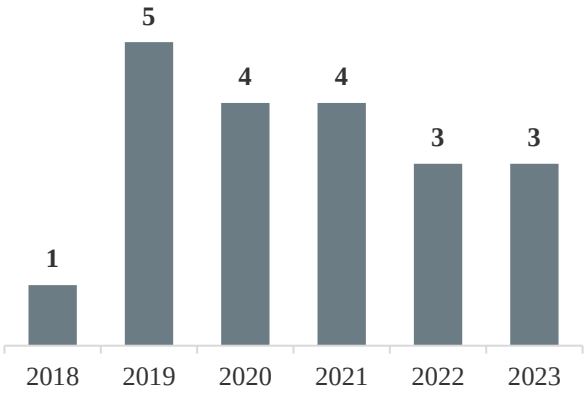


Figure 2.2: Distribution of the articles by publication year

The distribution of the articles by journal reflects the interdisciplinary nature of the research field, as evidenced by the inclusion of articles published in a variety of journals. It is worthy of note that BMC Health Services Research is the most represented journal, contributing with four articles to this review (e.g., Geberu et al., 2019). Subsequently, the Journal of Patient Experience is represented by three articles (e.g., Zhang et al., 2020). The remaining journals contributed a single article each[1].

To illustrate the relevance and thematic focus of the selected articles, a word cloud was constructed, displaying the 40 most frequent terms from the abstracts (Figure 2.3). This visualisation represents the dominant themes and key terms that are central to the research area.



Figure 2.3: Abstract's word cloud

[1] See Appendix A – Distribution and evaluation (by category) of each journal, ranked according to the WoS quartile (2021).

2.1.2. Critical synthesis of the articles

According to the established protocol, the 20 selected articles are analysed across four distinct dimensions. Initially, the context and objectives of each study are evaluated. Subsequently, the methodology is examined, including the sample characterization, the collection of data, and the performed analysis. Thirdly, the results of the studies are discussed. Finally, the contributions, limitations, and directions for future research are presented.

2.1.2.1. Context and objectives

Table 2.3 provides an overview of the context and objectives of the selected articles, categorizing them by type of service, study objective, period of data collection, and country.

The articles reviewed represent a diverse range of services, reflecting a broad approach to understanding PS across different medical disciplines and healthcare environments. The articles include general hospitals (Kidanemariam et al., 2023), psychiatric care (Kassaw et al., 2022), plastic surgery (Sofianos, 2023), dental care (Yong et al., 2021), and others.

The primary objectives of these studies varied but generally aimed to assess the factors influencing PS in different healthcare contexts (e.g., Kassaw et al., 2022; Okonta & Ogaji, 2020). Other studies, for example, conducted by and Waters et al. (2021), sought to examine the construct validity and reliability of PS questionnaires. Moreover, some studies explored specific aspects affecting PS, such as the quality of doctor-patient interactions (Yong et al., 2021) and the impact of reservation services on PS and outpatient volume (Xie et al., 2019).

Most of the studies collected data over short periods, typically a few months (e.g., Geberu et al., 2019; Kassaw et al., 2022; Sofianos, 2023). Nevertheless, some studies extended the data collection over several years (e.g., Ajam et al., 2021; Garcia et al., 2019). The average data collection period for these studies was 13.86 months (n=16), with standard deviation (SD) of 28.73 months, indicating considerable degree of variability in the duration of data collection.

The geographical distribution of these studies is diverse, covering multiple continents and reflecting a global perspective on PS in healthcare. It is noteworthy that there are few studies from Europe, and none from Portugal. Four studies from Africa are included in the review, three of which were conducted in Ethiopia (e.g., Kassaw et al., 2022; Kidanemariam et al., 2023). Asia is well represented, with five of the studies originating from China (e.g., Yan et al., 2021; Zhou et al., 2022), Vietnam (Giao et al., 2020), Malaysia (Yong et al., 2021), and Saudi Arabia (Algudairi et al., 2018). Additionally, studies were conducted in Norway, Australia, Fiji, and USA.

Table 2.3: Context and objectives of the articles

Id	Type of Service (Clinical Area)	Study Objective	Period of Data Collection	Country
1	3 general hospitals (N.A.)	Assess improving of PS and associated factors.	June 2018 – April 2019	Ethiopia
2	Care clinic associated to an hospital (Mental health)	Examine the construct validity and internal reliability of the CSQ-4.	October 2021 – February 2023	Norway
3	Hospital (Plastic surgery)	Investigate outpatients' perceptions of the factors affecting the services provided and their effect on PS.	January 2023 – February 2023	South Africa
4	Clinic (Psychiatric care)	Assess PS of patients observed by general psychiatry residents and to examine the effects of skills training sessions, depression, and anxiety on PS.	N.A.	USA
5	Hospital (Psychiatric care)	Assess PS and associated determinants.	April 2020 – May 2020	Ethiopia
6	3 tertiary hospitals (N.A)	Explore the relationship between PS and its related factors.	January 2021 – February 2021	China
7	Secondary and tertiary hospitals in 31 cities (N.A.)	Investigate and compare satisfaction and to explore the factors affecting PS.	February 2018 – April 2018	China
8	Clinics of 2 hospitals (Orthopedic)	Investigate the factor validity and reliability of a PS questionnaire.	N.A.	Australia
9	Hospital (Radiology)	Characterize predictors of PS, compare it for radiology and non-radiology.	September 2008 – September 2017	USA
10	Hospital (Dental care)	To determine the satisfaction with the dentist-patient interaction and factors associated with PS.	June 2017 – July 2017	Malaysia
11	Clinic hospital (N.A.)	Determine the relationship between PS with care and their willingness to adhere to the surgeons' recommendations.	N.A.	Nigeria
12	Outpatient Health Services (6 surgery subspecialties)	Identify potential predictors of PS.	N.A.	China
13	6 primary hospitals (N.A.)	Assess PS and associated factors.	February 2016 – March 2016	Ethiopia
14	5 hospitals (N.A)	Identify factors affecting PS, establishing a scale for measuring them.	October 2019 – December 2019	Vietnam
15	7 hospitals (N.A.)	Investigate factors of PS.	March 2018 – April 2018	Ethiopia
16	3 hospitals (Maternal and pediatric)	Investigate the effects of a reservation service on appointment registration rate, patient waiting time, PS, and outpatient volume.	January 2015 – March 2015	China
17	136 tertiary hospitals (N.A.)	Assess PS and to explore the roles played by patient perceptions of specific aspects of care in overall satisfaction.	December 2017 – January 2018	China
18	Community-based clinics (N.A.)	Examine weather Asian physicians receive lower satisfaction scores compared to non-Hispanic white physicians.	December 2010 – November 2014	USA
19	3 health centers (N.A.)	Assess the level of PS and explore its determinants.	N.A.	Fiji
20	Clinic (Physical therapy)	Assess PS and its components to identify associated patient characteristics.	N.A.	Saudi Arabia

Source: Own elaboration

Notes: CSQ-4 – Client Satisfaction Questionnaire-4, **N.A.** – Not Available, **SAGE –** Study on Global Ageing and Adul Health, **USA** – United States of America **WHO** – World Health Organization

2.1.2.2. Methodology

This chapter outlines the methodological approaches employed to investigate PS with outpatient services. It covers the study designs, patient selection criteria, sample size determination and techniques, sample sizes, data collection methods, and types of data collected (Table 2.4.). Furthermore, Table 2.5 provides a summary of the satisfaction scales employed in the reviewed studies, detailing the number of items, the dimensions of satisfaction assessed, the satisfaction scores as the dependent variable, and the potential factors of satisfaction analysed, along with the data analysis techniques used.

The majority of the studies (60%, n=12) used cross-sectional designs to collect data at a single point in time. For instance, studies by Eshetie et al. (2020) and Xie et al. (2019) utilized this design to gather data from patients using health services. 15% of the studies (n=3) used mixed methods approaches, combining quantitative and qualitative data, as exemplified by Giao et al. (2020) and Chandra et al. (2019). Other designs such as retrospective, pre-and post-interventional, and observational studies were also employed.

The criteria for patient selection were diverse, but generally included adults receiving health services (45%, n=9). Some of the participants were selected based on additional criteria, such as the ability to provide informed consent (e.g., Okonta & Ogaji, 2020; Pedersen et al., 2023; Romanowicz et al., 2022). Other inclusion criteria comprised patients with mental illness as reported by Kassaw et al. (2022), while Hu et al. (2019) included patients who had completed the diagnostic, treatment and payment stages. The exclusion criteria were often comprised of severe illness or cognitive disorders, thereby ensuring the reliability of responses, as undertaken by Romanowicz et al. (2022) and Okonta & Ogaji (2020).

A variety of sampling techniques were employed, with systematic sampling used in 45% of the studies (n=9). To illustrate Eshetie et al. (2020) and Garcia et al. (2019) used systematic sampling with specific k-values to guarantee systematic selection. In 20% of the studies (n=4), the researchers employed stratified sampling to ensure representation from different hospitals and patient groups. This approach was adopted by Xie et al. (2019) and Hu et al. (2019), for example. In a large-scale study, random digit dialling was employed (Yan et al., 2021).

The determination of sample sizes was consistent across the studies, with 45% (n=9) utilizing the single population proportion formula (SPPF). This method, employed by studies such as Yan et al. (2021) and Yong et al. (2021), incorporated parameters such as non-response rates and the previous percentage of PS, along with a 95% confidence interval (CI) and a 5% margin of error. Nevertheless, 50% of the studies (n=10) did not provide details regarding the determination of their sample sizes. Geberu et al. (2019) employed the double population

proportion formula, which is used to determine the sample size when comparing two population proportions - in this case, PS at regular services versus the private wing.

Sample sizes ranged widely from hundreds to hundreds of thousands, reflecting the diverse scale and scope of the research. For instance, Sofianos (2023) had a sample size of 142, whereas Garcia et al. (2019) studied a large sample of 149,775 patients, which may offer more generalizable findings. The mean sample size across the studies was approximately 11,000 participants (SD = 32,639.3), indicating high variability of sample sizes across different research contexts.

All studies employed questionnaires as the primary instrument for data collection. In 45% of the studies (n=9), self-administered questionnaires were used, whether through web links, mail, or in-person methods (e.g., Algudairi et al., 2018; Pedersen et al., 2023). In 40% of the studies (n=8), face-to-face interviews were the primary data collection method, as illustrated by the work of Eshetie et al. (2020). Chandra et al. (2019) also integrated qualitative interviews to better understand their perspectives and the subtle differences in their experiences.

The data collected in all selected studies included sociodemographic information and PS assessment. In addition to these common data points, several studies gathered other information that were aligned with the objectives of their respective studies. For example, Pedersen et al. (2023) employed the Patient Health Questionnaire (PHQ-4) scale to assess patient health and anxiety levels, while Kassaw et al. (2022) utilised the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) scale to evaluate substance involvement.

In order to assess PS, a variety of scales were employed, with each scale measuring a distinct aspect of the health experience. Ad-hoc scales were utilized in 50% of the studies (n=10). The scales were designed by the authors to address the distinctive aspects of their research contexts, based on the available literature (e.g., Geberu et al., 2019; Kidanemariam et al., 2023; Waters et al., 2021). The remaining studies employed other validated scales or adaptations of existing validated scales (e.g., Ajam et al., 2021; Giao et al., 2020).

The number of items (questions) differed considerably across the studies, with a range of 4 to 45 items (with an average of 18.5 items and a SD of 10.3). For example, the Patient Satisfaction Questionnaire (PSQ-18) comprises 18 items (Okonta & Ogaji, 2020; Romanowicz et al., 2022), while the Mental Health Satisfaction Scale (MHSS) utilizes 24 items (Kassaw et al., 2022).

Table 2.4: Methodology – study design, sample characterization and data collection

Id	Study design	Patient Selection		Sampling Size Determination (CI 95%, d = 0.05)	Sampling Technique	Sample Size	Data Collection Methods	Data Collected
		Inclusion criteria	Exclusion Criteria					
1	Pre and post interventional	≥ 18 years	Unable to speak Seriously ill	SPPF (PPPS = 22%, NRR = 5%)	Systematic	275	Questionnaire (Face-to-face)	Sociodemographic Medical service-related data PS
2	Quantitative	≥ 18 years Provided informed consent	N.A.	N.A.	Convenience	467	Questionnaire (Self-administered)	PHQ - 4 WSAS CSQ – 4 (PS)
3	Mixed methods	≥ 18 years Both new and follow-up patients	N.A.	SPPF (PPPS = 84%, NRR = 10%)	Systematic (k = 2)	142	Questionnaire (Self-administered)	Sociodemographic SERVQUAL (PS)
4	Prospective case-controlled	≥ 18 years Provided informed consent	Cognitive or language barriers, specific conditions Active addiction or prescription use	N.A.	Convenience	157	Questionnaire (N.A.)	PHQ - 9 GAD-7 PSQ-18 (PS)
5	Cross - sectional	≥ 18 years Mentally ill patients	< 6 months duration of the visit Acute or severe psychiatry conditions	SPPF (PPPS = 50.3%, NRR = 10%)	Simple random	409	Questionnaire (Face-to-face) Document review	Sociodemographic CGI-S ASSIST-3.0 MHSS (PS)
6	Cross - sectional	Completed the medical treatment process Provided informed consent	Using other services (e.g., emergency, inpatient, health check-ups, and consultation)	N.A.	Equal volume simple random (hospitals) Systematic (patients) (k = 12)	600	Questionnaire (Self-administered - In person)	Sociodemographic PS
7	Cross - sectional	≥ 18 years Visited the hospital the previous year Able to describe their experience	N.A.	SPPF (PPPS = 80%)	Random digit dialling	11097	Questionnaire (Telephone)	Sociodemographic PS
8	Quantitative	Referrals to the orthopedic outpatient clinics	Specific conditions (e.g., acute trauma, malignancy, fracture etc.) Same condition < 6 months Unable to comprehend the consent or complete the survey	N.A.	Convinience	98	Questionnaire (Self-administered - Mail)	Demographic Clinical Information PS
9	Retrospective	Outpatient imaging procedures Non-radiology outpatient visit	N.A.	N.A.	Stratified: Power analysis (80% power, 3% difference)	18088	Questionnaire (Self-administered – Mail)	Demographic PS
10	Cross - sectional	≥ 18 years Able to read and write in Malay language	Illiterate Psychiatric illness	SPPF (PPPS = 76%, NRR = 20%)	Systematic (k = 4)	229	Questionnaire (Self-administered)	Socio-demographic SKIP-11 (PS)
11	Cross - sectional	≥ 18 years Provided informed consent	Too ill to participate	SPPF (PPPS = 50%, NRR = 10%)	Systematic (k = 2)	490	Questionnaire (Self-administered)	Sociodemographic Patients' willingness to adhere to surgical instruction PSQ-18 (PS)
12	Cross - sectional	Received care over the last year Reported the facility they visited	N.A.	N.A.	N.A.	5774	Questionnaire (Face-to-face)	Sociodemographic Health service utilization PS

Table 2.4: Methodology - study design, sample characterization and data collection (Cont.)

Id	Study Design	Patient Selection		Sampling Size Determination (CI 95%, d = 0.05)	Sampling Technique	Sample Size	Data Collection Methods	Data Collected
		Inclusion Criteria	Exclusion Criteria					
13	Cross - sectional	All patients (for children with their attendants) Presented to OPDs to get health services	Condition of very seriously ill With no attendants Unable to communicate	SPPF (PPPS = 57.7%, NRR = 10%)	Systematic (k=9)	413	Questionnaire (Face-to-face)	Sociodemographic PS
14	Mixed methods	Treated at least once at the selected hospital	N.A.	N.A.	Stratified (hospitals and diseases)	450	Questionnaire (Face-to-face)	Sociodemographic PS
15	Cross - sectional	Visited the adult OPD in 2018	Visited the OPD more than once during the study period Mentally ill Unable to communicate	Double population proportion formula (P1 = 58.16%, P2 = 68.84%, NRR = 5%)	Random (lottery) (hospitals) Systematic (patients)	955	Questionnaire (Face-to-face)	Sociodemographic Pattern of visit Availability and accessibility of services PS
16	Cross - sectional	Visiting an hospital for non-emergency services	N.A.	N.A.	N.A.	2194	Questionnaire (Face-to-face)	Sociodemographic Appointment registration rate Outpatient volume PS
17	Cross - sectional	Completed the diagnosis, treatment, and payment stages	Patients in emergency departments VIP clinics[2]	SPPF (PPPS = 85%)	Stratified (hospitals) Convinience (patients)	28 760	Questionnaire (Face-to-face)	Sociodemographic PS
18	Observational	Multiple visits	'Mixed', 'other' or unknown race/ethnicity	N.A.	Systematic	149 775	Questionnaire (N.A.)	Sociodemographic PGOMPS (PS)
19	Mixed methods Cross - sectional	≥ 18 years Understand either English, Hindi, or Fijian	Not willing to participate Presence of cognitive disorders	SPPF (PPPS = 50%, NRR = 10%)	Systematic (k=3)	375	Questionnaire (Self-administered) Qualitative interview(20 patients)	Sociodemographic Communication skills of the doctors Patient trust in doctors PS
20	Cross - sectional	Received treatment during 2017	N.A.	N.A.	Convinience	358	Questionnaire (Self-administered – Web link)	Demographic Clinical characteristics MRPS (PS)

Notes: ASSIST – Alcohol, Smoking, and Substance Involvement Screening Test, **APP** – Advanced Practice Physiotherapists, **CI** – Confidence Interval, **d** – margin of error, **CGI-S** – Clinical Global Impressions-Severity, **CSQ-4** – Client Satisfaction Questionnaire-4, **GAD-7** – Generalized Anxiety Disorder 7-Item scale, **k** – k-value; **MHSS** – Mental Health Satisfaction Scale, **MRPS** – MedRisk Instrument for Measuring PS with Physical Therapy Care, **N. A.** – Not Available, **NRR** – Non-Response Rete **,OPD** – Outpatient Department**; OS** – Orthopaedic Surgeons, **P1** – Proportion of PS at Regular Services, **P2** – Proportion of PS at Private Wing, **PHQ-4** – Patient Health Questionnaire 4, **PHQ-9** – Patient Health Questionnaire 9, **PPPS** – Previous Percentage of PS, **PGOMPS** – Press Ganey Outpatient Medical Practice Surveys, **PS** – PS, **PSQ-18** – PS Questionnaire, **SKIP-11** – Skala Kepuasan Interaksi Perubatan-11[3], **SPPF** – Single Population Proportion Formula, **VIP** – Very Important Person, **WSAS** – Work and Social Adjustment Scale

[2] Patients with shorter waiting times, senior physicians, and higher charges

[3] Medical Interaction Satisfaction Scale-11

The dimensions of satisfaction assessed by these scales were equally diverse, reflecting the multifaceted nature of patient experiences. Common dimensions included facilities and hospital environment (e.g., Hu et al., 2019; Sofianos, 2023), technical quality (e.g., Romanowicz et al., 2022; Zhou et al., 2022), and cost of treatment (e.g. Giao et al., 2020; Okonta & Ogaji, 2020). Ad-hoc scales typically focused on common dimensions found in validated scales, while occasionally adding others relevant to the study, such as medical ethics.

The satisfaction scores reported in the studies were categorized in different ways. For example, 45% (n=9) of the studies calculated the satisfaction score as an item sum, with score intervals depending on the number of items and the scale used (e.g., Kidanemariam et al., 2023; Sofianos, 2023). Furthermore, 20% (n=4) of the studies used the item average method to determine satisfaction scores, with scales such as the PSQ-18 providing scores from 1 to 5, indicating levels from 'Very Dissatisfied' to 'Very Satisfied' (Romanowicz et al., 2022). In addition, Eshetie et al. (2020) converted scale scores into percentages, categorizing satisfaction as $\geq$ 67% satisfied, and otherwise dissatisfied. Notably, Garcia et al. (2019) considered the likelihood of recommending the physician as an indicator of PS, with scores ranging from 1 to 5, with a score of 5 indicating satisfaction and 1 indicating dissatisfaction.

The studies examined various factors to understand their potential impact on PS. Commonly tested factors included demographic variables such as age, gender, income, and education (e.g., Yong et al., 2021; Zhang et al., 2020), as well as treatment-related variables such as waiting time (e.g., Zhou et al., 2022), payment status (e.g., Eshetie et al., 2020), and communication with healthcare providers (e.g., (Waters et al., 2021).

Various data analysis techniques were employed, with logistic regression being used in 40% (n=8) of studies (e.g., Kidanemariam et al., 2023; Sofianos, 2023). The use of linear regression (LR) was identified in 35% (n=7) of the studies, including that of Romanowicz et al. (2022). In 25% (n=5) of the studies, simple regression (either linear or logistic) was employed for feature selection before the application of multiple regression (e.g., Chandra et al., 2019; Kassaw et al., 2022). More techniques were used, including structural equation modelling (SEM) (Waters et al., 2021), as well as random forest models (Zhang et al., 2020).

Table 2.5: Methodology – measurement of PS and data analysis

ID	Satisfaction Scale	Number of Items	Dimensions of Satisfaction	Satisfaction Score (Dependent variable)	Associated Factors of Satisfaction	Data Analysis
1	Ad-hoc	21	Patient-centred care, safety, equity, timely, effectiveness, efficiency	Item sum: 21 - 110 Satisfied (above average)/Dissatisfied	Sex, age, marital status, educational status, ethnicity, religion, occupation, residence, payment status, number of visits, lab. order, waiting time for lab., medication order, medication available in pharmacy	Simple logistic regression ($p < 0.25$ included in) Multiple logistic regression
2	CSQ – 4	4	N.A.	Item sum: 4 - 16	Sex, age, change in symptom severity (PHQ-4), post-treatment functioning (WSAS)	Non-parametric tests
3	SERVQUAL	45	Physical setup and environment, appointment scheduling and waiting times, nursing staff, doctors, communication, overall satisfaction	Item sum: 45 – 225 Satisfied (≤30)/ Dissatisfied	Gender, age, education level, s, ratings on the 45 PS items	Subgroup analysis Multiple LR
4	PSQ-18	18	General satisfaction, communication, time spent with doctor, interpersonal manner, convenience and accessibility, financial aspects, technical quality	Item average: 1 - 5	Depressive symptoms, anxiety symptoms, mentalization training (Y/N)	Pearson correlation
5	MHSSS	24	N.A.	Item sum: 24 - 96	Sex, age, educational status, marital status, place of residency, monthly income, current substance use, current clinical diagnosis, duration of illness, comorbid medical illness, clinical severity scale, waiting time, consultation time, accessibility of service, distance from the hospital	Simple LR ($p < 0.25$ included in) Multiple LR
6	Ad-hoc	14	Environment and facilities, quality of diagnosis and treatment, waiting time for medical services, diagnosis and treatment costs, overall satisfaction	Item average: 0 - 5	Environment and facilities, quality of diagnosis, waiting time, treatment costs	SEM
7	Ad-hoc	9	N.A.	Item sum: 9 - 36	N.A.	Multiple LR
8	Ad-hoc	21	Communication, expectation, therapeutic relationship, clinic wait time, clinical contact time	N.A.	Communication, expectation, therapeutic relationship, clinic wait time, clinical contact time, age, duration of symptoms, gender, site, service recommendation	SEM Regression Analysis of Variance (ANOVA) and Welch's t-test
9	PGOMPS	21	Registration, facilities, test/treatment, personal issues, overall assessment	Item average: 1 – 5 Satisfied (>3) /Dissatisfied	Gender, age, race/ethnicity, imaging modality, visit year	Multiple logistic regression (dissatisfaction) Least squares linear regression (composite scores)
10	SKIP-11	11	Information provided by the doctor, patient's confidence in doctor, doctor-patient interaction outcome	Item sum: 11 - 55 Satisfied (> 44)/ Dissatisfied	Patient - Sex, age, ethnic group, education level, occupation status, individual monthly income, marital status, having chronic illness, dental diagnosis, type of patient, type of dental treatment received Dentist – sex, age, total service year	Spearmen correlation Simple LR
11	PSQ-18	18	General satisfaction, communication, time spent with doctor, interpersonal manner, convenience and accessibility, financial aspects, technical quality	Item sum: 18 – 90 (converted to %)	Accept admission, accept follow-up visit, accept drug prescription, accept further investigation, recommend clinic - for each dimension of satisfaction[4]	Multiple LR

[4] This study examines the influence of PS on these factors

Table 2.5: Methodology - measurement of PS and data analysis (Cont.)

ID	Satisfaction Scale	Number of Items	Dimensions of Satisfaction	Satisfaction Score (Dependent variable)	Associated Factors of Satisfaction	Data Analysis
12	Ad-hoc	1	Overall Satisfaction	Score: 1 – 5 (Merged 1 and 2 – very dissatisfied and dissatisfied)	Age, gender, education level, income quintile, chronic condition, residency, region, treatment outcome, communication, respect, waiting time, cleanliness, cost, transport (min), visit reason, care provider type	Multiple logistic regression RF (500 classification trees)
13	Ad-hoc	15	Acknowledgement (C1), support (C2), accept (C3), prepare to act (ASAP) (C4)	Score of each component: 1 - 100 (C1, C2, C3) ≥ 75% and (C4) ≥ 67% - Satisfied/Dissatisfied	Age, sex, marital status, educational status, occupation, religion, ethnicity, residence, payment status, reason for visit, frequency of visiting, family monthly income; communication with doctors/nurse[5]; physical environment[6]; medication provision[7]; waiting time[8]	Simple logistic regression ($p < 0.25$ included in) Multiple logistic regression
14	Adaptation of SERVPERF	35	Facilities and hospital environment, professional capacity, treatment outcome, hospital care, treatment time, reliability, cost of treatment	N.A.	Age, gender, income, education, occupation, health insurance, facilities and hospital environment, professional capacity, treatment outcome, hospital care, treatment time, reliability	ANOVA and T-tests (Sociodemographic) Multiple LR
15	Ad-hoc	16	Staff behaviour and services, physical facilities/environment, accessibility & availability to health care services	Item sum: 16-80 (converted in %) Satisfied (>75%)/Dissatisfied	Age, sex, marital status, educational status, family size, occupation, residence, convenience[9], communication and relationship[10], physical environment/facilities[11]	Simple logistic regression ($p < 0.2$ included in) Multiple logistic regression
16	Ad-hoc	31	General impression (5%), service attitude (15%), service quality (20%), hospital environment (10%), price perception (20%), medical ethics (30%) (weight)	Weighted dimension sum: 20 – 100	N.A.	Parametric tests
17	Ad-hoc	19	Service & treatment, waiting time, hospital environment, cost	1 - 'Very satisfied' and 'Satisfied' 0 – 'Moderate', 'Unsatisfied' and 'Completely unsatisfied'	Age, gender, household registration, income, education, care related characteristics (19 items)	Non-parametric tests Multiple logistic regression (Stepwise Regression Method)
18	PGOMPS	22	Nurse or assistant, care provider, personal issues, overall assessment, access, moving through visit	Likelihood to recommend Satisfied (5)/Dissatisfied (1-4)	Age, sex, ethnicity (patient) Sex, ethnicity, experience, clinical department (physician)	Multiple logistic regression (hierarchical)
19	Ad-hoc	4	N.A.	Item sum: 4 – 20 'Full satisfaction' (16 – 20), 'Partial satisfaction' (9 - 15), 'No satisfaction' (4 – 8)	Age, gender, ethnicity, education level, employment status, number of visits to health centre, waiting time, communication behaviour, patient trust	Simple logistic regression ($p < 0.5$ included in) Multiple logistic regression
20	MRPS	20	Communication and respect (C1), convenience (C2), quality time (C3), person focused care (C4), overall MRPS score (C5)	5 components item average: 1 - 5	Age groups, gender, educational status, occupation, body parts treated, time spent in the clinic (min), pain duration in the body parts treated, treatment times during last year, post treatment health status, physical therapy specialty, city of treatment	Non-parametric tests

Notes: C1…CN – Component 1 … Component N**, CHII** – China Healthcare Improvement Initiative, **LR –** Linear Regression**, MRPS** – MedRisk Instrument for Measuring PS with Physical Therapy Care, **N. A.** – Not Available, **p** – p-value, **PGOMPS** – Press Ganey Outpatient Medical Practice Surveys, **RF** – Random Forest, **SEM** – Structural Equation Modelling

[5] Respect and good behaviour, getting privacy, being understandable, punctuality, perceived capacity
[6] Condition of service delivery room, availability of sign and direction indicators, access to water, latrine, hand washing facility
[7] Description of side effects of drug, pain control, availability of drugs
[8] Registration services, time to receive drug, and time to see a doctor, convenience of service
[9] Availability of services, drugs, ordered laboratory and X-ray in hospitals and accessibility of services, waiting time, cost of services, transport to services
[10] Doctors listen carefully, doctors /nurses explain things in understandable ways, information regarding symptoms lookout, enough time to discuss problems
[11] Availability of latrines, signs and directions, drinking water

2.1.2.3. Results

Table 2.6 presents the principal findings, with a focus on the mean satisfaction scores, the significant factors influencing PS, and the quality of the models created.

The mean satisfaction scores reported in the studies varied considerably due to the use of different measures and scales, which makes direct comparisons challenging. For example, Chandra et al. (2019) indicated that 69.3% of patients were fully satisfied, while Sofianos (2023) reported a satisfaction score of 79.5%, and Pedersen et al. (2023) indicated a standardized mean score of 12.09, out of 16 (SD = 3.13). This variability demonstrates the necessity of context-specific evaluations when interpreting PS scores. Despite this variability, a general trend emerges: most studies report that patients tend to be satisfied or highly satisfied with the services they received.

Significant factors influencing PS were identified, with both positive and negative effects. For example, Kidanemariam et al. (2023) discovered that younger age (adjusted odds ratio (AOR) = 1.22) and male gender (AOR = 5.8) were positively associated with satisfaction, whereas payment status (AOR = 0.59) negatively impacted satisfaction. Similarly, Kassaw et al., (2022) identified monthly income (regression coefficient (β) = 2.95) and urban residence (β = 1.43) as positive factors, whereas a current psychiatric diagnosis (bipolar disorder) (β = -2.93) and distance from the hospital (β = -2.34) were negative factors.

Communication and patient-doctor interactions emerged as crucial determinants of PS. Algudairi et al. (2018) reported a significant positive effect of communication and respect (β = 0.79) on satisfaction, while Zhou et al. (2022) highlighted the importance of the environment and facilities (standardized total effect (STE = 0.312) and the quality of diagnosis and treatment (STE = 0.235) in enhancing PS. Conversely, longer waiting times were consistently associated with lower satisfaction, as seen in multiple studies (e.g., Chandra et al., 2019; Geberu et al., 2019; Kassaw et al., 2022)

The quality of the models was generally high, with rigorous statistical analysis underpinning many findings. Kassaw et al. (2022) reported an adjusted coefficient of determination (adjusted R^2) of 0.75, indicating a substantial proportion of variance explained by their model. Eshetie et al. (2020) and Zhou et al. (2022) demonstrated excellent model fit in their SEM analysis, with root mean square error of approximation (RMSEA) of 0.075. Furthermore, Zhang et al. (2020) reported an accuracy of 74%, for both random forest (RF) models and logistic regression, which indicates the model's goodness of fit.

Table 2.6: Studies' results

ID	Mean Satisfaction Score	Significant factors of PS (CI 95%, p -value < 0.05)		Quality
		+ PS	- PS	
1	BI – 54.2% satisfied AI – 77% satisfied	Sex (M) **(AOR = 5.8),** Age (18-27) **(AOR = 1.22)**	Payment status (Pay) **(AOR = 0.59)**	N.A.
2	12.09 (SD = 3.13, Median = 12)	Post-treatment functioning **(r = 0.529),** Symptom change **(r =0.457)**	None	N.A.
3	CSAT = 79.5%	Age (Older patients), Gender (M), Education level (Lower education)	None	R = 0.532, R2 = 0.283, Adjusted R^2 = 0.191, SE of the estimate = 0.761
4	BMT – 4.03 AMT – 3.91	None	None	N.A.
5	64/96	Monthly income **(β = 2.95),** Residence (Urban) **(β = 1.43)**	Current psychiatry diagnosis (BPD) **(β = -2.93),** Distance from the hospital (km) **(β = - 2.34),** Waiting time (m) **(β = -2.19)**	Adjusted R^2 = 0.75
6	4.62 (SD = 0.62)	Environment and facilities **(STE = 0.312),** Quality of diagnosis and treatment **(STE = 0.235),** Waiting time for medical services **(STE = 0.153)**	None	X2/df = 4.367, CFI = 0.95 TLI = 0.937, SRMR = 0.055, RMSEA = 0.075
7	27.3 (SD = 3.8)	Gender (F) **(β = 0.20)**	Level of hospital (Tertiary) **(β = - 0.34),** Education Level (High school) **(β = -0.28)** (Junior college) **(β = -0.28),** Marital status (Single) **(β = - 0.22),** Age (35–54 years) **(β = - 0.22)**	N.A.
8	6.26	Service recommendation **(r = 0.87),** Clinical time **(r = 0.49)** Communication **(r = 0.48),** Expectations **(r = 0.38),** Clinic wait time **(r = 0.35),** Therapeutic relationship **(r = 0.26)**	None	CFI = .937, TLI = .925, RMSEA = .075
9	6% (Dissatisfaction)	Image Modality, Age, Race/Ethnicity, Visit Year **		N.A.
10	48.76 (SD = 5.68) 64.6% of PS	None	Dentists' Age **(COR = 0.583),** Dentists' Sex (F) **(COR =0.386),** Dentists' Total Service Year (More than 3 years) **(COR = 0.294)**	N.A.
11	60.9/90 (SD =12.4)	Communication – Accept further investigation **(β=0.318);** Accept drug prescription **(β=0.221);** Accept follow up visit **(β=0.189),** Access and convenience - Accept admission **(β=0.329);** Recommend clinic **(β=0.168),** General satisfaction – Recommend clinic **(β=0.146)**	None	
12	N.A.	Treatment Outcome, Communication, Income, Waiting time, Age (Top 5)**		Accuracy = 74% (both RFM and logistic regression)
13	56.1% of PS	None	Drug availability (Some) **(AOR = 0.15),** Registration process was done timely (No) **(AOR = 0.052),** Waiting time to see a doctor after registration (1-2 hours) **(AOR =0.266)** (>2 hours) **(AOR =0.015)**	N.A.
14	N.A.	Treatment outcome **(β = 0.315),** Professional capacity **(β = 0.269),** Facilities and hospital environment **(β = 0.196),** Hospital care **(β = 0.178)**	Treatment time **(β = -0.093)**	Adjusted R^2 = 0.659 F = 165.7, p = 0.000
15	89.3% ROPD = 88.3% PWOPD = 90.4%	Availability of clean latrine (Satisfied) **(AOR = 3.34),** Cost of services (satisfied) **(AOR = 2.46),** Information on prevention of recurrence of illnesses (Yes) **(AOR = 2.38),** Sex (F) **(AOR = 2.03)**	Information gained on drug use and side effect (Some information) **(AOR = 0.43),** Waiting time (61 – 120 min) **(AOR = 0.36)**	N.A.
16	BI = 81.17 % (SD = 13.9) AI = 87.02 % (SD = 13.62)	N.A.		N.A.

Table 2.6: Results (Cont.)

ID	Mean Satisfaction Score	Significant factors of PS (CI 95%, p-value < 0.05)		Quality
		+ PS	- PS	
17	4.38 (SD = 0.7)	Physician's medical skill **(β = 0.76),** Inquiry of medical history and current situation with patience **(β = 0.35),** Convenience to use the elevator in this hospital **(β = 0.30),** Feeling respected by the medical staff **(β = 0.27),** Timely guidance from the staff when needed **(β = 0.26),** Explaining treatments, Medications with patience **(β = 0.26),** Waiting time before consultation **(β = 0.26),** Waiting time for medical test **(β = 0.26),** Privacy protection **(β = 0.25),** Waiting time to pay bills **(β = 0.23),** Cleanliness of bathrooms **(β = 0.16),** Drinking water supplies in the waiting zones **(β = 0.16)**	None	Nagelkerke R^2 =0.469 $\chi 2$ =1094.316
18	N.A.	Years in practice (15-24) **(OR = 1.15)** (>24) **(OR = 1.16),** Patient age (45-64) **(OR = 1.48)** (≥64) **(OR = 1.59)**	Non-Hispanic white physician (Asian patient) **(OR = 0.52),** Asian physician (Asian patient concordant) **(OR = 0.53)** (Asian patient discordant) **(OR = 0.55) (**Black or African American patient) **(OR = 0.81),** Patient language (Non – English) **(OR = 0.58)**	N.A.
19	Fully satisfied = 69.3%	Waiting time (<1h) **(AOR = 3.305),** Trust level (Full) **(AOR =18.68)**	No. of visits to health centre (1st visit) **(AOR = 0.516),** Gender (Male) **(AOR = 0.456)**	Nagelkerke R^2 = 0.368, explained 36.8%, Hosmer and Lemeshow test (chi-square = 9.4, p = 0.224), ROC curve area = 0.806
20	3.54 (SD =0.67)	Communication and respect **(β =0.79),** Person-focused care **(β =0.61)** Convenience **(β =0.5),** Quality time **(β =0.43),** Time spent in the clinic (min) Post-treatment health status, City of treatment	None	N.A.

Notes: **AI** – After Intervention, **AMT –** After Mentalization Training**, AOR** – Adjusted Odds Ratio, **BI** – Before Intervention, **BMT** – Before Mentalization Training, **BPD** – Bipolar Disorder, **CI** – Confidence Interval, **COR** – Crude Odds Ratio, **CSAT -** Customer Satisfaction Score, **F** – Female, **M** – Male, **N.A.** – Not Available, **OPD** – Outpatient Department, **OR** – Odds Ratio, **PWOPD** – Private Wing Outpatient Department, **r** – Spearman's rank order correlation**, RFM –** Random Forest Models**, ROPD** – Regular Outpatient Department, **SD** – Standard Deviation, **STE** – Standardized Total Effect, **β** – regression coefficient
*Components which scores differ between the categories of the variable, ** The authors did not report the effect direction

2.1.2.4. Contributions, limitations and future research

In order to evaluate the findings of the studies, Table 2.7 provides an overview of all 20 articles included in the RSL. The analysis considers the contributions of the studies, their limitations and the directions for future research.

The studies made a substantial contribution to the field by identifying key factors influencing PS (e.g., Geberu et al., 2019; Giao et al., 2020; Okonta & Ogaji, 2020), validating new (Waters et al., 2021) and existing PS measurement scales (Pedersen et al., 2023), and employing advanced analytical techniques (e.g., Zhang et al., 2020). A common theme across the studies is the identification of demographic factors (such as sex, age, and income), SQ, and physician-patient interactions as significant determinants of PS. Kidanemariam et al. (2023) and Sofianos (2023) both emphasized the significant impact of these elements on PS.

Despite the valuable insights gained from these studies, they also faced several common limitations. Many studies reported issues with generalizability, largely due to small sample sizes or single-institution data (e.g., Algudairi et al., 2018; Giao et al., 2020; Xie et al., 2019). Cross-sectional designs were cited as limiting causal inferences, as noted by Yan et al. (2021) and (Zhou et al., 2022). Additionally, concerns were expressed regarding the potential for response biases, whether due to self-reported surveys or specific demographic underrepresentation, across multiple studies, including those by Garcia et al. (2019) and Eshetie et al. (2020).

The authors frequently proposed future research directions with the objective of addressing the above-mentioned limitations. Extending the duration of post-intervention studies and including more diverse patient demographics were recommended to improve the generalizability and reliability of findings. For example, Kidanemariam et al. (2023) and Pedersen et al. (2023) both emphasized the necessity for longer-term studies and more diverse demographic sample. Incorporating qualitative research methods was another common recommendation, aimed at providing a deeper understanding of PS determinants. Romanowicz et al. (2022) proposed the inclusion of qualitative assessments to complement the findings of qualitative studies. Moreover, the use of advanced statistical techniques, such as SEM and machine learning was recommended to better capture the complex interactions affecting PS, as underlined by Zhou et al. (2022) and Ajam et al. (2021).

Table 2.7: Contributions, limitations, and future research

ID	Contributions	Limitations	Future Research
1	Validates administrative interventions in improving satisfaction.	The short duration of post-intervention analysis limits long-term satisfaction assessment.	Extend the duration of post-intervention studies. Include qualitative research.
2	First study to evaluate the CSQ-4 in a mental health population, and the first to explore its structural validity.	Limited generalizability (small sample) Potential ceiling effects and selection bias.	Measure PS over time for reliability. Broaden demographic and clinical variety to enhance generalizability.
3	Satisfaction correlated with human elements of service, particularly interactions with nursing staff and doctors. Predictive model of PS.	Limited generalizability (small sample) Not address satisfaction with Plastic Surgery care and procedures, but rather focus on the outpatient department itself.	Consider diverse patient demographics and broader context to validate and improve the predictive model.
4	Satisfaction was generally high, regardless of mentalization training. Provides an approach for identifying and measuring the advantages of mentalization training.	Limited generalizability (small sample) Single assessment of satisfaction may not capture changes over time. Lack of information on other factors such as pain.	Incorporate other outcome measures to evaluate the quality of the doctor–patient interaction besides the PSQ-18
5	Insights into determinants of PS within a psychiatric outpatient setting and suggested key areas for enhancing service delivery.	N.A.	Regularly assess and gather feedback on PS levels and predictors.
6	First to apply SEM to understand outpatient PS.	Study design restricts causal inferences. COVID-19's impact on resources and patient experiences. Generalizability may be limited.	Investigate other factors such as the severity of disease and emotions.
7	Large dataset, which enhanced the reliability of the findings. Revealed that long waiting times for outpatient services are a prominent issue in China.	Study design restricts causal inferences. Potential biases inherent to the self-reported survey method used.	N.A.
8	Validation of a 5-factor model of PS for orthopaedic consultations, including three interpersonal factors and two environmental factors. Development of the scale guided by an inductive, bottom-up approach.	Limited generalizability. Selection bias due to low survey response. Racial minorities are underrepresented.	Establish properties of the survey scale (convergent, discriminant, predictive and test-retest validity, and responsiveness). Follow-up and mix mode technologies (to improve response rate).
9	Satisfaction scores improved over time. Rigorous statistical tests add credibility to the findings. Longitudinal Analysis. Potential for generalizability, due to large sample size.	Single institution data. Response bias. Focus only on basic demographics and modality. Racial minorities are underrepresented.	SEM to analyse complex variable interactions affecting PS. Investigate targeted quality improvement strategies.
10	Focus on physician-patient interaction.	Limited generalizability. Satisfaction may have been affected by other disciplines (e.g., technical competency and environment of the clinic setup).	N.A.
11	Weak but positive correlation between the domains of PS and willingness to comply with physician recommendations.	N.A.	Examine how each domain of PS influences their willingness to comply with the surgeon's recommendations.
12	Employed modern ML techniques, achieving 74% accuracy.	Based on WHO SAGE wave 1 data; later versions not analysed. Relied on a single item for measuring satisfaction. May have excluded some relevant predictors.	Include broader societal and policy factors. Utilize advanced ML methods for further insights.
13	Shows lower PS levels in North Gondar compared to national and regional averages. Emphasizes drug availability as a primary determinant of PS.	Social desirability bias in institutional-based studies. Short-lived satisfaction post-consultation (‘halo effect’). Surrogate bias by relying on children’s attendants.	Periodic assessment of health services delivery regarding PS.
14	Development of a measurement scale	Limited generalizability. The results only explain 65.9% of the dependent variable.	Develop a model for high-income groups. Develop a model for inpatient PS separately.
15	Addresses the gap in evidence on satisfaction with private and regular services, which is particularly important given the expansion of private services in the country.	Study was not supported by qualitative methods. Potential social desirability and memory recall biases.	N.A.

Table 2.6: Contributions, limitations, and future research (Cont.)

ID	Contributions	Limitations	Future Research
16	Decreased outpatient volume. Increased appointment registration rate and improved PS.	Limited generalizability. The data collection time was limited.	N.A.
17	Filled in the research gap regarding the effect of care-related factors on PS in China. Emphasized the importance of studying care-related factors and PS in low- and middle-income countries.	Limited generalizability. Biased satisfaction rating (onsite questionnaire). Focus on CHII-aligned characteristics; might miss other important factors.	Explore the effect of other important factors on PS. Investigate objective measures of patient experience (e.g., actual waiting time).
18	Emphasizes the importance of statistical adjustments of a patient's race/ethnicity. Asian physicians face similar challenges as other minorities physicians.	Lack of quality or clinical outcomes data. Study design restricts causal inferences. Potential for nonresponse bias. Insufficient sample size for racial minorities.	Include a broader geographic area with more varied racial/ethnic compositions and larger samples of underrepresented groups.
19	Emphasizes the critical role of effective communication and trust between doctors and patients. Mixed- method approach (quantitative and qualitative)	Self-selection bias. Acquiescence bias since the questionnaire includes both positive and negative items. Possibility of social desirability bias (patients filled in their name). Reliability of the questionnaire was not done before being used.	Better understand the link between PS and health outcomes with direct measurement of clinical health outcomes.
20	Baseline data on PS within the context in Saudi Arabia. Guidelines for hospital management to raise PS and service quality.	Self-reporting and non-response bias. Limited generalizability.	Repeat among a larger sample of patient's representative of different parts of the country.

Notes: ML – Machine Learning, **N.A.** – Not Available

2.1.3. Quality assessment

When conducting an SLR, it is essential to streamline the processes, to assist both researchers and practitioners. The assessment of the articles relevance across the four dimensions assumes critical importance, as it also ensures the quality of the articles and presents transparent and unbiased results (Tandon et al., 2020).

Therefore, a score is attributed to each article based on each evaluation criterion, as established in Table 2.1. A score of 0 is assigned if the query remains unaddressed, 0.5 if it receives a partial response, and 1 if it is fully addressed. Table 2.8 presents the scores for the 20 articles and for each of the 15 items assessed (1.1 – 4.3).

Table 2.8: Articles evaluation

ID	Context and objective		Methodology							Results			Contributions, limitations, and future research			Total
	1.1	1.2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	3.1	3.2	3.3	4.1	4.2	4.3	
1	0.5	0.5	1	1	0.5	0.5	1	0.5	1	1	1	0	1	1	0.5	**11**
2	0.5	1	1	0.5	1	1	1	1	1	1	1	0	1	1	1	**13**
3	1	1	1	1	1	1	0.5	1	1	1	0.5	1	1	1	1	**14**
4	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5	0	1	1	1	**8.5**
5	0.5	1	1	1	1	0.5	1	1	1	1	1	1	0.5	0	0.5	**12**
6	1	1	0	1	1	0.5	0.5	0.5	1	1	1	1	0.5	1	0.5	**11.5**
7	0.5	1	1	1	1	0.5	0	1	1	0.5	1	0	1	1	0	**10.5**
8	0.5	1	0	0.5	0.5	1	1	0	1	0	1	1	1	1	1	**10.5**
9	0.5	1	0	0.5	1	0.5	0.5	1	1	1	0.5	0	1	1	1	**10.5**
10	0.5	1	1	1	1	1	0.5	1	1	1	1	0	0.5	1	0	**11.5**
11	1	1	1	1	0.5	1	0.5	0.5	1	0.5	1	1	0.5	0	0.5	**11**
12	1	1	1	0.5	0.5	0.5	1	1	1	0	0.5	1	1	1	1	**12**
13	1	1	1	1	1	0.5	1	1	1	1	1	0	0.5	1	0.5	**12.5**
14	1	1	1	0.5	0.5	1	1	0	0.5	0	1	1	0.5	1	1	**11**
15	1	1	1	1	1	0.5	1	1	1	1	1	0	1	1	0	**12.5**
16	1	1	0	0.5	1	0.5	0	1	1	0.5	0	0	0.5	1	0	**8**
17	1	1	0	1	0.5	0.5	0.5	1	1	1	1	1	1	1	1	**12.5**
18	0.5	0.5	1	0.5	0.5	0.5	0.5	1	1	0	1	0	1	1	1	**10**
19	0.5	1	1	1	1	0.5	1	1	1	1	1	1	1	1	1	**14**
20	0.5	1	1	0.5	0	0	0.5	0.5	1	1	0.5	0	0.5	1	1	**9**
Total	**14.5**	**18.5**	**15**	**15.5**	**15**	**12.5**	**12.5**	**15.5**	**18.5**	**14**	**16.5**	**9**	**16**	**18**	**13.5**	-

In this SLR, it was found that no article achieved the maximum score of 15 points. Two of the analysed articles received the highest score of 14 points (Chandra et al., 2019; Sofianos, 2023). The items with the highest scores were "1.2: Does the article clearly articulate the study objective?" and "2.7: Does the article explain the statistical/analytical techniques used?", both receiving a score of 18.5 out of 20

Several inconsistencies were identified in the reviewed articles. Accordingly, in article 1 (Kidanemariam et al., 2023), the number of items included in the satisfaction scale did not align with the reported satisfaction scores. In article 3 (Sofianos, 2023) the

dependent variable was not clearly defined. In article 4 (Romanowicz et al., 2022) regression analysis was mentioned in the abstract but not referenced in the body of the article. Furthermore, article 10 (Okonta & Ogaji, 2020) described the dependent variable in two different ways. These inconsistencies highlight the need for careful attention to detail to ensure clarity and reliability.

2.2. Patient satisfaction, patient loyalty and word of mouth

While the SLR highlighted various methods for measuring PS and identified several antecedents, the consequents of PS were not fully explored. Therefore, this section focuses on two key outcomes of PS: patient loyalty and WoM, helping to understand the broader impact of PS in healthcare.

The healthcare industry, much like other sectors, has come to recognise the importance of cultivating loyal customers. This is because a focus on the quality of care and PS alone may prove inadequate for meeting the objectives of healthcare organisations in today's competitive environment (Abekah-Nkrumah et al., 2020).

In the context of healthcare, customer loyalty is typically defined as a positive attitude exhibited by patients towards a service provider, frequently evidenced by the repeated use of the provider's services over time (Manyanga et al., 2022; Tjahjaningsih et al., 2020). Some authors define loyalty in terms of behaviours, such as the intention to re-select the same institution for future healthcare needs (Karim & Rabiul, 2024). Similarly, Kijima et al. (2021) suggest that loyalty is not merely a passive state; rather, it reflects an active commitment on the part of patients, who consistently choose the same provider. Others have proposed that revisit intention can be employed as a proxy for patient loyalty (Vimla & Taneja, 2020).

Studies have demonstrated that PS positively affects patient loyalty. When patients are highly satisfied, they are more likely to continue interacting with the service provider (Abekah-Nkrumah et al., 2020; Olesen & Bathula, 2022). Additionally, a study by Vimla & Taneja (2020) has established a significant positive correlation between satisfaction and revisit intentions.

The term word of mouth is used to describe informal, person-to-person communication that occurs between a sender and a receiver. Unlike other forms of communication, WoM is not perceived as being commercially motivated or related to a product, business, or service (Dayan et al., 2022; Nasir et al., 2021). Positive WoM has

been demonstrated to be an effective advertising tool, with studies indicating that it is nine times more effective than traditional advertising methods (Kitapci et al., 2014).

There is an ongoing debate regarding whether WoM constitutes an active recommendation or simply a discussion - whether positive or negative - about a product or service. Nevertheless, there is a consensus that WoM, in either form, has a substantial impact on patients' attitudes and behaviours, including their selection of a specific healthcare provider or treatment (Martin, 2017).

Although PS is typically expected to result in positive WoM, this is not always guaranteed. Satisfied patients may or may not share their positive experiences, while dissatisfied patients are more likely to vocalize their displeasure and may even exaggerate the negative aspects of their experience (Kitapci et al., 2014). Therefore, a high level of PS does not necessarily result in a high rate of recommendations. Nevertheless, the positive relationship between PS and WoM is well-documented in the healthcare industry (Pauli et al., 2023).

2.3. Implications of the literature review

The literature review synthesizes existing research on PS as a complex and multi-dimensional construct in outpatient clinical services, focusing on its antecedents and consequences. Based on these findings, a conceptual model has been developed to empirically investigate how key factors influence PS and how PS, in turn, affects patient loyalty and WoM referrals. (Figure 2.4).

The proposed hypotheses are supported by several key theories. The patient-centred care model emphasizes the importance of involving patients in decision-making processes, which enhances their satisfaction by aligning care with their preferences and needs (Zamorano et al., 2023). Similarly, the customer loyalty model supports the notion that higher levels of PS are associated with increased loyalty and the likelihood of recommending the clinic to others, as mentioned earlier. Finally, equity theory explains how perceptions of fairness, especially in relation to sociodemographic factors, shape satisfaction (Khoo, 2022),.

2.3.1. Proposed conceptual model

Prior research suggests that older patients tend to report higher satisfaction levels (Garcia et al., 2019; Sofianos, 2023). Similarly, female patients are anticipated to show greater satisfaction compared to their male counterparts (Geberu et al., 2019; Yan et al., 2021).

Conversely, single patients are expected to report lower satisfaction than those who are married or in a civil union (Yan et al., 2021). Thus, the following hypothesis is stated:

H1: Sociodemographic characteristics are associated with PS, with the expectation that older and female patients report higher levels of satisfaction, while single patients may express lower satisfaction.

Previous studies indicate that patients attending their first visit may express lower levels of satisfaction compared to those with more visits to the clinic (Chandra et al., 2019). Additionally, better treatment outcomes aligned with defined objectives are expected to positively influence satisfaction (Giao et al., 2020). Based on these insights, the following hypothesis is formulated:

H2: Clinical service factors are associated with PS, with the expectation that patients attending their first visit will report lower satisfaction, while those experiencing better outcomes regarding defined objectives will report higher satisfaction

Patients who are satisfied with the care they have received are more likely to demonstrate loyalty through repeat visits and continued engagement with their healthcare provider (Abekah-Nkrumah et al., 2020; Olesen & Bathula, 2022). Thus, the following hypothesis is presented:

H3: PS has a positive effect on patient loyalty.

The literature suggests that satisfied patients are more likely to share positive experiences through WoM, influencing others' decisions (Martin, 2017; Pauli et al., 2023). However, while PS generally increases the likelihood of recommendations, it doesn't always guarantee them, as patient behaviour can vary (Kitapci et al., 2014). Based on this, the following hypothesis is proposed:

H4: PS has a positive effect on WoM referrals**.**



Figure 2.4: Proposed conceptual model

3. Methodology

This chapter presents the methodological framework employed in this study, providing a detailed description of the research paradigm, the nature of the study, the data collection methods, the characteristics of the sample, and the analytical techniques used.

3.1. Research paradigm and type of study

This research is grounded in a positivist approach, which emphasises the construction of statistical models to analyse relationships between observable variables, thereby ensuring the accuracy and generalisability of the findings (Park et al., 2020). To achieve the study's objectives, a quantitative design was employed. The study is exploratory in nature, aiming to investigate relatively under-researched areas within the specific context of a Portuguese sleep clinic, thereby framing it as a case study.

3.1.1. The Clinic TRP – Sleep & Psychology

To fully comprehend the findings, it is essential to first provide context about the clinic where the research was conducted, as its specific characteristics play a significant role in shaping the results.

The Clinic TRP - Sleep & Psychology is an innovative healthcare project that focuses on the intersection between sleep health and mental well-being. Its primary mission is to promote sleep psychology as a specialized field, integrating it with other health domains to offer a holistic approach to personal development and health promotion. The clinic provides tailored solutions for sleep, psychological well-being, and mental health issues. It addresses these challenges within the context of personal, familial, social, and professional life. This patient-centred approach fosters a collaborative relationship with patients, ensuring services are aligned with individual needs.

The clinic offers a variety of services targeting diverse aspects of sleep and mental health. These include initial and follow-up psychological consultations, led by experienced psychologists with expertise in both sleep psychology and general psychological care. In addition, consultations with medical specialists, such as those in general and family medicine, internal medicine, neurology, psychiatry, and otolaryngology, ensuring an integrated approach to health. Furthermore, the clinic plays an active role in the development and delivery of educational and training programmes on sleep health, which are integrated into school activities to foster healthy sleep habits from a young age. It also provides tailored consulting services to organisations seeking

to address sleep-related issues in the workplace, ultimately enhancing employee well-being and productivity (Gingerich et al., 2018).

At the time of this study, the clinic serves a total of 901 patients with an average age of 41.71 years (SD = 14.75), ranging from 18 to 95 years old. The majority of the clinic's patients are female, representing 67.15% of the patient population, while males account for just 32.85%. Regarding referral patterns, most patients are referred from external sources, accounting for 72.74%, while internal referrals make up 27.26%.

Having established the clinic's context, the next step involves outlining the data collection process, which forms the basis for the analysis of PS.

3.2. Data collection

3.2.1. Instrument

Considering the objectives and hypotheses of this study, a questionnaire was selected as the most appropriate research tool for gathering the necessary information. According to Hill & Hill (1998) a questionnaire is a structured instrument designed to collect responses from a representative sample of the population under study, allowing for the systematic analysis of relationships between variables.

The questionnaire begins with a brief introduction explaining the scope of the research and assuring participants of the anonymity and confidentiality of their responses. It also informs participants that completing the questionnaire takes approximately seven minutes and emphasizes the importance of their contributions in improving the quality of services offered by the clinic.

The questionnaire consists of 48 questions divided into three sections: i) sociodemographic data; ii) data related to the clinical service; and iii) PS. While the questionnaire was initially designed for broader applications, only the questions relevant to this study are discussed and included in the analysis.[12]

Collecting sociodemographic data is crucial for the comprehension of the characteristics of the study population and the analysis of the influence of these factors on PS.

Table 3.**1** outlines the sociodemographic variables included in the questionnaire, supported by relevant literature references.

[12] See Appendix B – Final questionnaire distributed

Table 3.1: Sociodemographic variables in the questionnaire supported by SLR

Question	SLR Article Id
3. Age	1, 2, 3, 5, 8, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20
4. Sex[13]	
5. Marital status	1, 5, 10, 13, 15
6. Number of residents in the accommodation	-
7. Level of education	1, 3, 5, 10, 12, 13, 14, 15, 17, 19, 20
8. Occupation	1, 3, 10, 13, 15, 19, 20

The number of residents in the accommodation was included as it can significantly impact sleep quality and, by extension, the overall healthcare experience. Research indicates that household size can influence sleep with factors such as noise, privacy, and space, which can affect health outcomes and patient experiences (Gabet et al., 2024).

The respondents are required to indicate whether they are the patient or a children's attendant responding on behalf of a minor. For the purposes of simplicity in the analysis, all respondents, including children's attendants, are referred to as "patients". This is because the attendants are, in fact, the customers who have subscribed to the service and therefore their satisfaction should be the one assessed

The second section focuses on the respondents' interactions with the clinic. The variables included in this section capture essential details about the patients' experience and engagement with the clinic's services. Table 3.2 presents these variables, along with the justification for their inclusion.

Table 3.2: Clinical service variables in the questionnaire supported by SLR

Q.	Variable	SLR Article Id	Justification
9	Knowledge of the clinic	8	Expert recommendation
10	N Visits to the clinic (last 12 months)	1, 13, 19, 20	-
11	Months since last consultation	-	Expert recommendation
12	Year of first visit	9	To compute variable "Years as patient"
13	Reason for first visit	12, 13	-
17	Duration of complaints (before the first visit)	5, 8	
18	Phase of the therapeutic process	-	Expert recommendation
19	Outcome regarding defined goals	12, 14	-
22	Feeling about multidisciplinary approach	-	Expert recommendation

[13] Gender variable is equally considered

While many of these variables are grounded in the existing literature, several were specifically requested by the clinic. The clinic expressed a particular interest in examining the relationship between these variables and PS which they believe could provide valuable insights into improving their services. In addition, the questionnaire also includes key measures of WoM and loyalty (Table 3.3).

Table 3.3: Other variables included in the questionnaire

Question	Articles	Justification
26. Intention to revisit the clinic	Karim & Rabiul (2024), Kijima et al. (2021), Vimla & Taneja (2020)	Measure loyalty
27. Intention to recommend the clinic	Dayan et al. (2022), Nasir et al., 2021	Measure WoM

For the satisfaction section, the PSQ-18 was selected as the most appropriate scale. This decision was based not only on the findings from the literature review, where articles such as those by Okonta & Ogaji (2020) and Romanowicz et al. (2022) highlighted its effectiveness in similar contexts, but also on the specific needs and settings of the clinic.

The PSQ-18, developed by Marshall & Hays (1994) is a widely validated tool designed to measure patients' perceptions of the quality of healthcare services they receive. The PSQ-18 consists of 18 items that assess seven dimensions of PS, including general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with doctor, and accessibility and convenience. Each item is scored on a 5-point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’.

The PSQ-18 provides a complete yet concise measure of PS, making it suitable for outpatient clinical environments where quick and effective data collection is essential. The PSQ-18 maintains internal consistency and reliability, making it adaptable for use in various settings (Marshall & Hays, 1994; Thayaparan & Mahdi, 2013). The items included are listed in Table 3.4.

Table 3.4: PSQ-18 items

Q.	Item	Affirmation
28	1	Doctors are good about explaining the reason for medical tests.
29	2	I think my doctor's office has everything needed to provide complete medical care.
30	3	The medical care I have been receiving is just about perfect.
31	4	Sometimes doctors make me wonder if their diagnosis is correct.
32	5	I feel confident that I can get the medical care I need without being set back financially.
33	6	When I go for medical care, they are careful to check everything when treating and examining me.
34	7	I have to pay for more of my medical care than I can afford.

Table 3.4: PSQ-18 items (Cont.)

Q.	Item	Affirmation
35	8	I have easy access to the medical specialists I need.
36	9	Where I get medical care, people have to wait too long for emergency treatment.
37	10	Doctors act too businesslike and impersonal toward me.
38	11	My doctors treat me in a very friendly and manner.
39	12	Those who provide my medical care sometimes hurry too much when they treat me.
40	13	Doctors sometimes ignore what I tell them.
41	14	I have some doubts about the ability of the doctors who treat me.
42	15	Doctors usually spend plenty of time with me.
43	16	I find it hard to get an appointment for medical care right away.
44	17	I am dissatisfied with some things about the medical care I receive
45	18	I am able to get medical care whenever I need it.

Source: Marshall & Hays (1994)

Once the questionnaire was developed, the focus shifted to the procedures used to distribute it to participants, ensuring both ethical considerations and effective data collection.

3.2.2. Procedures

Given that the original language of the PSQ -18 is English and that it is to be distributed in a clinic where the majority of patients are native Portuguese speakers or fluent in this language, it is imperative to translate the questionnaire. Initially, two independent researchers, who are native Portuguese speakers with high proficiency in English, translated the questionnaire anonymously[14]. Subsequently, a third party reviewed both translations and selected the most accurate and appropriate version[15].

Then, the questionnaire was evaluated by clinic stakeholders to assess its suitability for use in the study. The group comprised professionals working in the field, including clinicians, members of the clinic management team, and researchers. The objective was to ensure that the questionnaire items were relevant and effectively captured the various aspects of patient experience, satisfaction, and engagement with the clinic's services.

A pilot test was conducted with five patients to further assess the questionnaire's effectiveness and clarity. The objective of this trial was to identify any potential issues

[14] See Appendix C - Independent researchers' translation (Table A2)
[15] See Appendix C - PSQ-18 portuguese translation (Table A3)

and gather initial feedback for improvements prior to the final distribution. The clients were selected based on the criteria of diversity to ensure broad representation (Table 3.5).

Table 3.5: Characterisation of the pre-test respondents

Id	Sex	Age	Completion Time (min:seg)
1	Female	19	06:22
2	Male	27	15:14
3	Female	28	08:15
4	Female	32	10:43
5	Male	62	13:00

Considering the feedback received, the questionnaire was subjected to a review, and the proposed modifications were implemented.

In Section I, Question 5, which relates to sociodemographic data, the categories “casado” (married) and “união de facto” (civil partnership) have been combined into a single category. Furthermore, for Question 7, some of the categories for the highest level of education completed were consolidated. In Section II, Question 17, which relates to the clinical service data and concerns the duration of symptoms prior to the initial visit to the clinic, the category "I don't know" was added. In Section III, concerning the PSQ-18, the statement "My doctors treat me in a very friendly and courteous manner" (item 11) was modified to remove the word "courteous," as it was considered to be overly formal.

The data collection period spanned from June 5, 2024, to July 16, 2024. An email was sent to all patients in the Clinic's database on June 5, 2024[16]. Due to the low level of adherence observed and to encourage participation, a reminder email was sent on 25 June 2024. This process was selected due to its practicality and ease of access to the target population, allowing for rapid data collection and cost-effectiveness, as it utilizes existing records to reach a large number of respondents efficiently (Qualtrics, n.d.).

The questionnaire was administered via the online survey tool SurveyMonkey (SurveyMonkey, n.d.), which facilitated the distribution and collection of responses. Before completing the questionnaire, respondents were required to provide their informed consent to participate in the study. This process was conducted under the ethical standards and guidelines set forth by the Clinic and the General Data Protection Regulation (*General Data Protection Regulation (GDPR) – Legal Text*, 2024).

16 See Appendix D - Email sent to the patients of the clinic

As illustrated in Figure 3.1, 87 responses were received in response to the 901 distributed questionnaires, indicating a non-response rate of approximately 90%. Among the responses, one individual did not provide consent, and 26 questionnaires were incomplete. Consequently, the analysis was conducted on the 60 questionnaires that met the requisite criteria.

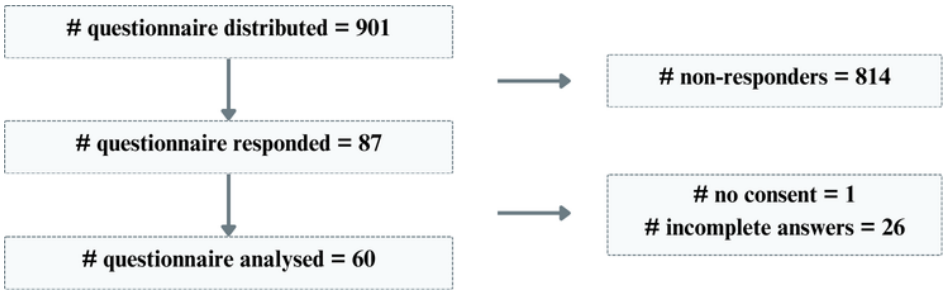


Figure 3.1: Flowchart of questionnaires distributed

3.3. Sample

Table 3.6 summarizes the sociodemographic characteristics of the 60 respondents.

Table 3.6: Distribution of sociodemographic characteristics of the respondents

Variables	N	%	Mean	SD	Min	Max
Age	**60**	**-**	**41.52**	**11.58**	**21**	**68**
Sex						
Female	48	80.0				
Male	12	20.0				
Total	**60**	**100.0**				
Marital status						
Single	32	53.4				
Married/Civil union	25	41.7				
Divorced	3	5.0				
Total	**60**	**100.0**				
Level of education						
Secondary education	5	8.3				
Post-secondary education	3	5.0				
Associate degree or equivalent	1	1.7				
Bachelor's degree	24	40.0				
Master's degree	22	36.7				
Doctorate	5	8.3				
Total	**60**	**100.0**				
N of residents in the accommodation	**58**	**-**	**2.64**	**1.27**	**1**	**6**
Occupation						
Employee	36	60.0				
Self-employed or freelancer	13	21.7				
Student	3	5.0				
Retired/Pensioner	2	3.3				
Employer	1	1.7				
Other	5	8.3				
Total	**60**	**100.0**				

The typical patient is a 42-year-old (SD = 11.58) single (53.4%) female (80%) with a bachelor's degree (40%), employed in a conventional role (60%), and living in a household with approximately three residents (M = 2.64, SD = 1.27).

In order to evaluate the representativeness of the sample in terms of two demographic characteristics that are considered to be important for explaining satisfaction, namely sex (Geberu et al., 2019; Kidanemariam et al., 2023; Yan et al., 2021) and age (Garcia et al., 2019; Sofianos, 2023), the chi-square adjustment test and the t-test were carried out, respectively.

Regarding gender, the sample was found not to be representative ($\chi^2(1) = 4.491$; $p = 0.038$)[17], as the percentage of women in the sample (80.0) was significantly different from their proportion in the population (67.2). Conversely, the sample is representative of the population in terms of age, as evidenced by the average age of 42.52 years in the sample, which is not significantly different ($t(59) = -0.129$; $p = 0.897$) from the average age in the population (M = 41.71), considering a significance level of $p < 0.05$.

With the sample defined, the next phase involved processing the data to ensure accuracy and reliability before proceeding to the analysis.

3.4. Data processing

The data processing phase involved several steps to ensure the quality and relevance of the data. Initially, variables that were not pertinent to the analysis, including collector_id, date_modified, ip_address, and email_address, were removed from the dataset. Responses labelled as "doesn't apply" were treated as missing values.

Subsequently, variables and categories were translated and simplified to facilitate easier interpretation and analysis. To illustrate, the original variable name "Qual o motivo inicial que o/a trouxe a uma consulta/exame/tratamento na Clínica TRP?" was simplified to "Reason for first visit."

Errors in data entry were identified and corrected. For instance, in the age variable, some respondents included text like "50 years" instead of simply "50". Similarly, in the 'Months since last consultation' variable, responses were standardized as some patients had provided qualitative responses such as "one week".

The variable "Year of first visit" was recoded into "Years as patient," representing the number of years each respondent has been a client of the clinic. To ensure consistency in measuring satisfaction, the variables for intention to recommend and intention to return

[17] Considering a significant level of 0.01

were recoded, with higher values consistently indicating a stronger intention (i.e., a response of 1 was scored as 5).

For the PSQ-18 items, original response values were converted into scored values to ensure higher scores reflected greater satisfaction. Negatively worded affirmations were rephrased into positive statements for clarity and better interpretability. For instance, item 17, "I am dissatisfied with some things about the medical care I receive", was rephrased as "I am satisfied with many things about the medical care I receive". In other cases, items were reversed in their scoring (i.e., a response of 1 was scored as 5). The specific scoring adjustments made are detailed in Table 3.7.

Table 3.7: Scoring items

Item	Original Response Value		Scored Value
1, 2, 3, 5, 6, 8, 11, 15, 18	1	→	5
	2	→	4
	3	→	3
	4	→	2
	5	→	1
4, 7, 9, 10, 12, 13, 14, 16, 17[18]	1	→	1
	2	→	2
	3	→	3
	4	→	4
	5	→	5

Source: Marshall & Hays (1994)

Originally, composite scores for the seven dimensions of PS were to be created by averaging the specified items, as outlined in Table 3.8, in accordance with the guidelines provided by Marshall & Hays (1994). However, due to the presence of missing data, an alternative approach was necessary.

Table 3.8: Creating score scales

Dimension	Average These Item
General Satisfaction	3, 17
Technical Quality	2, 4, 6, 14
Interpersonal Manner	10, 11
Communication	1, 13
Financial Aspects	5, 7
Time Spent with Doctor	12, 15
Accessibility and Convenience	8, 9, 16, 18

Source: Marshall & Hays (1994)

[18] Items rephrased into positive statements

To optimise the number of valid responses for each dimension of PS, multiple scoring methods were tested. For each patient, dimension averages were calculated based on the availability of valid responses - ranging from at least one valid item to all items being valid. The approach that provided the best balance between maximizing response rates and maintaining strong correlations with the overall dimension scores was selected[19]. For example, the alternative scoring method (utilizing either item 3 or item 17 versus both items for General Satisfaction) was selected due to its demonstrated strong correlation of approximately 0.95 with both items.

With the data processed and all variables standardized, the dataset was prepared for further statistical analysis to explore patient satisfaction and its various determinants.

3.5. Data analysis

IBM SPSS V.29.0 for Windows facilitated the data analysis. Descriptive statistics were used to evaluate PS, summarizing agreement levels for each item and dimension of the PSQ-18. Overall satisfaction (OS) was computed as the average of the scores of the seven dimensions, with 1 indicating “complete dissatisfaction” and 5 indicating “complete satisfaction” (Algudairi et al., 2018). To ensure internal consistency, Cronbach's alpha was calculated (Yan et al., 2021), based on standardized items.

A cluster analysis was conducted to categorize patients based on their satisfaction scores across the seven dimensions. The process began with hierarchical clustering (Pluchart et al., 2021), using Ward’s method and squared Euclidean distance on standardized Z-scores to determine the optimal number of clusters. The resulting dendrogram[20] suggested three distinct groups. Subsequently, a K-means cluster analysis was performed (Nurmeksela et al., 2023), specifying three clusters as indicated by the hierarchical analysis[21].

In alignment with the focus on maximizing PS, the three clusters were further consolidated into two levels: "highly satisfied" (Cluster 1) and "partially satisfied" (Clusters 2 and 3) as suggested by relevant literature (Ajam et al., 2021; Sofianos, 2023; Yong et al., 2021). Independent samples t-tests were used to assess the differences between the two groups, while the eta coefficient was calculated to quantify the strength of the association between satisfaction levels and PS.

[19] See Appendix E - Correlation analysis for dimension scoring methods
[20] See Appendix F - Hierarchical cluster
[21] See Appendix G - K-Means cluster

To determine the antecedents of the outcome variable (PS), descriptive statistics, as for example the mean, standard deviation, maximum, median and minimum, alongside inferential statistics were employed. The relationship between sociodemographic or clinical service factors and PS was evaluated using Pearson's, Spearman's rank and Eta correlation coefficients. The strength of the associations was interpreted according to the following scale, as determined by Laureano (2020): very weak (0 to 0.2), weak (0.2 to 0.4), moderate (0.4 to 0.7), strong (0.7 to 0.9), and very strong (0.9 to 1). Mann-Whitney (MW) and Kruskal-Wallis (KW) tests were also applied to determine statistical significance of differences between groups.

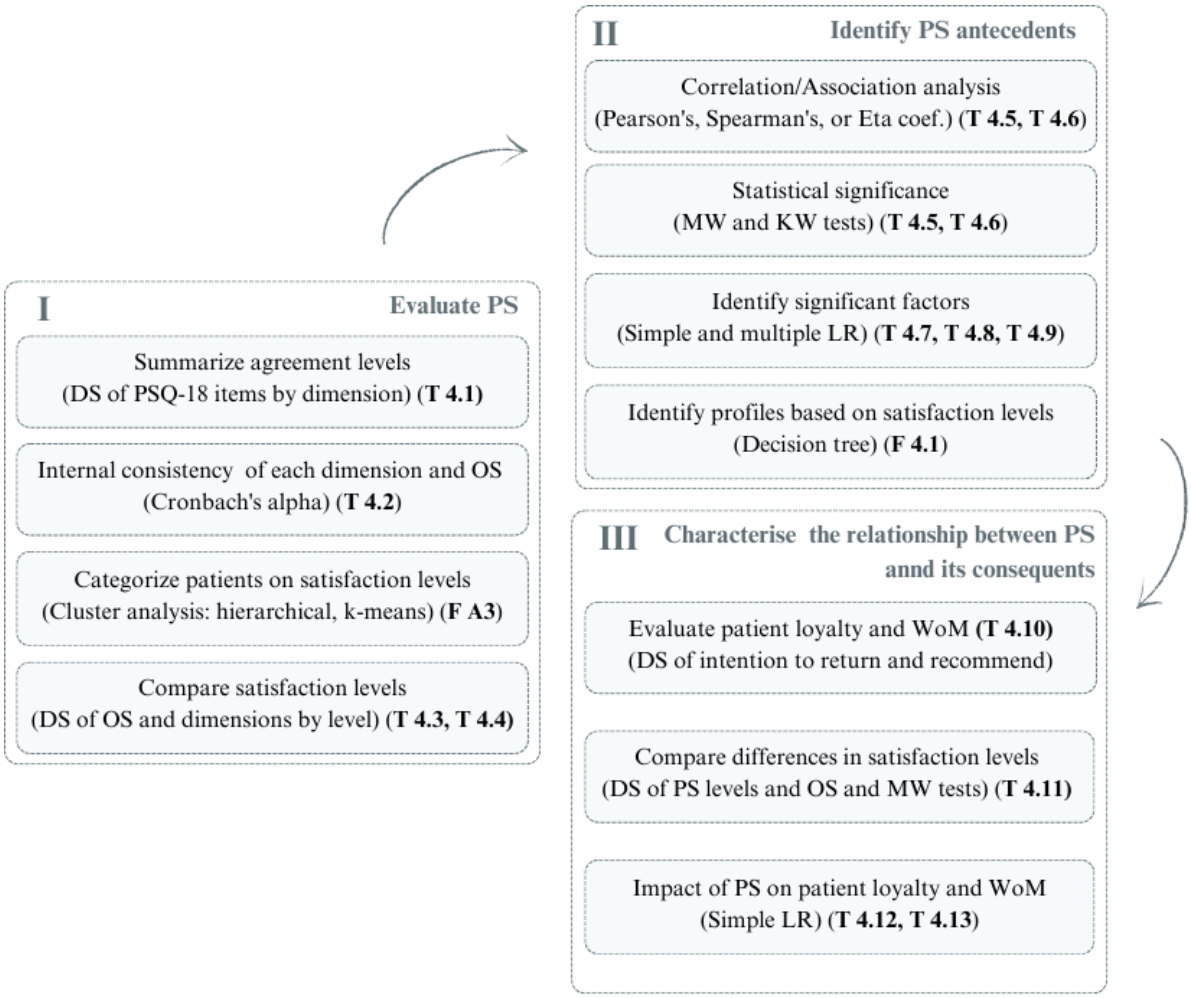
Given the limited sample size, simple LR models were employed to identify the variables with a significance level of $p < 0.25$ (Eshetie et al., 2020; Kassaw et al., 2022), allowing for the reduction of variables in the multiple regression analysis while retaining potentially relevant factors of PS. For variables with more than two categories, dummy variables were created to appropriately include them in the regression analysis. These selected variables were then considered for inclusion in multiple LR analysis, with a significance level of $p < 0.05$. The multiple LR analysis was conducted using the stepwise method, in accordance with the rule of 1 variable per 10 cases (Rodríguez del Águila & Benítez-Parejo, 2011). Before performing this analysis, the key assumptions, namely linearity, normality, and multicollinearity, were evaluated and found to be satisfied, thereby ensuring the robustness of the regression models (Hair et al., 2010).

In addition to multiple LR, decision tree (DT) analysis was conducted using the CART (Classification and Regression Tree) method, a non-parametric technique that explores relationships between variables through binary splitting (Sharma & Iqbal, 2023). The dependent variable in these DTs was PS, categorised as “very satisfied” and “partially satisfied”. As input, the independent variables were selected based on their significance in the simple LR models (those with $p < 0.25$). Pruning techniques were applied to restrict the tree to four levels, simplifying interpretation (Bellizzi et al., 2022), and consequently facilitating the interpretation of the decision rules. After several iterations to enhance the model’s performance, adjustments were made to the misclassification costs (*SPSS Statistics 29.0.0*, 2024) to emphasise the identification of patients with lower satisfaction levels, also designated as “partially satisfied” patients.

To examine the relationship between PS and its potential outcomes - specifically, the intention to return (loyalty) and the intention to recommend the clinic (WoM) - descriptive and inferential statistical techniques were used. First, descriptive statistics

summarized the distribution of responses for each outcome, providing an overview of patient intentions. To assess the impact of PS on these outcomes, MW tests were applied to compare the distribution scores between the two satisfaction levels. The eta value was also calculated to measure the strength of the association between PS and these behavioural intentions.

Finally, simple LR analysis was conducted to explored how OS influenced these intentions, using adjusted R^2 and the standard error of the estimate (SEE) to evaluate model precision.to assess the precision of the model. According to Hair et al. (2010), higher R^2 values indicate that the model explains a greater proportion of the variation in the dependent variable, while lower SEE values indicate a more accurate model.



Note: coef. – Coefficients**, DS –** Descriptive Statistics, **F** – Figure, **T** – Table

Figure 3.2: Flowchart of the data analysis

4. Results and discussion

This chapter presents the findings obtained from the adopted methodology, structured according to the three specific objectives of the study.

4.1. Patient satisfaction

The Table 4.1 provides an overview of PS across the seven dimensions, showing the distribution of agreement for each item.

Table 4.1: Distribution of agreement with PSQ-18 items

Satisfaction Items	1 Strongly Disagree %	2 Disagree %	3 Uncertain %	4 Agree %	5 Strongly Agree %	M	SD	N
General Satisfaction								
3. The medical care I have been receiving is just about perfect.	3.64	1.82	5.45	43.64	45.45	4.25	0.93	55
17. I am satisfied with many things about the medical care I receive.	1.79	3.57	3.57	32.14	58.93	4.43	0.87	56
Technical Quality								
2. I think my doctor's office has everything needed to provide complete medical care.	2.13	2.13	14.89	29.79	51.06	4.26	0.94	47
4. Rarely doctors make me wonder if their diagnosis is correct.	2.27	6.82	6.82	45.45	38.64	4.11	0.97	44
6. When I go for medical care, they are careful to check everything when treating and examining me.	6.38	0	8.51	44.68	40.43	4.13	1.03	47
14. I have very few doubts about the ability of the doctors who treat me.	0	5.26	3.51	17.54	73.68	4.60	0.8	57
Interpersonal Manner								
10. Doctors don’t act too businesslike and impersonal toward me.	1.82	5.45	5.45	18.18	69.09	4.47	0.96	55
11. My doctors treat me in a very friendly manner.	0	5.08	1.69	45.76	47.46	4.36	0.76	59
Communication								
1. Doctors are good about explaining the reason for medical tests.	0	0	4.65	34.88	60.47	4.56	0.59	43
13. Doctors rarely ignore what I tell them.	0	1.72	1.72	32.76	63.79	4.59	0.62	58
Financial Aspects								
5. I feel confident that I can get the medical care I need without being set back financially.	9.09	12.73	20	41.82	16.36	3.44	1.18	55
7. I can afford my medical care.	3.7	22.22	24.07	38.89	11.11	3.31	1.06	54
Time Spent with Doctor								
12. Those who provide my medical care rarely hurry when they treat me.	1.79	0	1.79	48.21	48.21	4.41	0.71	56
15. Doctors usually spend plenty of time with me.	0	5.77	5.77	61.54	26.92	4.10	0.75	52
Accessibility & Convenience								
8. I have easy access to the medical specialists I need.	1.82	1.82	3.64	54.55	38.18	4.25	0.78	55
9. Where I get medical care, people don't have to wait too long for emergency treatment.	0	2.7	29.73	37.84	29.73	3.95	0.85	37
16. I find it easy to get an appointment for medical care right away.	0	14.81	20.37	29.63	35.19	3.85	1.07	54
18. I am able to get medical care whenever I need it.	5.56	1.85	3.7	53.7	35.19	4.11	0.98	54

The highest satisfaction scores were observed in the “Technical Quality” and "Communication" dimensions. Specifically, the item “I have very few doubts about the ability of the doctors who treat me” received a high mean score (M = 4.60, SD = 0.80), along with “Doctors are good about explaining the reason for medical tests” (M = 4.56, SD = 0.59), followed closely by, “Doctors rarely ignore what I tell them” (M = 4.59, SD = 0.62). In contrast, the lowest satisfaction scores were found in the “Financial Aspects” dimension. The item “I can afford my medical care” had the lowest mean score (M = 3.31, SD = 1.06), followed by "I feel confident that I can get the medical care I need without being set back financially" (M = 3.44, SD = 1.18).

Table 4.2 presents the descriptive measures for the satisfaction dimensions, revealing the highest mean score for the “Communication” dimension (M = 4.59, SD = 0.51) and the lowest for “Financial Aspects” (M = 3.41, SD = 0.98). OS showed a mean of 4.19 (SD = 0.60), indicating a high satisfaction score among patients. The Cronbach’s alpha coefficient (0.96) across the PSQ-18 items confirmed excellent internal consistency, reinforcing the reliability of the satisfaction measures.

Table 4.2: Descriptive measures of satisfaction dimension scores and OS

Scores	# Items	Cronbach’s alpha[22]	Min.	Median	Max.	M	SD	N
General Satisfaction	2	0.91	1.00	4.50	5.00	4.33	0.85	58
Technical Quality	4	0.89	1.25	4.50	5.00	4.29	0.78	54
Interpersonal Manner	2	0.72	1.50	4.50	5.00	4.41	0.75	59
Communication	2	0.56	3.00	5.00	5.00	4.59	0.51	59
Financial Aspects	2	0.72	1.00	4.00	5.00	3.41	0.98	59
Time Spent with Doctor	2	0.70	1.50	4.00	5.00	4.25	0.65	57
Accessibility & Convenience	4	0.66	1.50	4.00	5.00	4.03	0.74	58
OS (mean of 7 dimensions)	**-**	**0.96**	**1.75**	**4.29**	**5.00**	**4.19**	**0.60**	**51**

Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

To further explore the patient OS, a bivariate analysis was conducted to compare the mean satisfaction scores between the two levels of satisfaction: "highly satisfied" (n=32) and "partially dissatisfied” (n=19) patients. Table 4.3 presents the summary statistics for these patient groups.

[22] Cronbach's alpha based on standardized items

Table 4.3: Bivariate analysis of satisfaction levels and OS score

Satisfaction level	N	M	SD	Min	Median	Max	Association measure
OS (MW = 50; z = - 4.950; p < 0.001)							Eta[23] = 0.957
Partially satisfied	19	3.69	0.66	1.75	3.95	4.46	
Highly satisfied	32	4.48	0.31	3.79	4.52	5.00	

Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

The findings revealed a considerable discrepancy between the groups, with the highly satisfied group exhibiting a considerably higher mean OS score (M = 4.48, SD = 0.31), compared to the partially satisfied group (M = 3.69, SD = 0.66). The eta value of 0.957 underscores the very strong association between the satisfaction groups and the OS scores, indicating that the clustering effectively differentiates PS levels.

Table 4.4 compares satisfaction between the "highly satisfied" and "partially satisfied" levels across the seven dimensions of PS.

Table 4.4: Bivariate analysis of satisfaction levels and PS dimensions

Variables	N	M	SD	Min	Median	Max	Association measure
General satisfaction (MW = 105.500; z = -3.584; **p < 0.001**)							
Partially satisfied	19	3.68	1.12	1.00	4.00	5.00	Eta = 0.616
Highly satisfied	32	4.69	0.40	4.00	5.00	5.00	
Technical quality (MW = 125.000; z = -3.555; **p < 0.001**)							
Partially satisfied	19	3.82	0.96	1.25	4.00	5.00	Eta = 0.648
Highly satisfied	32	4.60	0.44	3.33	4.67	5.00	
Interpersonal Manner (MW = 225.500; z = -1.628; p = 0.104)							
Partially satisfied	19	4.13	0.67	1.50	4.50	5.00	Eta = 0.362
Highly satisfied	32	4.56	0.59	3.00	4.75	5.00	
Communication (MW = 198.000; z = -2.280; **p = 0.023)**							
Partially satisfied	19	4.37	0.64	3.00	4.50	5.00	Eta = 0.417
Highly satisfied	32	4.75	0.38	4.00	5.00	5.00	
Financial aspects (MW = 30.000; z = -5.508; **p < 0.001**)							
Partially satisfied	19	2.45	0.78	1.00	2.50	4.00	Eta = 0.824
Highly satisfied	32	3.00	0.51	3.00	3.00	4.00	
Time Spend with Doctor (MW = 174.500; z = -2.654; **p = 0.008**)							
Partially satisfied	19	3.89	0.76	1.50	4.00	5.00	Eta = 0.393
Highly satisfied	32	4.41	0.51	4.00	4.50	5.00	
Accessibility & Convinience (MW = 107.500; z = -3.856; **p < 0.001**)							
Partially satisfied	19	3.51	0.78	1.50	3.50	4.75	Eta = 0.784
Highly satisfied	32	4.38	0.52	3.33	4.42	5.00	

Note: p values ≤ 0.05 are in bold
Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

Significant differences were found for most dimensions, except for Interpersonal Manner (p = 0.104), suggesting that this dimension may not contribute as strongly to

[23]Eta = η

differentiate PS as the others. The strongest association between satisfaction groups and the seven dimensions was observed in the Financial Aspects dimension (Eta = 0.824), indicating a strong relationship. The highly satisfied group had a higher mean score (M = 3.00, SD = 0.51) compared to the partially satisfied group (M = 2.45, SD = 0.78). Similarly, Accessibility & Convenience (Eta = 0.784) and Technical Quality (Eta = 0.648) demonstrated a strong and moderate relationships, respectively. Overall, the highly satisfied patients consistently reported higher satisfaction scores.

These findings highlight the necessity of an in-depth understanding of the factors that contribute to differentiate satisfaction scores.

4.2. Antecedents of PS

To address the second objective, several sociodemographic and clinical service factors were analysed to determine their association with PS.

4.2.1. Sociodemographic factors

As shown in Table 4.5, two sociodemographic variables - level of education and occupation - exhibited statistically significant differences in OS score ($p \leq 0.05$, |Association measure| > 0.3).

Table 4.5: Influence of sociodemographic characteristics on satisfaction (OS) score

Variables	N	M	SD	Min	Median	Max	Association measure
Age (MW = 319; z = - 0.113; p = 0.914)							
<40	25	4.26	0.42	3.06	4.29	4.93	Eta = 0.109
≥40	26	4.13	0.74	1.75	4.29	5.00	
Sex (MW = 155; z = - 1.187; p = 0.242)							
Female	41	4.14	0.64	1.75	4.29	4.93	Eta = 0.179
Male	10	4.41	0.39	3.96	4.36	5.00	
Marital status (MW = 297; z = - 0.251; p = 0.802)							
Single/Divorced	31	4.23	0.46	2.61	4.14	4.93	Eta = 0.083
Married/Civil Union	20	4.13	0.79	1.75	4.40	5.00	
Level of education (KW = 7.984; **p = 0.018**)							
Secondary/Post-secondary education	8	3.99	0.41	3.36	3.95	4.67	Spearman = -0.038 Eta = 0.357
Bachelor's degree	18	4.48	0.33	3.93	4.48	5.00	
Master's degree/Doctorate	25	4.05	0.73	1.75	4.14	4.93	
# of residents in the accommodation (MW = 320.5; z = -0.066; p = 0.952)							
≤2	27	4.16	0.69	1.75	4.29	4.93	Eta = 0.052
>2	24	4.22	0.50	3.06	4.25	5.00	
Occupation (KW = 6.773; **p = 0.034**)							
Employee	29	4.27	0.56	2.61	4.46	4.93	Eta = 0.320
Self-employed	12	4.31	0.45	3.36	4.36	5.00	
Other	10	3.80	0.77	1.75	3.93	4.60	

Note: p values ≤ 0.05 are in bold;
Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

Patients with a bachelor's degree reported higher satisfaction levels (M = 4.48, SD = 0.33) than those who have completed lower levels of education, such as secondary or post-secondary education (M = 3.99, SD = 0.41). Similarly, self-employed individuals exhibit higher satisfaction (M = 4.31, SD = 0.45) compared to employees (M = 4.27, SD = 0.56) and those in other occupational categories (M = 3.80, SD = 0.77).

Other factors, such as age, sex, marital status, and the number of residents in the household, did not demonstrate statistically significant differences ($p<0.05$), indicating a minimal impact of these variables on OS.

4.2.2. Clinic service factors

Table 4.6 illustrates the significant impact of clinical service factors on OS[24]. Treatment outcome and perception of the clinic's multidisciplinary approach were found to be key antecedents of satisfaction ($p \leq 0.05$, |Association measure| > 0.3).

Table 4.6: Influence of data related to the clinical service on OS score

Variables	N	M	SD	Min	Median	Max	Association measure
Knowledge of the clinic (KW = 2.511; p = 0.473)							
Recommendation friend/family	24	4.29	0.56	2.61	4.35	5.00	Eta = 0.247
Through a member of our team	11	4.15	0.29	3.75	4.10	4.60	
Recommendation health professional	9	4.25	0.51	3.21	4.46	4.69	
Other	7	3.84	1.08	1.75	4.05	4.88	
Years as patient (KW = 2.638; p = 0.451)							
3	16	4.32	0.38	3.75	4.32	5.00	Spearman = - 0.160
2	11	4.14	0.84	1.75	4.32	4.86	
1	17	4.23	0.53	3.06	4.43	4.93	
0	7	3.86	0.74	2.61	3.95	4.88	
# visits to the clinic (last 12 months) (KW = 1.119; p = 0.878)							
1	7	3.77	1.10	1.75	4.02	4.88	Spearman = 0.116
2 – 5	11	4.08	0.72	2.61	4.36	5.00	
6 – 10	10	4.34	0.32	3.99	4.27	4.86	
11 – 20	11	4.32	0.35	3.75	4.36	4.93	
≥21	12	4.30	0.41	3.75	4.23	4.93	
Reason for first visit (KW = 6.230; p = 0.101)							
Mental Health	21	4.35	0.37	3.79	4.26	5.00	Eta = 0.436
Sleep and Mental Health	17	4.26	0.48	3.21	4.43	4.86	
Sleep	11	3.71	0.91	1.75	4.00	4.88	
Other	2	4.54	0.25	4.36	4.54	4.71	
Duration of complaints (before first visit) (KW = 1.090; p = 0.779)							
< 3 months	4	4.49	0.41	3.95	4.55	4.93	Spearman = - 0.134
3 months – 6 months	5	4.18	0.75	3.06	4.14	5.00	
7 months – 1 year	5	4.35	0.37	3.75	4.43	4.71	
> 1 year	32	4.14	0.67	1.75	4.17	4.93	

[24] See Appendix G - Distribution of data related to the clinical service.

Table 4.6: Influence of data related to the clinical service on OS score (Cont.)

Variables	N	M	SD	Min	Median	Max	Association measure
Phase of the therapeutic process (KW = 1.736; p = 0.420)							
Initial assessment	5	3.56	1.25	1.75	3.36	4.88	Spearman = 0.008
In treatment	37	4.30	0.40	3.06	4.32	4.93	
Discharged/Finished treatment cycle	9	4.09	0.67	2.61	4.14	5.00	
Outcome (KW = 13.295; **p = 0.004**)							
Much better	20	4.44	0.31	3.75	4.45	5.00	Spearman = - 0.426
Better	22	4.32	0.37	3.71	4.14	4.93	
No changes	3	3.58	0.46	3.06	3.75	3.93	
Worse	2	2.18	0.61	1.75	2.18	2.61	
Specialty of the first consultation (KW = 2.519; p = 0.284)							
Clinical psychology	26	4.36	0.36	3.75	4.34	5.00	Eta = 0.313
Sleep psychology	18	3.95	0.83	1.75	4.07	4.88	
Other	7	4.16	0.52	3.21	4.06	4.71	
# specialties attended (KW = 4.911; p = 0.297)							
1	32	4.20	0.66	1.75	4.39	5.00	
2	11	4.28	0.63	2.61	4.37	4.93	Pearson = - 0.105
3	3	4.03	0.07	3.96	4.02	4.10	
4	3	4.00	0.29	3.75	3.93	4.32	
5	2	3.96	0.25	3.79	3.96	4.14	
Feeling about multidisciplinary approach (KW = 6.313; **p = 0.027**)							
Favourably	28	4.28	0.36	3.36	4.34	4.93	Spearman = - 0.358
Indifferently	5	4.13	0.31	3.79	4.05	4.60	
Unfavourably	2	2.18	0.61	1.75	2.18	2.61	

Note: p values ≤ 0.05 are in bold
Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

Patients who reported feeling "much better" after treatment had significantly higher OS score (M = 4.44, SD = 0.31), while those with favourable views on the clinic's multidisciplinary approach also reported higher satisfaction (M = 4.28, SD = 0.36).

4.2.3. Explaining PS

Further analysis using simple LR (Table 4.7 and Table 4.8) confirmed the influence ($p \leq 0.05$) of education and occupation (sociodemographic characteristics) and outcomeand feeling about multidisciplinary approach (clinical service factors) on the OS score. It is important to note that the significance level of $p < 0.25$ was used initially to select variables for potential inclusion in the multiple regression, ensuring that all potentially relevant factors were considered.

Table 4.7: Simple LR models for OS - sociodemographic

M	Independent variable	β	S. β	t test	p
Age (RC: < 40)					
1.1	Constant	4.257		35.116	<0.001
	≥ 40	- 0.131	- 0.109	- 0.770	0.445
Sex (RC: female)					
1.2	Constant	4.137		44.161	<0.001
	Male	0.270	0.179	1.277	**0.208**
Marital status (RC: single/divorced)					
1.3	Constant	4.230		38.760	<0.001
	Married/Civil Union	- 0.102	- 0.083	- 0.586	0.561

Table 4.7: Simple LR models for OS – sociodemographic (Cont.)

M	Independent variable	β	S. β	t test	p
Level of education (RC: master's/doctorate)					
1.4	Constant	4.046		35.157	<0.001
	Secondary/Post-secondary	-0.053	-0.032	-0.227	0.821
	Bachelor's	0.432	0.346	2.431	**0.019**
# of residents in the accommodation (RC: ≤ 2)					
1.5	Constant	4.160		35.504	<0.001
	>2	0.063	0.052	0.367	0.715
Occupation (RC: other)					
1.6	Constant	3.804		20.610	<0.001
	Employee	0.469	0.389	2.193	**0.033**
	Self-employed	0.508	0.360	2.033	**0.048**

Note: β – Coefficient**, RC –** Reference category
S. β – Standardized Coefficient
Significant at p < 0.25 (in bold), were selected for multiple LR

Specifically, having a bachelor's degree (β = 0.432, p = 0.019), being self-employed (β = 0.508, p = 0.048) or employee (β = 0.469, p = 0.033), are associated (p ≤ 0.05) with higher satisfaction scores.

Table 4.8: Simple LR models for OS - clinical service

M	Independent variables	β	S. β	t test	p
Knowledge of the clinic (RC: other)					
1.7	Constant	3.844		16.857	<0.001
	Friend/family	0.444	0.371	1.714	**0.093**
	Member of our team	0.308	0.212	1.056	0.296
	Health professional	0.402	0.257	1.324	**0.192**
Years as patient (RC: 0)					
1.8	Constant	3.855		16.911	<0.001
	3	0.466	0.362	1.705	**0.095**
	2	0.287	0.198	0.986	0.329
	1	0.379	0.299	1.400	**0.168**
# visits to the clinic (last 12 months) (RC: ≥ 21)					
1.9	Constant	4.077		22.693	<0.001
	1	-0.303	-0.174	-1.052	0.298
	2 – 5	0.261	0.174	1.004	0.321
	6 – 10	0.241	0.166	0.950	0.347
	11 – 20	0.219	0.155	0.880	0.384
Reason for first visit (RC: other)					
1.10	Constant	4.536		11.449	<0.001
	Mental Health	-0.830	-0.571	-1.927	**0.060**
	Sleep & Mental Health	-0.183	-0.150	-0.440	0.662
	Sleep	-0.275	-0.217	-0.655	0.515
Duration of complaints (RC: > 1 year)					
1.11	Constant	4.141		36.594	<0.001
	< 3 months	0.353	0.160	1.039	0.305
	3 months – 6 months	0.035	0.017	0.113	0.910
	7 months – 1 year	0.213	0.107	0.693	0.492
Phase of the therapeutic process (RC: discharged/finished a treatment cycle)					
1.12	Constant	4.090		21.457	<0.001
	Initial assessment	-0.530	-0.264	-1.663	**0.103**
	In treatment	0.210	0.157	0.986	0.329

Table 4.8: Simple LR models for OS - clinical service (Cont.)

M	Independent variables	β	S. β	t test	p
Outcome (RC: No changes)					
	Constant	2.179		8.596	<0.001
1.13	Much better	2.264	1.901	8.518	**<0.001**
	Better	2.141	1.814	8.087	**<0.001**
# specialties attended (RC: 5)					
	Constant	3.964		9.006	<0.001
	1	0.241	0.195	0.530	0.598
1.14	2	0.319	0.220	0.667	0.508
	3	0.063	0.025	0.112	0.912
	4	0.036	0.140	0.063	0.950
Feeling about multidisciplinary approach (RC: Unfavourably)					
	Constant	2.179		8.399	<0.001
1.15	Favourably	2.106	1,405	7.843	**<0.001**
	Indifferently	1.950	1.138	6.353	**<0.001**

Note: β – Coefficient**, RC –** Reference category,
S. β – Standardized Coefficient
Significant at $p < 0.25$ (in bold), were selected for multiple LR

The results also demonstrated a significant association ($p \leq 0.05$) between treatment outcomes and OS. A "much better" outcome ($\beta = 2.264$, $p < 0.001$) and a "better" outcome ($\beta = 2.141$, $p < 0.001$), compared to no change, were linked to higher satisfaction. Additionally, perceptions of the clinic's multidisciplinary approach played a key role, with both favourable ($\beta = 2.106$, $p < 0.001$) and indifferent ($\beta = 1.950$, $p < 0.001$) perceptions associated with higher satisfaction compared to unfavourable perceptions.

The final multiple LR model, which incorporates all previously identified significant variables ($p \leq 0.250$) and utilizes the stepwise method ($\alpha = 0.05$) for variable selection, supports these findings. The results indicate that positive perceptions of the multidisciplinary approach ($\beta = 2.115$, $p < 0.001$), employee as occupation ($\beta = 0.395$, $p < 0.001$), and holding a bachelor's degree ($\beta = 0.199$, $p = 0.044$) are associated with higher PS scores. Conversely, being referred to the clinic by a member of the clinic's team is associated with a slight decrease in satisfaction scores ($\beta = -0.238$, $p = 0.024$). This model accounts for a substantial proportion of the variance in satisfaction scores, with an adjusted R^2 of 0.834, indicating a strong fit, as detailed in Table 4.9. Furthermore, the two most important variables are perceptions of the multidisciplinary approach, with positive and indifferent attitudes being the most significant factors.

Table 4.9: Multiple LR analysis for OS - sociodemographic and clinical service

Independent variables	β	S. β	t-test	p	Model quality
Constant	1.981		10.992	<0.001	
Favourably[1]	2.115	1.364	11.288	**<0.001**	
Indifferently[1]	1.946	1.062	8.553	**<0.001**	Adjusted $R^2 = 0.834$
Employee[2]	0.395	0.329	4.484	**<0.001**	SEE = 0.247
Member of our team[3]	-0.238	-0.177	-2.393	**0.024**	
Bachelor[4]	0.199	0.163	2.113	**0.044**	

Note: β – Coefficient, **SEE** – Standard Error of the Estimate, **S.** – Standardized coefficient: [1] feeling about multidisciplinary approach, [2] occupation, [3] knowledge of the clinic, [4] educational level; Stepwise analysis, p-values ≤ 0.05 are in bold

The DT analysis (Figure 4.1) led to the identification of distinct profiles of patients according to their level of PS. To illustrate, the description of three distinct profiles emerges: highly satisfied (Node 13), partially satisfied (Node 10), and without a tendency towards a level of satisfaction (Node 14).

Highly satisfied patients (confidence = 1; support = 11) were characterized by referrals from friends or family members, and they generally had a favourable perception of the clinic's multidisciplinary approach. Their satisfaction was further influenced by the nature of their health concerns, such as mental health issues, which led them to place significant trust in the treatment recommended by their personal networks. This combination contributed strongly to their high satisfaction level.

Partially satisfied patients (confidence = 1; support = 3) were also referred by friends or family but differed in their mixed perception of the clinic's multidisciplinary approach. This group tended to be neutral towards the approach and showed less certainty about the effectiveness of the treatment. The partial satisfaction likely stems from a lack of a fully favourable attitude toward the treatment strategy, resulting in an experience that did not achieve a high level of satisfaction.

Patients without a clear tendency towards a satisfaction level (confidence = 0.5; support = 2) were influenced by various factors, leading to a mixed experience. These patients sought treatment for sleep or mental health issues, had received recommendations from non-health professionals, and held a favourable or indifferent view of the clinic's multidisciplinary approach. Additionally, their education level was secondary or lower. This combination of factors contributed to their unclear or mixed level of satisfaction with the clinic's services.

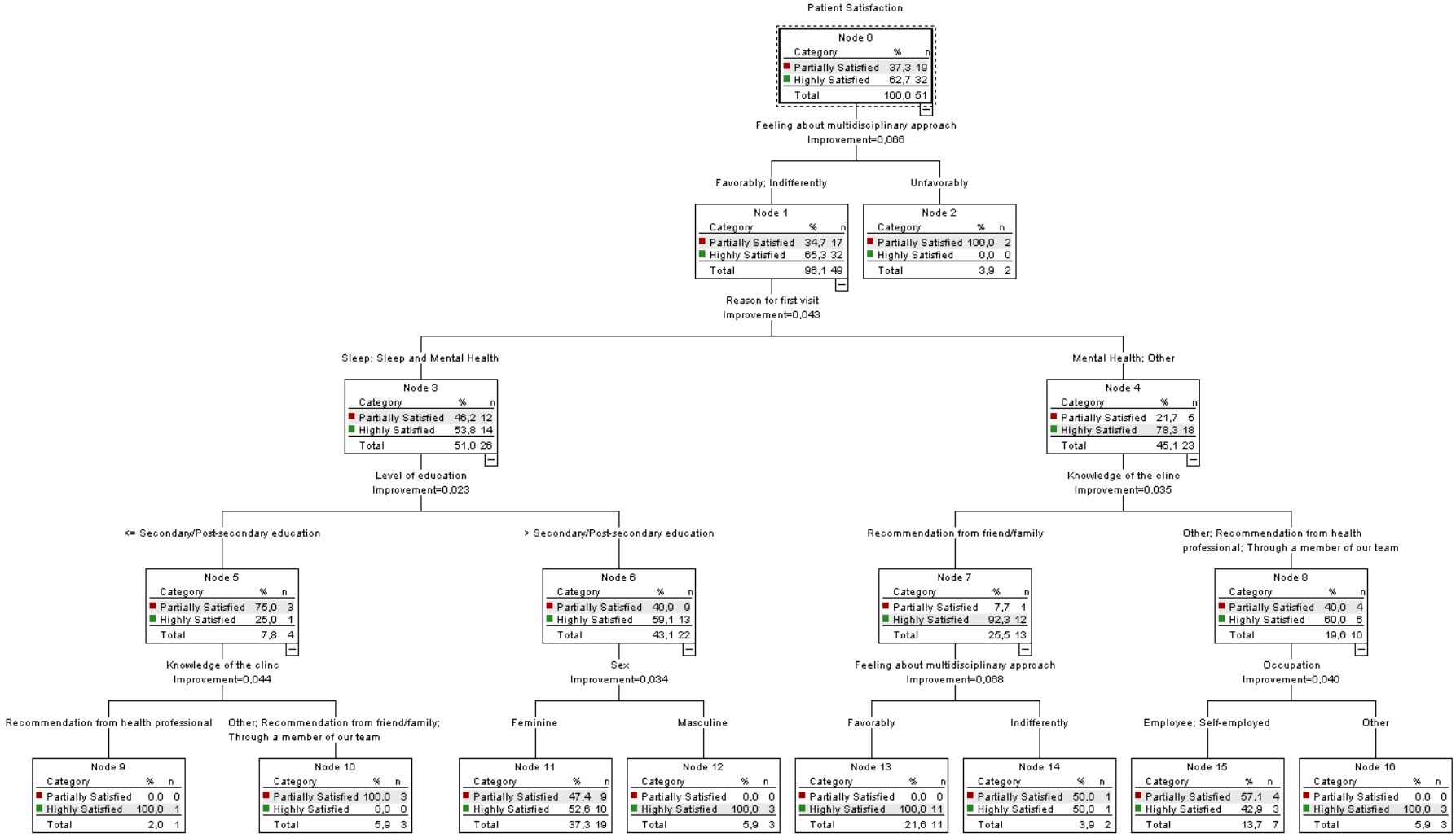


Figure 4.1: Decision tree to explain PS level

4.3. Consequents of PS

The third objective focuses on exploring how PS influences the intention to return and intention to recommend the clinic. The analysis of patient responses indicates a strong overall intention to return to and recommend the clinic. As shown in Table 4.10, the majority of patients (78.33%) expressed a strong intention to return, with a mean score of 4.53 (SD = 1.03), while 85% indicated a high likelihood of recommending the clinic (M = 4.72, SD = 0.83).

Table 4.10: Distribution of agreement on intention to return and recommend

Variables	Definitely Not %	Probably Not %	Maybe %	Probably Yes %	Definitely Yes %	M	SD	N
Intention to return	3.33	5.00	5.00	8.33	78.33	4.53	1.03	60
Intention to recommend	3.33	0.00	3.33	8.33	85.00	4.72	0.83	60

Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

Table 4.11 illustrates the influence of PS level on these behavioural intentions. Patients categorized as "highly satisfied" had a significantly stronger intention to return (M = 4.91, SD = 0.53) and recommend the clinic (M = 4.94, SD = 0.25) compared to "partially satisfied" patients, who had lower mean scores for both intentions.

Table 4.11: Influence of PS level on intention to return and to recommend

Variables	N	M	SD	Min	Median	Max	Association measure
Intention to return (MW = 186.5; z = - 3.446; **p < 0.001**)							
Partially satisfied	19	3.95	1.47	1.00	5.00	5.00	Eta = 0.432
Highly satisfied	32	4.91	0.53	2.00	5.00	5.00	
Intention to recommend (MW = 207.0; z = - 2.847; **p = 0.003**)							
Partially satisfied	19	4.21	1.32	1.00	5.00	5.00	Eta = 0.400
Highly satisfied	32	4.94	0.25	4.00	5.00	5.00	

Note: p values ≤ 0.05 are in bold
Scale: 1 - complete dissatisfaction to 5 - complete satisfaction

The LR analysis (Table 4.12 and Table 4.13) further highlights the strong positive relationship between OS and both intention to return ($\beta = 1.333$, $p < 0.001$) and intention to recommend ($\beta = 1.159$, $p < 0.001$).

Table 4.12: Simple LR analysis for OS - intention to return

Independent variables	β	S. β	t test	p	Model quality
Constant	-1.037		-1.429	0.159	Adjusted $R^2 = 0.552$
OS	1.333	0.743	7.774	**<0.001**	SEE = 0.543

Note: β – Coefficient, **SEE** – Standard Error of the Estimate, **S.** – Standardized
p values ≤ 0.05 are in bold

Table 4.13: Simple LR analysis for OS - intention to recommend

Independent variables	β	S. β	t test	p	Model quality
Constant	-0.191		-0.351	0.727	Adjusted $R^2 = 0.615$
OS	1.159	0.789	8.992	**<0.001**	SEE = 0.550

Note: β – Coefficient, **SEE** – Standard Error of the Estimate, **S.** – Standardized
p values ≤ 0.05 are in bold

The β values indicate that for each unit change in the OS score, the intention to return and intention to recommend scores vary in the same direction by approximately 1.333 and 1.159 units, respectively.

4.4. Conceptual model results

Figure 4.2 illustrates the conceptual model, delineating the relationships between the identified constructs and the standardized regression coefficient (S. β), which quantifies the effect of the independent variable on the dependent variable. To illustrate, the value of the standardized coefficient associated with the relationship between OS and WoM (0.789) indicates that when satisfaction varies by one standard deviation, the intention to recommend the clinic varies in the same direction by 0.789 standard deviations.

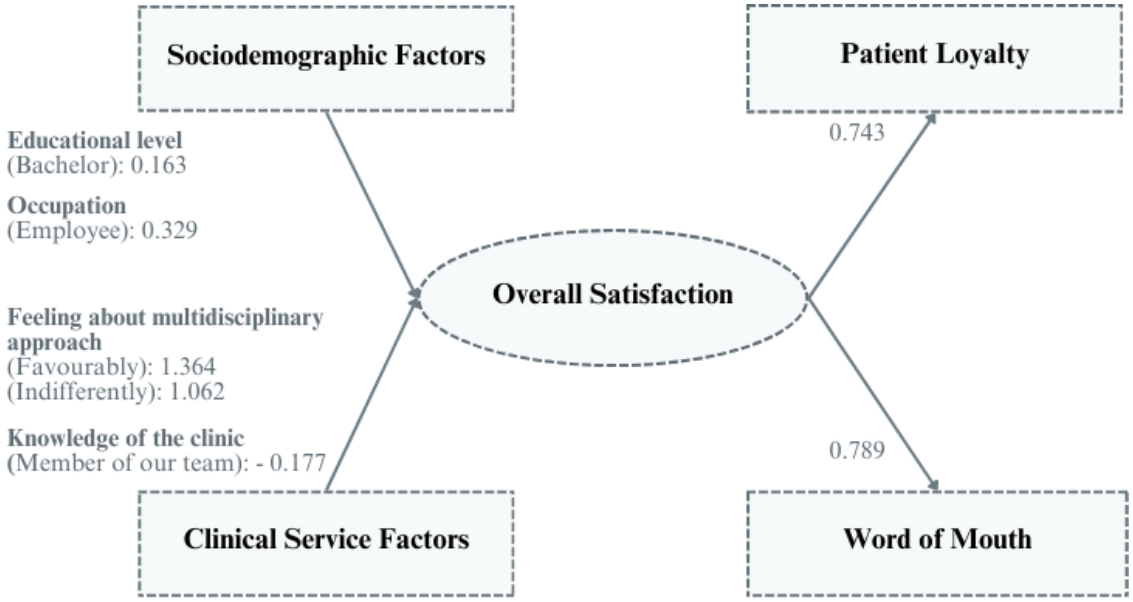


Figure 4.2: Validated conceptual model results

In light of the results, the following research hypotheses are validated:

- **H1:** Sociodemographic characteristics are associated with PS, with the expectation that older and female patients will report higher levels of satisfaction, while single patients may express lower satisfaction. The findings partially support this hypothesis. The regression analysis showed education level and occupation significantly impacted PS. Patients with a bachelor's degree reported

higher satisfaction (β = 0.199, S.β = 0.163, p = 0.044), and employed patients also showed greater satisfaction (β = 0.395, S.β = 0.329, p <0.001). However, factors like age and sex were not significant, contrary to expectations.

- **H2:** Clinical service factors are associated with PS, with the expectation that patients attending their first visit will report lower satisfaction, while those experiencing better outcomes regarding defined objectives will report higher satisfaction. This hypothesis is partially supported. Key factors like knowledge of the clinic and perceptions of the clinic's multidisciplinary approach were strongly associated with PS. Patients reporting favourable (β = 2.115, S.β = 1.364, p < 0.001) or indifferently (β = 1.946, S.β = 1.062, p < 0.001) views on the multidisciplinary approach also boosted satisfaction. Patients referred by a member of our team (β = - 0.238, S.β = - 0.177, p = 0.024) reported slightly lower satisfaction. However, the number of visits and reasons for the first visit had a non-significant impact.
- **H3:** PS has a positive effect on patient loyalty. The results fully validate this hypothesis. The simple LR analysis revealed a strong positive relationship between PS and the intention to return, (β = 1.333, S.β = 0.743, p < 0.001). Patients who reported higher satisfaction tend to be significantly more likely to express a strong intention to return to the clinic. The PS explained 55.2% of the variance in patient loyalty, underscoring the central role of satisfaction in promoting repeat visits.
- **H4:** PS has a positive effect on WoM referrals**.** This hypothesis was also confirmed. The simple LR analysis demonstrated a robust association between PS and the intention to recommend the clinic to others (β = 1.159 , S.β = 0.789, p < 0.001). The PS explained 61.5% of the variance in WoM referrals, indicating that satisfied patients are more likely to recommend the clinic, thereby enhancing its reputation and patient base through positive WoM.

4.5. Discussion

The clinic's OS score (M = 4.19 out of 5) falls within the high range seen in comparable studies, highlighting its strong performance in key dimensions of PS. However, it is important to note that direct comparisons across studies can be challenging due to the use of different satisfaction scales. For instance, Yong et al. (2021) reported a 64.6% satisfaction rate, and Pedersen et al. (2023) recorded 69.3% of fully satisfied patients. In contrast, studies like Hu et al. (2019) and Yan et al. (2021), with scores of 4.38 and 27.3 (out of 36) respectively, are more closely aligned with the current findings.

In accordance with previous research, the dimensions Technical Quality (Zhou et al., 2022), Accessibility & Convenience (Okonta & Ogaji, 2020) and Communication (Algudairi et al., 2018; Okonta & Ogaji, 2020; Waters et al., 2021; Zhang et al., 2020) were identified as the most influential. The clinic performed well in these critical areas, with mean scores surpassing 4 across all three dimensions, indicating a positive perception of the quality of care among patients. However, the Financial Aspects dimension scored the lowest. This finding is consistent with that of Kidanemariam et al.(2023), who also identified financial concerns as a major barrier to PS. Addressing this could involve offering more flexible payment plans or enhancing financial counselling services to help patients better navigate the costs associated with their care. Additionally, establishing partnerships with insurance companies could provide more accessible and affordable care options for patients. By aligning with insurers, the clinic may alleviate financial concerns, making services more affordable and ultimately increasing satisfaction in this dimension

It is noteworthy that, while education level was found to impact satisfaction, as had been previously observed by Yan et al.(2021), occupation emerged as a novel factor, contributing to PS that had not been previously explored in the literature. This finding presents a new direction, suggesting that future studies might benefit from investigating the role of occupation in shaping patient expectations and experiences.

Two additional clinical factors – the perception of the multidisciplinary approach and the source of knowledge of the clinic - emerged as new drivers of PS. Patients who expressed a favourable or indifferent perception of the multidisciplinary approach demonstrated a higher level of satisfaction, indicating that collaborative care models enhance satisfaction. Therefore, the clinic should continue promoting a team-based care approach, ensuring patients feel supported by a network of specialists working together toward their care goals. Conversely, patients referred by a clinic team member reported

slightly lower satisfaction, pointing to a need for improved internal communication and expectation-setting during the patient onboarding process.

Finally, this study extended its analysis to the intention to return and the intention to recommend as key behavioural outcomes of PS. The results confirm that higher levels of satisfaction are strongly associated with patient loyalty and positive WoM recommendations. These findings are consistent with previous research that satisfied patients are more likely to remain loyal to the clinic (e.g., Olesen & Bathula, 2022) and recommend it to others (e.g. Pauli et al., 2023). As nearly 80% of patients expressed a strong intention to return, and 85% would recommend the clinic, this underscores the importance of maintaining high satisfaction levels to promote retention and attract new patients through positive referrals.

A panel designed (Figure 4.3) was designed to present key findings in a clear and accessible format, supporting clinic managers in informed decision-making [25]. The layout incorporates best practices for visual clarity, including a color palette consistent with the clinic's branding, green tones highlight positive aspects, while red tones draw attention to areas needing improvement, providing intuitive visual cues. Additionally, elements are systematically aligned to create an organized and easy to interpret display of data.

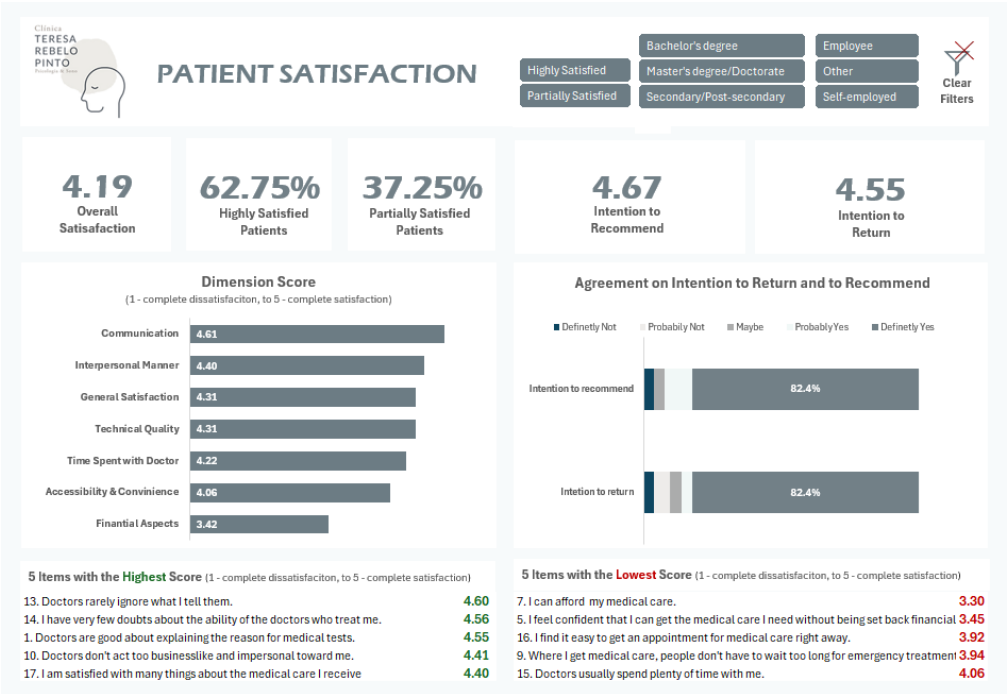


Figure 4.3: PS overview panel at Clinic TRP

[25] See Appendix I - PS overview panel at Clinic TRP

5. Conclusions

This chapter presents the final conclusions of the study, specifically regarding the achievement of the objectives, the contributions of the research, the limitations encountered, and suggestions for future studies.

5.1. Summary

The research was guided by the central question: What are the key antecedents that influence patient satisfaction (PS) in outpatient clinical services, and how does it affect subsequent patient behaviours? To address this question, three specific objectives were defined, and a quantitative study was conducted using a structured questionnaire. The questionnaire collected data on PS, loyalty, and WoM as well as sociodemographic and clinical characteristics of the patients at the clinic.

The methodology was based on a positivist approach, utilising statistical models to explore the relationships between observable variables. The study took place within a Portuguese sleep clinic, employing an exploratory case study framework. The data were collected via an online questionnaire, comprising 48 questions divided into sociodemographic, clinical service, and PS-related sections. The sample comprised 60 valid responses from clinic patients, and data were processed to standardise responses, address missing data, and ensure consistency. The data analysis involved a combination of descriptive and inferential statistics, including cluster analysis, simple and multiple LR models, and DT analysis to determine the antecedents and consequences of PS.

The initial objective was to assess PS among patients attending the clinic. The findings indicated a high OS score, with communication and technical quality being the most highly rated dimensions. Patients placed a high value on effective communication and detailed explanations of medical procedures, as well as trust in the competence of the healthcare providers. On the other hand, financial concerns, particularly those pertaining to affordability, were identified as areas of lower satisfaction.

The second objective was to identify the principal factors that precede PS. Descriptive, bivariate, and multivariate statistical analyses, including LR models, were used to determine these factors. The findings revealed that sociodemographic variables, such as education level and occupation played a significant role, with patients holding a bachelor's degree or higher, as well as those who were employed, reporting higher satisfaction. Additionally, clinical service factors, specifically favourable or indifferent

perceptions of the multidisciplinary approach, and the source of the knowledge of the clinic were linked to increased satisfaction.

The third objective was to investigate the relationship between PS and its outcomes. The analysis confirmed that PS positively influenced both patient loyalty and WoM. Patients with higher satisfaction scores were more likely to express an intention to return to the clinic and to recommend its services to others. This demonstrates how satisfaction drives patient retention and generates positive referrals, ultimately enhancing the clinic's reputation.

5.2. Contributions

This study makes a notable contribution to both the academic understanding and practical applications of healthcare management. The investigation addresses knowledge regarding PS within Portuguese outpatient settings by employing the PSQ-18 scale, thereby providing a reliable framework for future studies to explore PS in greater depth. In addition, the literature review not only synthesizes key antecedents and consequents of PS but also highlights the varying methodologies used across different contexts. It is noteworthy that the use of DT analysis represents an innovative approach in this domain, as this technique has not previously been utilized extensively in the context of outpatient satisfaction research.

For healthcare managers, the study provides valuable insights into the influence of sociodemographic and clinical service factors on satisfaction, guiding the development of targeted strategies to meet the specific needs of diverse patient groups, ultimately improving both satisfaction and retention and promoting positive WoM. For healthcare professionals, the research emphasizes the significance of effective communication and multidisciplinary care. A focus on these domains has the potential to enhance patient interactions, reinforce trust, and lead to more positive health outcomes.

From the patient's perspective, the study underscores the importance of patient-centred care. Enhancing key areas like communication and implementing a multidisciplinary approach can improve the overall patient experience, fostering greater trust, treatment adherence, and better health outcomes. At a broader level, healthcare systems can also benefit by prioritizing the factors that drive satisfaction. The optimisation of these elements may result in more efficient resource allocation, a reduction in patient turnover, and an improvement in the performance and sustainability of care delivery.

5.3. Limitations and future research

While this study offers valuable insights, it is essential to consider its limitations. First, the investigation was conducted in a single clinic, limiting the generalizability of the findings. Future research should include multiple clinics, both within and beyond the realm of sleep disorders, to validate the results across different healthcare settings. Expanding the geographic scope would also provide a more representative understanding of PS across various regions and healthcare contexts.

The small sample size (n = 60) also limits the statistical power of the study and the strength of its conclusions. Although the findings are consistent with existing literature, a larger sample would allow for more precise analysis and greater confidence in the generalizability of the results. Additionally, the cross-sectional design restricts the ability to assess changes in PS over time. Future longitudinal studies could explore how satisfaction evolves throughout the patient journey.

The reliance on self-reported data introduces potential response bias, as patients may overestimate or underestimate their satisfaction due to social desirability or recall issues. Incorporating qualitative methods, such as interviews or focus groups, would provide a more nuanced understanding of patient experiences and expectations. Moreover, text mining and sentiment analysis for open-ended responses was not feasible in this study due to a limited number of open-ended responses. Future research could leverage these techniques to analyse larger sets of qualitative data and gain deeper insights into patient sentiment.

Another aspect for future consideration is the implementation of robotic process automation (RPA) to streamline the data collection and analysis workflow. Automating the database updates when new questionnaire responses are submitted, conducting analysis, and updating a real-time dashboard could enhance decision-making for healthcare managers.

Lastly, while this study primarily examined PS as a determinant of loyalty and WoM, future research could explore other outcomes such as treatment adherence or health improvement. Investigating the long-term impact of PS on these outcomes would offer valuable insights into how satisfaction influences patient behaviour and the quality of care provided.

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Appendix

Appendix A – Articles included in the SLR

Table A1: Web of science evaluation of journals

ID	Journal Category	WoS Quartile 2021 (Journal Citation Indicator)
1	Biotechnology & Applied Microbiology	Q3
	Medicine, Research & Experimental	Q3
2	Psychiatry	Q2
3	Health Care Sciences & Services	Q2
4	Psychiatry	Q3
5	Multidisciplinary Sciences	Q1
6	Environmental Sciences	Q2
	Public, Environmental & Occupational Health	Q2
7	Health Care Sciences & Services	Q2
	Health Policy & Services	Q3
8	Health Care Sciences & Services	Q4
9	Health Care Sciences & Services	Q4
10	Dentistry, Oral Surgery & Medicine	Q4
11	Health Care Sciences & Services	Q4
12	Medicine, General & Internal	Q1
	Primary Health Care	Q2
13	Public, Environmental & Occupational Health	-
14	Business	Q2
15	Health Care Sciences & Services	Q2
16	Health Care Sciences & Services	Q2
17	Health Care Sciences & Services	Q3
	Health Policy & Services	Q3
18	Medicine, General & Internal	Q1
19	Public, Environmental & Occupational Health	Q1
20	Health Care Sciences & Services	Q2

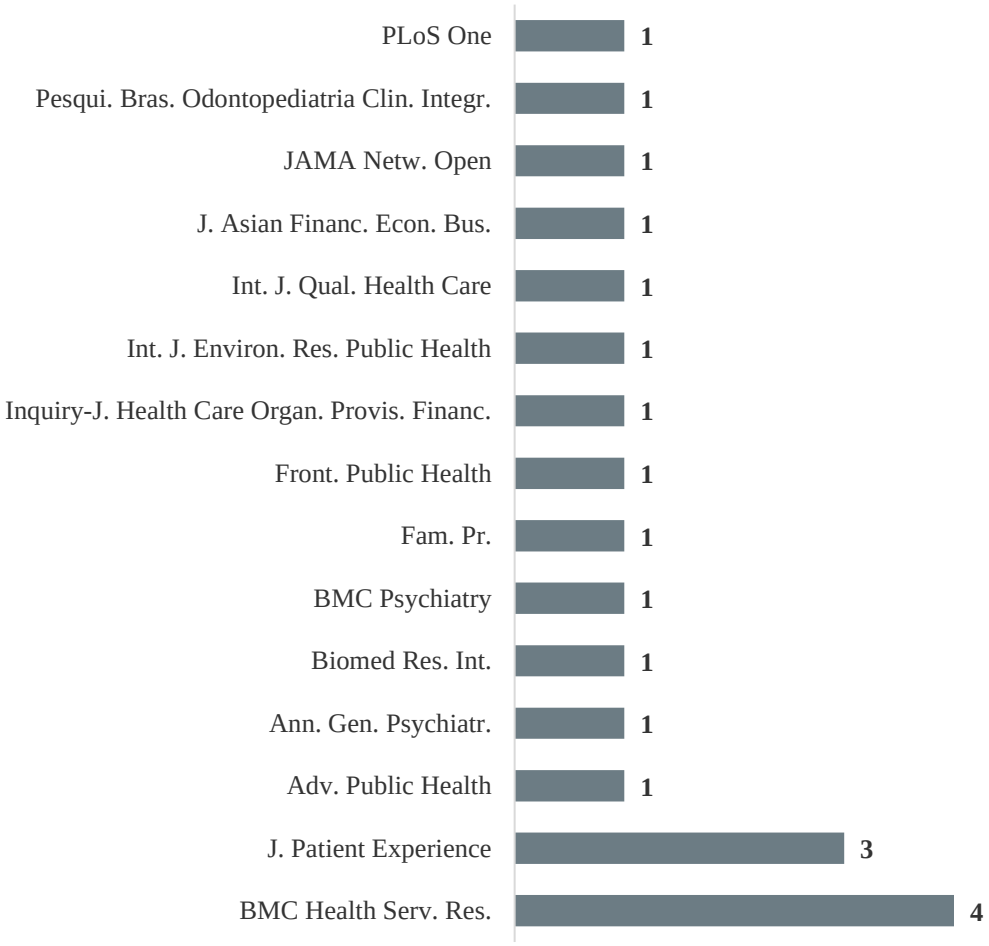


Figure A1: Distribution of the Selected Articles by Journal

Appendix B – Final questionnaire distributed

Bem-vindo(a)

O objetivo deste questionário é avaliar a satisfação dos nossos clientes para que possamos continuar a melhorar os nossos serviços.

A sua opinião é fundamental para nós, pois queremos garantir que estamos a corresponder às suas expectativas e necessidades.

Por favor, tenha em mente que os dados recolhidos serão também utilizados para fins académicos e todas as suas respostas serão tratadas de forma confidencial e anónima nestes casos.

O questionário é constituído por 3 partes e tem uma duração de 7 minutos.

Agradecemos desde já a sua participação, pois é essencial para garantir a qualidade dos nossos serviços.

* 1. Declaro que aceito participar no estudo, dando o meu consentimento informado, tendo a garantia de que todos os meus dados permanecerão confidenciais.

- ◯ Dou o meu consentimento
- ◯ Não dou o meu concentimento

Dados sociodemográficos

* 2. Estou a responder, com base na experiência como:

- ◯ Paciente
- ◯ Encarregado de educação de um paciente menor de idade

* 3. Qual é a sua idade?

* 4. Qual é o seu sexo?

- ◯ Feminino
- ◯ Masculino

* 5. Qual é o seu estado civil?

- ◯ Solteiro
- ◯ Casado/União de facto
- ◯ Divorciado
- ◯ Viúvo

* 6. Indique o número de pessoas que residem habitualmente no seu alojamento, incluindo o próprio:

* 7. Qual é o nível de escolaridade mais elevado que completou?

- ◯ Nenhum
- ◯ Ensino básico (1º ciclo ou 2º ciclo)
- ◯ Ensino básico (3º ciclo)
- ◯ Ensino secundário
- ◯ Ensino pós secundário (cursos de especialização tecnológica não superior)
- ◯ Bacharelato (inclui antigos cursos médios) ou curso técnico superior profissional
- ◯ Licenciatura
- ◯ Mestrado
- ◯ Doutoramento

* 8. Qual é a sua ocupação?

- ◯ Estudante
- ◯ Empregador/patrão
- ◯ Trabalhador por conta própria ou isolado
- ◯ Trabalhador por conta de outrem
- ◯ Desempregado
- ◯ Reformado/Pensionista
- ◯ Outra

Dados relacionados com o serviço clínico

* 9. Como teve conhecimento da Clínica TRP?

- ◯ Recomendação de amigo/familiar
- ◯ Através de um membro da nossa equipa
- ◯ Pesquisa na internet
- ◯ Redes sociais
- ◯ Feiras ou eventos
- ◯ Comunicação social
- ◯ Recomendação médica/profissional de saúde
- ◯ Outro (especifique)

* 10. Quantas vezes visitou a Clínica TRP nos últimos 12 meses?

- ◯ 1
- ◯ 2 – 5
- ◯ 6 – 10
- ◯ 11 – 20
- ◯ 21 ou mais

* 11. Há quantos meses teve a sua última consulta na Clínica TRP? (se ocorreu durante o último mês, por favor escreva 0)

* 12. Em que ano veio à primeira consulta/exame/tratamento na Clínica TRP?

- ◯ 2021
- ◯ 2022
- ◯ 2023
- ◯ 2024

* 13. Qual o motivo inicial que o/a trouxe a uma consulta/exame/tratamento na Clínica TRP?

- ◯ Sono
- ◯ Saúde mental
- ◯ Sono e saúde mental
- ◯ Outro (especifique)

Dados relacionados com o serviço clínico

* 14. A Clínica TRP foi a sua primeira opção para resolver problemas relacionados com o sono?

- ◯ Sim
- ◯ Não, já tinha tentado resolver o problema anteriormente

Dados relacionados com o serviço clínico

* 15. Quantas tentativas prévias realizou?

- ◯ 1
- ◯ 2-4
- ◯ 5 ou mais

* 16. Por favor, especifique a natureza dessas tentativas prévias:

- ☐ Medicina geral e familiar
- ☐ Neurologia
- ☐ Psiquiatria
- ☐ Pneumologia
- ☐ Medicina Dentária
- ☐ Otorrinolaringologia
- ☐ Medicina Interna
- ☐ Pediatria
- ☐ Medicina Funcional
- ☐ Psicologia
- ☐ Terapias complementares (ex: osteopatia)
- ☐ Mudança de hábitos por iniciativa própria
- ☐ Outro (especifique)

* 17. Há quanto tempo tinha queixas antes de vir à 1ª consulta/exame/tratamento, na Clínica TRP?

- ◯ < 3 meses
- ◯ 3 meses – 6 meses
- ◯ 7 meses – 1 ano
- ◯ > 1 ano
- ◯ Não sei

* 18. Em que fase do processo terapêutico se encontra na Clínica TRP?

- ◯ Avaliação inicial
- ◯ Em tratamento
- ◯ Já tive alta/Finalizei um ciclo de tratamento

* 19. Desde o início do seu processo terapêutico, como se sente em relação aos objetivos definidos?

- ◯ Muito melhor
- ◯ Melhor
- ◯ Sem alterações
- ◯ Pior
- ◯ Muito pior
- ◯ Não se aplica

* 20. A primeira consulta/exame/tratamento que tive na Clínica TRP foi de:

- ◯ Psicologia clínica
- ◯ Psicologia do sono
- ◯ Psiquiatria
- ◯ Medicina interna
- ◯ Neurologia
- ◯ Pediatria
- ◯ Otorrinolaringologia
- ◯ Pneumologia
- ◯ Medicina Geral e Familiar
- ◯ Osteopatia
- ◯ Nutrição
- ◯ Sessões relaxamento
- ◯ Tratamento NESA
- ◯ Exame do sono (Polissonografia, Actigrafia)
- ◯ Check-up do sono

* 21. Na Clínica TRP tive consulta(s)/exame(s)/tratamento(s) das seguintes especialidades:

- [ ] Psicologia
- [ ] Psiquiatria
- [ ] Medicina interna
- [ ] Neurologia
- [ ] Pediatria
- [ ] Otorrinolaringologia
- [ ] Pneumologia
- [ ] Medicina Geral e Familiar
- [ ] Osteopatia
- [ ] Nutrição
- [ ] Sessões relaxamento
- [ ] Tratamento NESA
- [ ] Exame do sono (Polissonografia, Actigrafia)
- [ ] Check-up do sono

* 22. De que forma sente que a nossa abordagem multidisciplinar (consultas de diferentes especialidades) influencia o processo terapêutico?

- ( ) Favoravelmente
- ( ) Indiferente
- ( ) Desfavoravelmente
- ( ) Não se aplica

23. Por favor, justifique a sua resposta anterior:

* 24. Pensando no contacto com a Clínica TRP, em que medida concorda com as seguintes afirmações?

	Concordo totalmente	Concordo	Não tenho a certeza	Discordo	Discordo totalmente
Encontro com facilidade informações sobre os serviços prestados.	◯	◯	◯	◯	◯
É fácil contactar a clínica (telefone, email)	◯	◯	◯	◯	◯
É fácil agendar consulta/exame/tratamento.	◯	◯	◯	◯	◯
A localização é conveniente para mim.	◯	◯	◯	◯	◯
As opções de estacionamento/transporte público perto da clínica são adequadas.	◯	◯	◯	◯	◯
Sou bem acolhido/recebido.	◯	◯	◯	◯	◯
Os profissionais de saúde são pontuais.	◯	◯	◯	◯	◯
A relação qualidade/preço é adequada.	◯	◯	◯	◯	◯

* 25. Numa escala de 0 a 10, qual a sua satisfação global com a Clínica TRP?

0 - Muito Insatisfeito 10 - Muito Satisfeito

* 26. Tem intenção de continuar a usufruir dos serviços da Clínica TRP?

- ◯ Sim, sem dúvida
- ◯ Provavelmente sim
- ◯ Talvez
- ◯ Provavelmente não
- ◯ De certeza que não

* 27. Recomendaria a Clínica TRP a terceiros?

- ◯ Sim, sem dúvida
- ◯ Provavelmente sim
- ◯ Talvez
- ◯ Provavelmente não
- ◯ De certeza que não

Satisfação

As questões que se seguem refletem algumas opiniões que as pessoas têm sobre cuidados de saúde.

Por favor, leia cada uma com atenção, considerando a sua experiência na Clínica TRP.

Estamos interessados nos seus sentimentos, tanto positivos quanto negativos.

Em que medida concorda ou discorda de cada uma das seguintes afirmações?

* 28. Os profissionais de saúde explicam claramente a necessidade de realização dos exames médicos.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 29. Penso que a clínica tem tudo o que é necessário para prestar cuidados de saúde completos.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 30. Os cuidados de saúde que tenho recebido são praticamente perfeitos.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 31. Por vezes, tenho dúvidas se o diagnóstico dos profissionais de saúde está correto.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 32. Sinto-me confiante de que posso obter os cuidados de saúde necessários sem ficar com dificuldades financeiras.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 33. Quando vou à consulta, os profissionais de saúde têm o cuidado de verificar tudo quando me tratam e examinam.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 34. Tenho de pagar mais pelos meus cuidados de saúde do que o que posso suportar.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 35. Tenho fácil acesso aos especialistas de que necessito.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 36. Na clínica, as pessoas têm de esperar demasiado tempo por tratamentos de emergência.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 37. Os profissionais de saúde agem de forma demasiado formal e impessoal para comigo.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 38. Os profissionais de saúde tratam-me de modo muito amigável.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 39. Por vezes, os profissionais de saúde apressam-se demasiado enquanto me tratam.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 40. Por vezes, os profissionais de saúde ignoram o que lhes digo.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 41. Tenho algumas dúvidas relativamente às competências dos profissionais de saúde que me tratam.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 42. Geralmente, os profissionais de saúde passam bastante tempo comigo.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 43. É difícil conseguir agendar uma consulta imediata.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 44. Estou insatisfeito/a com alguns aspetos dos cuidados de saúde que recebo.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

* 45. Consigo obter cuidados de saúde sempre que preciso.

- ◯ Concordo totalmente
- ◯ Concordo
- ◯ Não tenho a certeza
- ◯ Discordo
- ◯ Discordo totalmente
- ◯ Não se aplica

46. Por favor, deixe qualquer comentário ou sugestão de melhoria:

Preferências

* 47. Prefere que as suas respostas sejam registadas de forma anónima?

- ◯ Sim
- ◯ Não (Por favor, escreva o seu nome e apelido):

* 48. Gostaria de ser contactado para esclarecer dúvidas ou obter informações adicionais?

- ◯ Não
- ◯ Sim (por favor, deixe o seu contacto - telemóvel ou e-mail):

Appendix C – PSQ 18 Translation

Table A2*:* Independent researchers' translation

Q.	Original (PSQ- 18)	Translation 1	Translation 2	T1/ T2
1	Doctors are good about explaining the reason for medical tests.	Os profissionais de saúde explicam claramente a necessidade de realização dos exames médicos.	Os profissionais de saúde explicam bem a razão dos exames médicos.	T1
2	I think my doctor's office has everything needed to provide complete medical care.	Acho que a clínica tem tudo o que é necessário para fornecer cuidados de saúde completos.	Penso que o consultório tem tudo o que é necessário para prestar cuidados de saúde completos.	T2
3	The medical care I have been receiving is just about perfect.	Os cuidados de saúde que tenho recebido são praticamente perfeitos.	Os cuidados de saúde que tenho recebido são praticamente perfeitos.	=
4	Sometimes doctors make me wonder if their diagnosis is correct.	Às vezes, os clínicos / profissionais de saúde fazem-me questionar se o diagnóstico deles está correto.	Por vezes, os profissionais de saúde fazem-me pensar se o seu diagnóstico está correto.	T2
5	I feel confident that I can get the medical care I need without being set back financially.	Sinto-me confiante de que posso obter os cuidados de saúde necessários sem ficar com dificuldades financeiras.	Sinto-me confiante de que consigo obter os cuidados de saúde de que necessito sem ser prejudicado financeiramente.	T1
6	When I go for medical care, they are careful to check everything when treating and examining me.	Na procura por cuidados de saúde, a clínica demonstra cuidado ao realizar tratamentos e exames, verificando todos os detalhes.	Na procura por cuidados de saúde, os profissionais de saúde têm o cuidado de verificar tudo quando me tratam e examinam.	T2
7	I have to pay for more of my medical care than I can afford.	Tenho de pagar mais pelos meus cuidados de saúde do que o que posso suportar.	Tenho de pagar mais pelos cuidados de saúde do que o que posso suportar.	T1
8	I have easy access to the medical specialists I need.	Tenho um acesso fácil aos especialistas de que preciso.	Tenho fácil acesso aos especialistas de que necessito.	T2
9	Where I get medical care, people have to wait too long for emergency treatment.	Onde recebo cuidados de saúde, as pessoas têm de esperar demasiado tempo para tratamentos de emergência.	Onde recebo cuidados de saúde, as pessoas têm de esperar demasiado tempo por tratamentos de emergência.	T2
10	Doctors act too businesslike and impersonal toward me.	Os clínicos / profissionais de saúde agem de forma demasiado comercial e impessoal para comigo.	Os profissionais de saúde agem de forma demasiado formal e impessoal para comigo.	T2
11	My doctors treat me in a very friendly and courteous manner.	Os clínicos / profissionais de saúde tratam-me de forma muito amigável e educada	Os profissionais de saúde tratam-me de forma muito amigável e cortês.	T2
12	Those who provide my medical care sometimes hurry too much when they treat me.	Por vezes, os clínicos / profissionais de saúde têm demasiada pressa nas consultas / exames / tratamentos.	Por vezes, os profissionais de saúde apressam-se demasiado enquanto me tratam.	T2
13	Doctors sometimes ignore what I tell them.	Por vezes, os clínicos / profissionais de saúde ignoram o que lhes digo.	Por vezes, os profissionais de saúde ignoram o que lhes digo.	T2

Table A2: Independent researchers' translation (Cont.)

Q.	Original (PSQ- 18)	Translation 1	Translation 2	T1/ T2
14	I have some doubts about the ability of the doctors who treat me.	Tenho algumas dúvidas relativamente à capacidade dos clínicos / profissionais de saúde me tratarem.	Tenho algumas dúvidas relativamente às capacidades dos profissionais de saúde que me tratam.	T2
15	Doctors usually spend plenty of time with me.	Geralmente, os clínicos / profissionais de saúde passam bastante tempo comigo.	Geralmente, os profissionais de saúde passam bastante tempo comigo.	T2
16	I find it hard to get an appointment for medical care right away.	Acho difícil marcar uma consulta de urgência.	É difícil conseguir agendar uma consulta imediata.	T2
17	I am dissatisfied with some things about the medical care I receive.	Estou insatisfeito/a com alguns aspetos dos cuidados de saúde que recebo.	Estou insatisfeito com alguns aspetos dos cuidados de saúde que recebo.	T1
18	I am able to get medical care whenever I need it.	Consigo obter cuidados de saúde sempre que preciso.	Consigo obter cuidados de saúde sempre que preciso.	=

Note: T1 - Translation 1, **T2** – Translation 2

Table A3: PSQ-18 Portuguese translation

Item	Original (PSQ- 18)	Portuguese Translation
1	Doctors are good about explaining the reason for medical tests.	Os profissionais de saúde explicam claramente a necessidade de realização dos exames médicos.
2	I think my doctor's office has everything needed to provide complete medical care.	Penso que a clínica tem tudo o que é necessário para prestar cuidados de saúde completos.
3	The medical care I have been receiving is just about perfect.	Os cuidados de saúde que tenho recebido são praticamente perfeitos.
4	Sometimes doctors make me wonder if their diagnosis is correct.	Por vezes, tenho dúvidas se o diagnóstico dos profissionais de saúde está correto.
5	I feel confident that I can get the medical care I need without being set back financially.	Sinto-me confiante de que posso obter os cuidados de saúde necessários sem ficar com dificuldades financeiras.
6	When I go for medical care, they are careful to check everything when treating and examining me.	Quando vou à consulta, os profissionais de saúde têm o cuidado de verificar tudo quando me tratam e examinam.
7	I have to pay for more of my medical care than I can afford.	Tenho de pagar mais pelos meus cuidados de saúde do que o que posso suportar.
8	I have easy access to the medical specialists I need.	Tenho fácil acesso aos especialistas de que necessito.
9	Where I get medical care, people have to wait too long for emergency treatment.	Na clínica, as pessoas têm de esperar demasiado tempo por tratamentos de emergência.
10	Doctors act too businesslike and impersonal toward me.	Os profissionais de saúde agem de forma demasiado formal e impessoal para comigo.
11	My doctors treat me in a very friendly and courteous manner.	Os profissionais de saúde tratam-me de forma muito amigável e cortês.
12	Those who provide my medical care sometimes hurry too much when they treat me.	Por vezes, os profissionais de saúde apressam-se demasiado enquanto me tratam.
13	Doctors sometimes ignore what I tell them.	Por vezes, os profissionais de saúde ignoram o que lhes digo.
14	I have some doubts about the ability of the doctors who treat me.	Tenho algumas dúvidas relativamente às competências dos profissionais de saúde que me tratam.
15	Doctors usually spend plenty of time with me.	Geralmente, os profissionais de saúde passam bastante tempo comigo.
16	I find it hard to get an appointment for medical care right away.	É difícil conseguir agendar uma consulta imediata.
17	I am dissatisfied with some things about the medical care I receive.	Estou insatisfeito/a com alguns aspetos dos cuidados de saúde que recebo.
18	I am able to get medical care whenever I need it.	Consigo obter cuidados de saúde sempre que preciso.

Appendix D – Email sent to the patients of the clinic



Celebramos o aniversário da Clínica Teresa Rebelo Pinto - Psicologia & Sono!

Há três anos atrás, iniciámos esta jornada com um propósito claro: prestar cuidados de excelência na área da saúde mental e do sono. Graças à dedicação da nossa equipa e à confiança das pessoas que se têm cruzado connosco, somos cada vez mais uma referência nesta área

Para que possamos melhorar ainda mais os nossos serviços e atender às suas necessidades de forma ainda mais eficaz, gostaríamos de convidá-lo(a) a responder ao nosso inquérito de satisfação. A sua opinião é fundamental para nós e ajuda-nos a aprimorar a qualidade do nosso atendimento.

Link do inquérito: https://pt.surveymonkey.com/r/7WFDY2P

Obrigada por fazer parte desta história de sucesso!

Saiba tudo através do nosso site e acompanhe as nossas redes sociais.

Appendix E – Correlation analysis for dimension scoring methods

Table A4: Correlation analysis for General Satisfaction scoring methods

		3	17	S_GenSat	S_GenSat_a
3	Pearson Correlation	1.00	.799**	.952**	.953**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	55	53	53	55
17	Pearson Correlation	.799**	1.00	.944**	.947**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	53	56	53	56
S_GenSat	Pearson Correlation	.952**	.944**	1	1.000**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	53.00	53.00	53	53
S_GenSat_a	Pearson Correlation	.953**	.947**	1.000**	1
	Sig. (2-tailed)	<.001	<.001	0	
	N	55	56	53	58

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Table A5: Correlation analysis for Technical Quality scoring methods

		2	4	6	14	S_TecQua	S_TecQua_a	S_TecQua_a1	S_TecQua_a2
2	Pearson Correlation	1.00	.614**	.617**	.490**	.848**	.794**	.791**	.791**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	47	47	38	43	45	35	44	47
4	Pearson Correlation	.614**	1.00	.808**	.640**	.881**	.885**	.877**	.877**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001	<.001
	N	38	44	37	43	35	39	44	44
6	Pearson Correlation	.617**	.808**	1.00	.680**	.948**	.904**	.907**	.907**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001	<.001
	N	43	37	47	45	35	44	46	47
14	Pearson Correlation	.490**	.640**	.680**	1.00	.883**	.827**	.807**	.809**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001	<.001
	N	45	43	45	57	35	46	52	57
S_TecQua	Pearson Correlation	.848**	.881**	.948**	.883**	1.00	1.000**	1.000**	1.000**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001	<.001
	N	35	35	35	35	35	35	35	35
S_TecQua_a	Pearson Correlation	.794**	.885**	.904**	.827**	1.000**	1.00	1.000**	1.000**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001	<.001
	N	44	39	44	46	35	46	46	46
S_TecQua_a1	Pearson Correlation	.791**	.877**	.907**	.807**	1.000**	1.000**	1.00	1.000**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001		<.001
	N	47	44	46	52	35	46	54	54
S_TecQua_a2	Pearson Correlation	.791**	.877**	.907**	.809**	1.000**	1.000**	1.000**	1.00
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	
	N	47	44	47	57	35	46	54	60

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Table A6: Correlation analysis for Interpersonal Manner scoring methods

		10	11	S_IntMan	S_IntMan_a
10	Pearson Correlation	1	.559**	.907**	.907**
	Sig. (2-tailed)		<.001	<.001	<.001
	N	55	55	55	55
11	Pearson Correlation	.559**	1	.856**	.859**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	55	59	55	59
S_IntMan	Pearson Correlation	.907**	.856**	1	1.000**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	55	55	55	55
S_IntMan_a	Pearson Correlation	.907**	.859**	1.000**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	55	59	55	59

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Table A7: Correlation analysis for Communication scoring methods

		1	13	S_Com	S_Com_a
1	Pearson Correlation	1	.393**	.812**	.815**
	Sig. (2-tailed)		0.01	<.001	<.001
	N	43	42	42	43
13	Pearson Correlation	.393**	1	.856**	.881**
	Sig. (2-tailed)	0.01		<.001	<.001
	N	42	58	42	58
S_Com	Pearson Correlation	.812**	.856**	1	1.000**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	42	42	42	42
S_Com_a	Pearson Correlation	.815**	.881**	1.000**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	43	58	42	59

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Table A8: Correlation analysis for Financial Aspects scoring Methods

		5	7	S_FinAsp	S_FinAsp_a
5	Pearson Correlation	1	.562**	.900**	.902**
	Sig. (2-tailed)			<.001	<.001
	N	55	50	50	55
7	Pearson Correlation	.562**	1	.867**	.874**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	50	54	50	54
S_FinAsp	Pearson Correlation	.900**	.867**	1	1.000**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	50	50	50	50
S_FinAsp_a	Pearson Correlation	.902**	.874**	1.000**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	55	54	50	59

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Table A9: Correlation analysis for Time Spent with Doctor scoring methods

		12	15	S_TSD	S_TSD_a
12	Pearson Correlation	1	.542**	.876**	.879**
	Sig. (2-tailed)			<.001	<.001
	N	56	51	51	56
15	Pearson Correlation	.542**	1	.880**	.885**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	51	52	51	52
S_TSD	Pearson Correlation	.876**	.880**	1	1.000**
	Sig. (2-tailed)	<.001	<.001		<.001
	N	51	51	51	51
S_TSD_a	Pearson Correlation	.879**	.885**	1.000**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	56	52	51	57

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Table A10: Correlation analysis for Accessibility & Convenience scoring methods

		8	9	16	18	S_AccCon	S_AccCon_a	S_AccCon_a1	S_AccCon_a2
8	Pearson Correlation	1	.525**	.460**	0.24	.672**	.686**	.773**	.777**
	Sig. (2-tailed)			0.001	<.001	0.097	<.001	<.001	<.001	<.001
	N	55	35	49	49	31	49	53	55
9	Pearson Correlation	.525**	1	.557**	0.213	.781**	.789**	.789**	.789**
	Sig. (2-tailed)	0.001		<.001	0.213	<.001	<.001	<.001	<.001
	N	35	37	34	36	31	37	37	37
16	Pearson Correlation	.460**	.557**	1	0.2	.707**	.772**	.803**	.803**
	Sig. (2-tailed)	<.001	<.001		0.164	<.001	<.001	<.001	<.001
	N	49	34	54	50	31	48	54	54
18	Pearson Correlation	0.24	0.213	0.2	1	.621**	.635**	.635**	.635**
	Sig. (2-tailed)	0.097	0.213	0.164		<.001	<.001	<.001	<.001
	N	49	36	50	54	31	50	54	54
S_AccCon	Pearson Correlation	.672**	.781**	.707**	.621**	1	1.000**	1.000**	1.000**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001	<.001
	N	31	31	31	31	31	31	31	31
S_AccCon_a	Pearson Correlation	.686**	.789**	.772**	.635**	1.000**	1	1.000**	1.000**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001	<.001
	N	49	37	48	50	31	51	51	51
S_AccCon_a1	Pearson Correlation	.773**	.789**	.803**	.635**	1.000**	1.000**	1	1.000**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001		<.001
	N	53	37	54	54	31	51	58	58
S_AccCon_a2	Pearson Correlation	.777**	.789**	.803**	.635**	1.000**	1.000**	1.000**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	
	N	55	37	54	54	31	51	58	60

Note: ** Correlation is significant at the 0.01 level (2-tailed); the selected scoring method is in bold

Appendix F – Hierarchical cluster

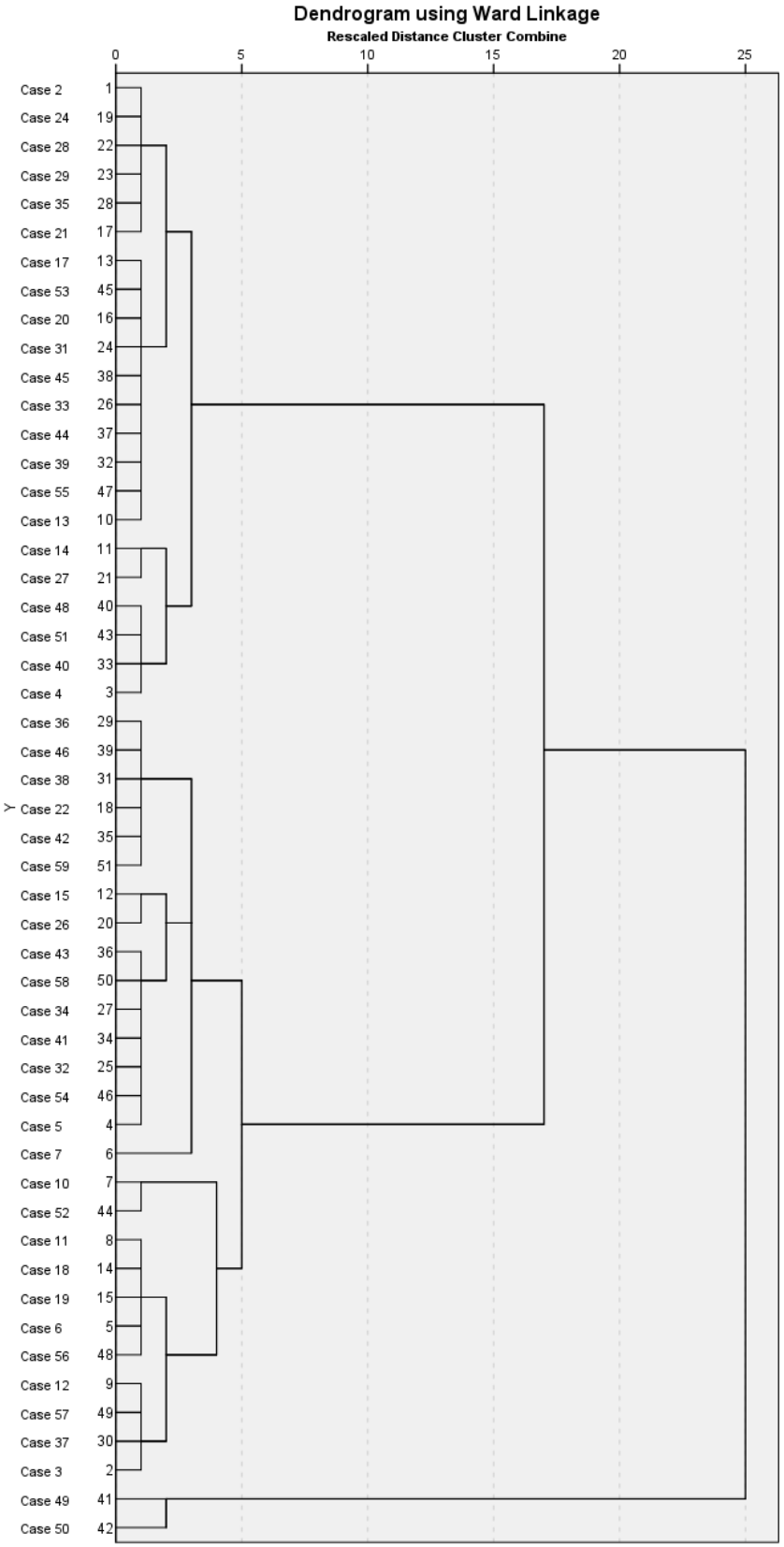


Figure A2: Dendogram

Appendix G – K-Means cluster

Table A11: Final cluster centroids and F value

	Highly Satisfied	**Partially Satisfied**		**F value**
	1 (n = 32)	**2** (n =17)	**3** (n =2)	
General Satisfaction	4.69	3.97	1.25	42.56
Technical Quality	4.60	4.10	1.50	42.98
Interpersonal Manner	4.56	4.41	1.75	20.88
Communication	4.75	4.50	3.25	11.92
Financial Aspects	4.00	2.44	2.50	36.42
Time Spent with Doctors	4.41	4.09	2.25	17.65
Accessibility & Convinience	4.38	3.60	2.75	13.99

Appendix H – Distribution of data related to the clinical service

Table A12: Distribution of data related to the clinical service

Variables	N	%	Mean	SD	Min	Max
Knowledge of the clinic						
Recommendation from friend/family	27	45.0				
Through a member of our team	13	21.7				
Recommendation from health professional	10	16.7				
Internet search	5	8.3				
Mass media	1	1.7				
Fairs or events	1	1.7				
Other	3	5.0				
Total	**60**	**100.0**				
Years as Patients						
3	17	28.3				
2	11	18.3				
1	24	40.0				
0	8	13.3				
Total	**60**	**100.0**				
# visits to the clinic (last 12 months)						
1	8	13.3				
2 – 5	17	28.3				
6 – 10	10	16.7				
11 – 20	13	21.7				
≥21	12	20.0				
Total	**60**	**100.0**				
Months since last consultation	**59**	**-**	**1.47**	**2.94**	**0**	**19**
Reason for first visit						
Mental Health	27	45.0				
Sleep and Mental Health	18	30.0				
Sleep	12	20.0				
Other	3	5.0				
Total	**60**	**100.0**				
Duration of complaints (before first visit)						
< 3 months	5	9.3				
3 months – 6 months	7	13.0				
7 months – 1 year	5	9.3				
> 1 year	37	68.5				
Total	**54**	**100.0**				
Phase of the therapeutic process						
Initial assessment	6	10.0				
In treatment	42	70.0				
I've been discharged/Finished a treatment cycle	12	20.0				
Total	**60**	**100.0**				
Outcome (regarding defined goals)						
Much better	22	40.7				
Better	26	48.1				
No changes	4	7.4				
Worse	2	3.7				
Total	**54**	**100.0**				

Table A12: Distribution of data related to the clinical service (Cont.)

Variables	N	%	Mean	SD	Min	Max
Specialty of the first consultation						
Clinical psychology	33	55.0				
Sleep psychology	20	33.3				
Other: Psychiatry	3	5.0				
Neurology	1	1.7				
Pediatrics	1	1.7				
Otorhinolaryngology	1	1.7				
Osteopathy	1	1.7				
Total	**60**	**100.0**				
Specialties attended						
Psychology (Yes)	50	83.3				
Psychiatry (Yes)	11	18.3				
Osteopathy	9	15.0				
NESA treatment	5	8.3				
Internal medicine	3	5.0				
Pulmonology	2	3.3				
Pediatrics	1	1.7				
Otorhinolaryngology	1	1.7				
General and family medicine	1	1.7				
Nutrition	1	1.7				
Total	**60**	-				
# specialties attended	**60**	**-**	**1.58**	**1.03**	**1**	**5**
Feeling about multidisciplinary approach						
Favourably	33	82.5				
Indifferently	5	12.5				
Unfavourably	2	5.0				
Total	**40**	**100.0**				

Appendix I – PS overview panel at Clinic TRP

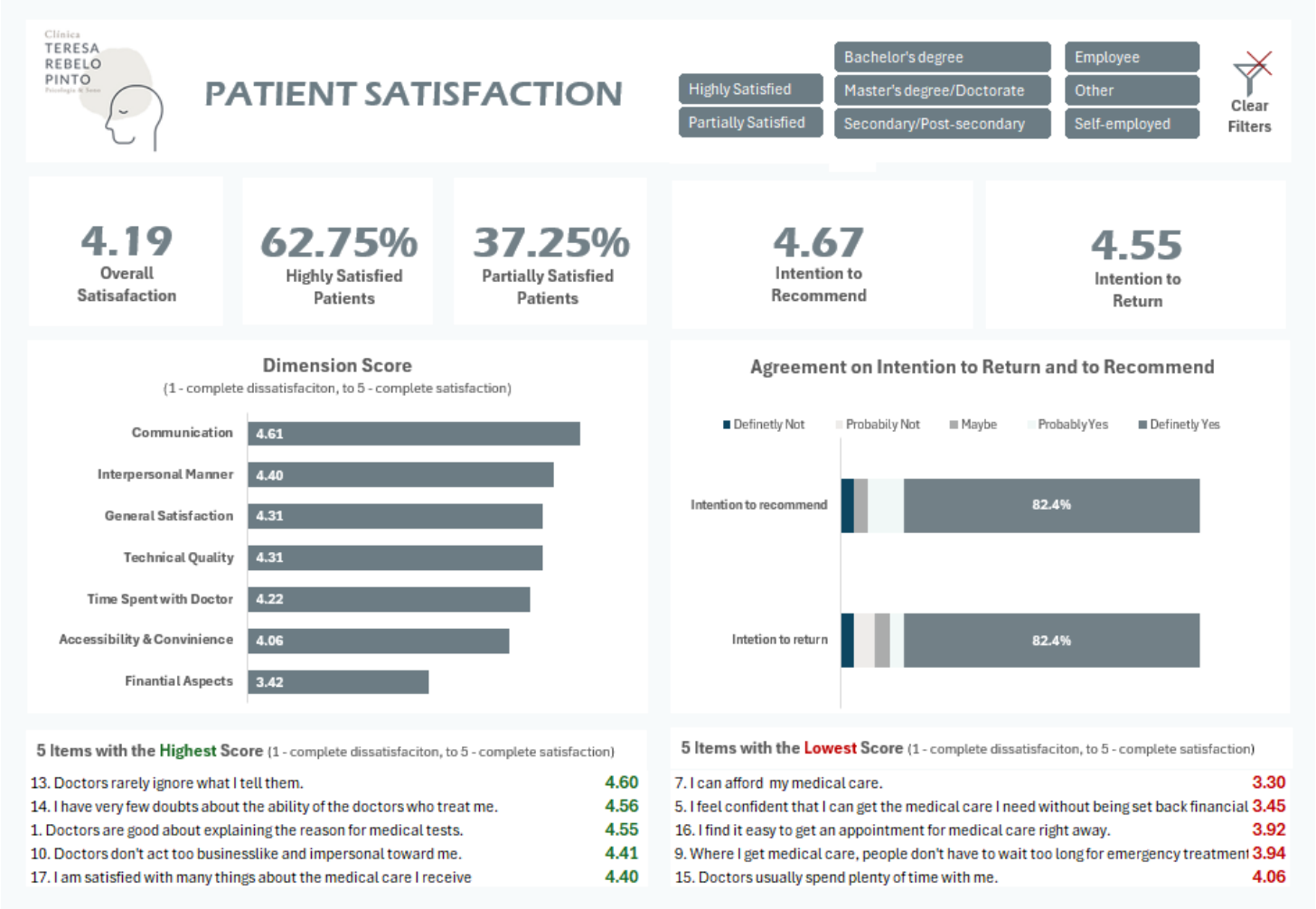


Figure A3: PS Overview Panel at Clinic TRP