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Association Between Patient-Reported Enablement and Customer Satisfaction in 140 055 Primary Care Patients After Doctor Appointment

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Abstract

Customer satisfaction and enablement are key facets of healthcare quality. We examined their interplay within a large sample of predominantly working-age primary care patients. Our dataset encompasses 140 055 customer satisfaction reports, with concurrently gathered measures of patient enablement, delivered after doctor appointments. We used the customer satisfaction (CSAT) score and the patient enablement instrument (PEI). Additionally, we assessed 3 dimensions of customer satisfaction in conjunction with the CSAT score and calculated a sum score. Age and gender were included as covariates. Our findings from linear regression analyses are twofold: (1) customer satisfaction and enablement are interconnected, yet they maintain a degree of distinctiveness, as indicated by a beta coefficient of 0.45 on a 5-point scale, and (2) within the customer experience on a dichotomous scale, negative experiences exert a more substantial impact (betas between −0.77 and −0.97) on enablement than positive experiences (betas between 0.24 and 0.40). In addition, a dose–response relationship was observed between the sum of customer experiences and PEI. Ensuring that patients' voices are acknowledged, their queries are addressed, and they have comprehensible guidance regarding the progression of their treatment, are fundamental aspects of interactions with patients.

Keywords

patient experience, patient satisfaction, patient-reported outcome measures, patient-reported experience measures

Introduction

In healthcare, patient-centered care is an approach that sees the patient as an integral participant in their own medical care and treatment, rather than a mere recipient of healthcare services.[1] The goal of this approach is to increase patient satisfaction, improve health outcomes, and optimize healthcare utilization by placing the patient at the center of the care process. In this context, enablement refers to the process of empowering patients with the knowledge, skills, attitudes, and self-awareness to improve their quality of life. The intricate relationship between patient enablement and customer satisfaction presents a unique opportunity to enhance patient-centered care, quality, and effectiveness within the healthcare sector. Considered as integral facets of quality, patient enablement, and customer satisfaction could stimulate quality enhancements through various pathways, such as promoting the co-creation of healthcare services.

The patient enablement instrument (PEI) is a tool designed to assess a patient's ability to understand and manage their own health following a healthcare encounter.[2] Given its focus on the impact of a healthcare consultation, it can be categorized as a form of patient-reported outcome measure (PROM). However, it is important to emphasize that although the PEI includes elements of a PROM, it does not directly assess health status or quality of life, as many other PROMs do. It has been modified, however, for the purposes of outcome monitoring in back pain[3] as well as other musculoskeletal pain disorders,[4] where it has shown good internal validity, construct validity, and internal consistency. It has been validated in several countries, such as Sweden, China, Poland, and Lithuania.[5–8] In Finland, a single-item version

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of the PEI has been shown to have sufficient properties compared with the standard 6-item version.[9]

Patient satisfaction is the degree to which a patient's expectations about their healthcare have been met.[10] It can be influenced by a variety of factors, including the quality of communication with healthcare providers, the speed and convenience of care, and the outcomes of treatment.[11] It influences patient safety[12] as well as patients' commitment to their care.[13] Healthcare consultations that focus on empowerment often include effective communication[14,15] and shared decision making, which are also key drivers of patient satisfaction. However, patient satisfaction is a broader concept and can be influenced by elements beyond empowerment, such as the physical environment of the healthcare facility and the administrative aspects of care.

Patient satisfaction and patient empowerment are interconnected.[16] However, the details of this connection are not completely understood. In the present study, we investigated the relationship between customer satisfaction and patient enablement. Our hypothesis was that there is a substantial interconnection between patient enablement and customer satisfaction. Nonetheless, the extent of this relationship required more comprehensive exploration. Furthermore, we anticipated that certain aspects of the customer experience might have a more pronounced impact on enablement than others. Consequently, we conducted an in-depth investigation into the impact of these dimensions on enablement.

Material and Methods

To understand the context and applicability of our study, it is necessary to briefly delve into the structure of the Finnish healthcare system. This system is divided into 3 sectors: public healthcare, which is publicly funded and can be provided by either public or private entities; private healthcare, which is privately funded and provided; and occupational healthcare, which covers all employees and is funded by employers but privately provided. Our study utilizes data from Terveystalo, one of the largest private healthcare providers in Finland. Annually, Terveystalo caters to $\sim$ 1.3 million customers through over 6 million appointments, constituting $\sim$ 15% of all physician visits nationwide. The study population predominantly consists of patients from occupational and private healthcare sectors, with a small proportion from public outsourcing. Most of these visits are primary care outpatient appointments. From the year 2022, Terveystalo began collecting customer satisfaction ratings postdoctor appointments, in conjunction with the PEI. Following each consultation, patients whose electronic mail details are recorded in our customer relation management (CRM) system receive an email. This email delineates the objective of the subsequent inquiries and asks for their ratings. If a patient is a user of the Terveystalo mobile application, an identical set of questions is presented within the app via a push notification. We ensure that only one response per customer is recorded. We administer customer satisfaction and PEI inquiries to all our patients with available contact information after a consultation with a doctor, except for those who are selected to receive a different customer experience survey, namely the net promoter score (NPS). The decision as to whether a patient receives the NPS tool, or the customer satisfaction survey and PEI is also determined by a random selection process. For the purposes of this study, we used data collected between August 14, 2022, and November 19, 2023. A total of 418 063 questionnaires, focused on customer satisfaction and PEI, were disseminated, from which 142 579 responses were received. This resulted in a response rate of 34.1%. Participants aged below 20 (479 individuals) and above 90 (91 individuals) were excluded from the study. Furthermore, data from 1954 subjects lacking age or gender information were omitted. Consequently, the final sample size comprised 140 055 participants.

Patient enablement was assessed using a single-item version of the PEI, which has previously been validated in the Finnish outpatient population.[9] The utilized question was: "Following the appointment, I feel I will be able to cope with my illness…" with the provided response options being: "Much better (scored as 4), Better (3), Same as before (2), Worse (1), I cannot say (N/A)."

Customer satisfaction was evaluated using the customer experience scale (CSAT),[17] a tool widely implemented to measure customer experience, particularly within digital services. The tool comprises a single question: "How satisfied were you with the service provided by our expert?," with responses provided on a numerical scale ranging from 1 to 5, with 1 indicating very dissatisfied and 5 indicating very satisfied. The CSAT instrument has mainly been studied in other contexts as in healthcare. It has proven to have good reliability and validity.[18] This was followed by a series of 6 questions investigating 3 distinct dimensions of customer experience. We posed the question: "Which of the following had the most impact on your experience?," permitting the customer to select all options they deemed relevant. The choices provided were: "I received answers to the questions that concerned me" versus "I did not receive answers to the questions that concerned me"; the second pair pertained to the care plan: "Instructions for further treatment were clear" versus "Instructions for further treatment were not clear." The final question sought to understand the customer's experience of being heard: "I felt I was listened to during the appointment" versus "I felt I was not listened to during the appointment." Each of these questions was rated either zero or one, with one indicating that the customer reported this dimension as having an impact on their judgment. We calculated the sum of customer experience such that each negative experience was assigned a value of minus one (-1), while a positive experience was assigned a value of one ($+1$). These values were subsequently aggregated. Thus, the range of the sum score was from -3 to $+3$.

We calculated common descriptive statistics, which included counts, proportions, means and standard deviations (SD), and a cross-tabulation between the sum of customer

experience and PEI. Furthermore, we conducted linear regression analyses, using both the CSAT score and various aspects of customer experience as independent variables, while the PEI was the dependent variable. To prevent collinearity, we analyzed the CSAT score and each aspect in separate analyses. Age group and gender were consistently factored in as covariates in all the linear regression analyses. We present the regression analysis results as beta and 95% confidence interval (CI). For a one-unit increase in the independent variable, the dependent variable will increase by the value of the beta coefficient, assuming a linear association between the 2. Statistical analyses were performed using the R-statistic program 4.2.2 version.

Results

Descriptive Analysis

Most visits were primary care consultations, either with an occupational physician ($N = 56\,657$, representing 40% of visits) or with a general practitioner ($N = 44\,559$ or 31% of visits). The rest of the visits were with medical specialty consultants, the 2 largest groups being obstetrics and gynecology ($N = 7693$ or 5% of total visits) and orthopedics ($N = 6913$, also 5% of total visits). The remaining visits ($N = 26\,957$ or 19% of total visits) were dispersed among 40 different medical specialties.

In our sample, females were slightly over-represented, constituting 62% of the respondents. The median age group was 50 to 59 years, as shown in Figure 1. Median was used since the age distribution in our sample was skewed, and working-age adults were overrepresented (Figure 1).

The mean CSAT score was 4.53 (SD 0.73) and the mean PEI score was 2.91 (0.78). Women were slightly more satisfied with the service than men (CSAT 4.54 [0.73] vs 4.51 [0.73]; $P < .001$) and experienced a marginally higher level of enablement (PEI 2.92 [0.79] vs 2.89 [0.78]; $P < .001$). The distribution of both PEI and CSAT scores was skewed, tending towards high ratings, as depicted in Figure 2. Additionally, the cumulative distribution of unique customer experiences was markedly skewed towards positive experiences, as presented in Table 1 and illustrated in Figure 2C. Among the subtopics of customer experience, respondents commonly reported a positive experience concerning being listened to (Table 1).

A dose–response relationship was observed between the sum of customer experience and PEI ratings (Table 2). The difference between the means in PEI between the most positive total experience (sum score +3; PEI mean 3.16) and neutral experience (0; PEI mean 2.69) was 0.47, while the difference between a neutral experience and the worst customer experience (sum score −3; PEI mean 1.68) was 1.01. This suggests that negative experiences had a more significant impact on enablement than positive ones.

Regression Analyses

Generally, the age group exerted a minor influence on the PEI in linear regression, with beta coefficients ranging from 0.44 to 0.48, except in the age group over 70 which had a beta of 0.35 (Table 3). The impact of gender on PEI was negligible, evidenced by a beta coefficient of merely 0.02 (95% CI 0.01-0.02). Consequently, in the primary analyses, both age group and gender were incorporated as covariates in the linear regression models.

In the linear regression analyses with age and gender as covariates pertaining to the 3 distinct dimensions of customer experience, all negative statements (eg, "I did not receive answers…") exhibited a greater impact on the PEI compared

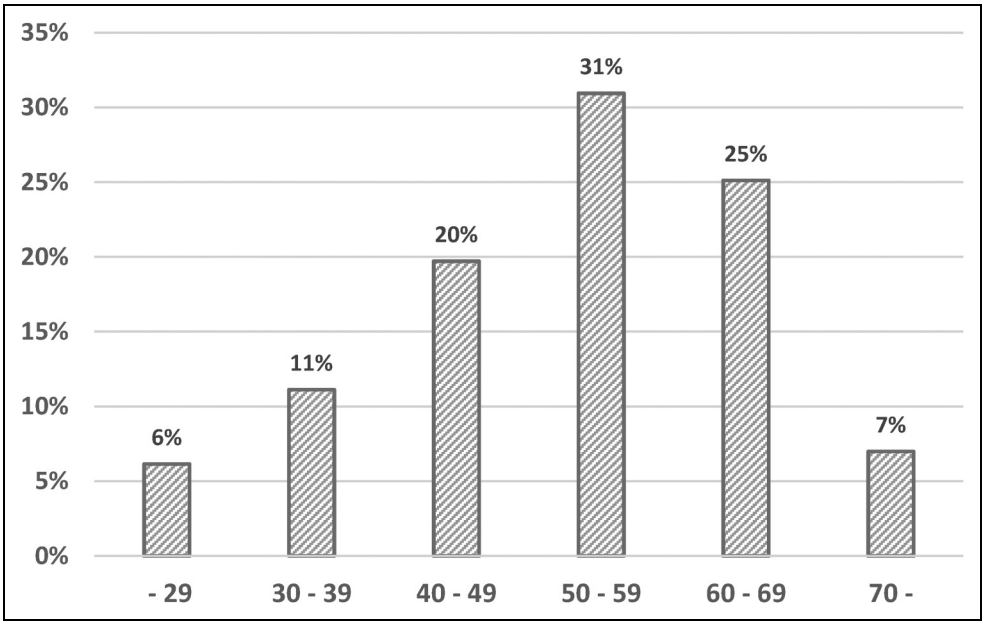

Figure 1. Age distribution of the 140 055 respondents.

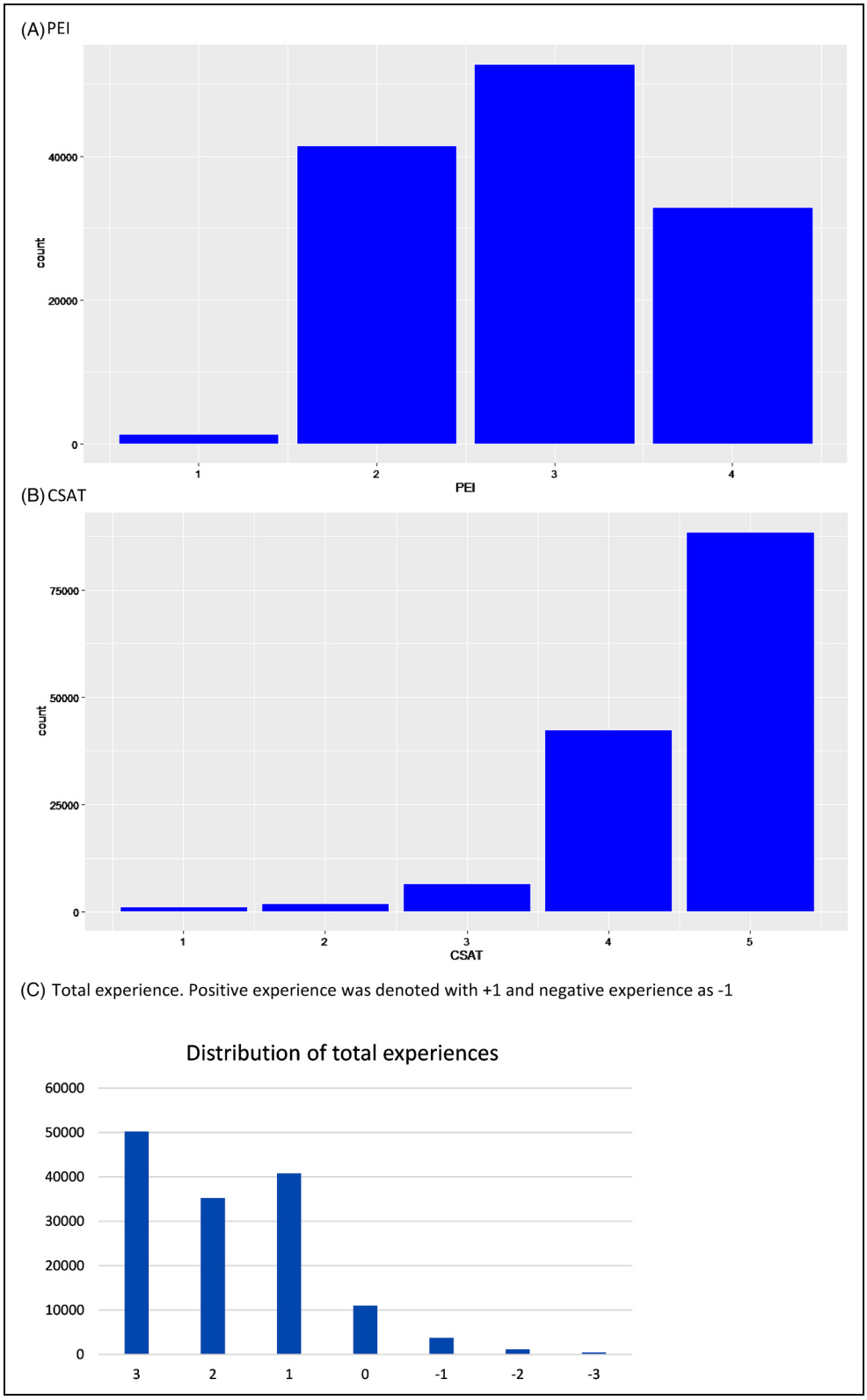

Figure 2. Distribution of PEI and CSAT scores and total experiences. (A) PEI, (B) CSAT, and (C) sum of customer experiences. Each negative customer experience was assigned a value of −1, while a positive experience was assigned a value of +1. These values were subsequently aggregated.
Abbreviations: CSAT, customer satisfaction questionnaire,[5] PEI, patient enablement instrument.[19]

Table 1. Distinct Positive and Negative Customer Experiences.

Theme/question	*N*	%
Listening		
I felt I was listened to during the appointment	112 092	80.0
I felt I was not listened to during the appointment	4216	3.0
Missing	23 747	17.0
Answers		
I got answers to the questions that were troubling me	64 704	46.2
I did not get answers to the questions that were troubling me	3421	2.5
Missing	71 930	51.4
Further instructions		
Instructions for further treatment were clear	88 857	63.4
Instructions for further treatment were not clear	2644	1.9
Missing	48 554	34.7

N denotes the number of respondents and % denotes the percentage of responses within a theme.

Table 2. The Sum of Distinct Customer Experiences and Patient Enablement Index PEI (Mean and Standard Deviation [SD]).

		PEI	
Sum of customer experiences[a]	*N*	Mean	SD
3	49 448	3.16	0.73
2	34 614	2.86	0.73
1	39 962	2.81	0.77
0	10 845	2.69	0.81
−1	3637	2.01	0.60
−2	1122	1.81	0.50
−3	427	1.68	0.50

N denotes the number of respondents. The mean of all responses was 2.91 with SD 0.78.

[a]Each negative customer experience was assigned a value of −1, while a positive experience was assigned a value of +1. These values were subsequently aggregated.

to their positive counterparts (eg, "I received answers…"). The beta coefficients for the negative statements ranged between −0.77 and −0.97, while for the positive statements, they ranged from 0.24 to 0.40 (Table 4). Both the numerical CSAT score and the sum of distinct customer experiences were also strongly related to enablement (Table 3). All results were statistically significant, with a *P*-value cut-off of <.001.

Discussion

Our results indicate that the overall customer experience, as gauged by the CSAT score, exhibits a strong correlation with patient enablement. However, negative facets of customer satisfaction appear to exert a greater impact on perceived enablement compared to positive facets. Additionally, a dose-response association was detected between the total of unique customer experiences and PEI ratings. These elements have been linked with

Table 3. Linear Regression Model Where Enablement (PEI) Serves as Dependent Variable and CSAT Score and Age Group as Independent (Explanatory) Variables.

Variable	*N*	Beta	95% CI	*P*-value
(Intercept)	140 055	0.89	0.86-0.92	<.005
CSAT	140 055	0.89	0.86-0.92	<.005
Age < 29	8602	0.45	0.43-0.47	<.005
Age 30-39	15 561	0.48	0.46-0.49	<.005
Age 40-49	27 604	0.46	0.45-0.47	<.005
Age 50-59	43 334	0.45	0.44-0.46	<.005
Age 60-69	35 174	0.44	0.42-0.45	<.005
Age > 70	9780	0.35	0.33-0.38	<.005

N denotes the number of respondents, Beta denotes the unstandardized coefficient of regression, and 95% CI denotes the 95% confidence interval of beta. For a one-unit change in the independent variable, the dependent variable will change by the value of the beta coefficient.

Table 4. Linear Regression Models With Enablement (PEI) as the Dependent Variable and Customer Satisfaction (CSAT) Score and the Sum of Unique Customer Experiences and Different Facets of Customer Experience as Independent Variables.

Theme/question	Constant	Beta	95% CI	*P*-value
CSAT score: "How satisfied were you with the service provided by our expert" (scale 1-5)	0.89	0.45	0.44-0.45	<.001
Sum of customer experiences (scale −3 to +3)[a]	2.54	0.21	0.20-0.21	<.001
Listening: "…during the appointment" (scale 0/1)				
"I felt I was listened to…"	2.54	0.40	0.38-0.41	<.001
"I felt I was not listened to…"	2.87	−0.82	−0.85 to −0.80	<.001
Answers: "…answers to the questions that concerned me" (scale 0/1)				
"I received…"	2.71	0.36	0.35-0.37	<.001
"I did not receive…"	2.85	−0.97	−0.99 to −0.94	<.001
Further instructions: "Instructions for further treatment…" (scale 0/1)				
"…were clear"	2.72	0.24	0.24-0.25	<.001
"…were not clear"	2.85	−0.77	−0.80 to −0.74	<.001

Age group and gender served as covariates in all analyses. Beta denotes the unstandardized coefficient of regression, and 95% CI denotes the 95% confidence interval of beta. For a one-unit change in the independent variable, the dependent variable will change by the value of the beta coefficient.

Abbreviations: CSAT, customer satisfaction questionnaire[5]; PEI, patient enablement instrument.[19]

The PEI question formulation was "Following the appointment, I feel I will be able to cope with my illness…" with the provided response options being: "Much better, Better, Same as before, Worse, I cannot say."

[a]In the sum of experience in the CSAT any negative experience was given a value of −1 and positive experience a value of +1.

patient satisfaction in an extensive metaanalysis investigating various factors related to patient satisfaction.[11]

Previously, most of the research has centered on measuring the positive aspects of patient experience and satisfaction. Although direct evidence of negative experiences impacting customer satisfaction is relatively sparse, studies suggest that mitigating these negative experiences enhances the overall experience.[19–21] For instance, interventions that enhance the communication skills of healthcare providers lead to improved patient experience and customer satisfaction. Our findings corroborate the concept of systematically improving communication skills to boost customer satisfaction and patient enablement. Additionally, our discovery that individual negative experiences exert a more significant influence than positive ones also underscores the importance of training healthcare professionals specifically to avoid negative experiences.

It is possible that patients have a relatively high "baseline expectation," where meeting basic requirements is perceived as a standard expectation, as suggested by the relatively high constants in the linear regression equations. If this is the case, it would be understandable why any deficiencies would exert a more significant impact than simply meeting these expectations. In the context of surgery, high expectations have indeed been linked with enhanced patient experiences,[22] and low expectations have been associated with reduced satisfaction.[23] However, contradictory findings have been reported, suggesting that in certain patient groups, high initial expectations may lead to lower patient-reported outcomes.[24] While there are minimal gender differences in the impact of customer experience on enablement, the influence of age on PEI seems negligible, except in the age group over 70 years.

In our pool of 140 055 respondents, a total of 67% reported an improvement in their ability to manage their symptoms/disease following the consultation, stating they were "better" or "much better" than before. This aligns with previous findings from Finland.[25] The average CSAT score of 4.53 in our study is notably high. In our sample, 92% of respondents reported either a high or very high level of satisfaction (scores of 4 or 5 on a 5-point scale). Generally, a satisfaction rate of 80% or over is deemed commendable for a healthcare provider.[26] In health care, CSAT scores have been reported ranging from 79% to 86%, contingent on the service utilized.[27]

The relationship between customer satisfaction and patient enablement does exhibit some inconsistencies. A study into the association between customer satisfaction and PEI in the context of primary care consultations in the United Kingdom by Howie et al[16] revealed a moderate correlation between PEI and 2 distinct customer experience surveys. The correlation was more pronounced for the cumulative score as opposed to individual components. Intriguingly, the addition of customer satisfaction elements to the PEI questionnaire did not improve the Cronbach's alpha of the PEI questionnaire.[16] This suggests that while these 2 phenomena are related, they remain distinct entities. On the other hand, a study carried out by Desborough et al[28] in Australia, which evaluated nursing care in general practices, yielded somewhat divergent results. This study utilized focus group discussions, in-depth patient interviews, and professional feedback to validate their questionnaire. They concluded that the combination of the PEI with customer satisfaction metrics resulted in a novel, combined instrument that displayed satisfactory psychometric properties.[28] Our finding that the negative statements in customer satisfaction exerted a stronger effect on PEI than the numerical CSAT score alone corroborates with the findings of Howie et al.[16]

Strengths and Limitations

One of the key strengths of our study lies in the considerable sample size, consisting of 140 055 responses gathered over approximately a year. The data encompasses a wide variety of medical conditions and a diverse array of professionals, from general practitioners to medical specialty consultants, collated through a random sampling of all consultations. Regrettably, we lack the appropriate means to analyze participation bias. A significant strength of the CSAT lies in its simplicity. The single-question format with a 5-step Likert scale makes it straightforward for respondents to answer and for researchers to analyze. We employed a version of PEI that has been previously validated in the Finnish outpatient population.[25] However, a limitation of our study is the absence of information pertaining to the type or severity of illness. Previous studies have indicated that chronic conditions, particularly multimorbidity, can influence the experience of disability postconsultation.[29] Moreover, the severity of a single condition can affect patient satisfaction levels. Patients with more severe symptoms tend to express more satisfaction.[30] The patients' perception of illness severity can also impact enablement, as demonstrated in a study comparing the influence of perceived illness severity on PEI,[31] thus severity can affect both customer satisfaction and patient enablement.

A major challenge is the issue of collinearity; numerous potential explanatory variables that could be used to explain PEI or CSAT outcomes are highly correlated with each other. For this reason, the unique questions about customer satisfaction were analyzed one by one, adjusted by gender and age.

In a previous study examining the PEI in Finland, a response rate of 64.4% was achieved, facilitated by the researcher personally engaging with each participant in the waiting area.[25] In contrast, our data collection was conducted on a broader scale, using digital tools postconsultation. Our sample, drawn from private healthcare services with a moderate response rate of 34.1%, may elicit questions concerning generalizability. Regrettably, we were unable to conduct analyses on nonresponders, thus potentially introducing a participation bias. Past studies attempting to analyze nonresponders have found that, in general, nonresponse is associated with male gender, younger age, and possibly

milder symptoms.[32–34] However, some studies suggest that symptom severity does not influence the response ratio, while nonresponders did not have a different prevalence for the diseases studied.[35]

Practical Implications

It seems that patients perceive meeting basic requirements as a standard expectation. Ensuring that patients' voices are acknowledged, their queries are addressed, and they have comprehensible guidance regarding the progression of their treatment, are fundamental aspects of interactions with patients.

Conclusion

Our results corroborate previous studies indicating that customer satisfaction and patient empowerment are interrelated, but they appear to retain a degree of distinctiveness. A key finding of our study, which adds new insight to the field, is the significantly stronger influence of negative experiences compared to positive ones on the relationship between customer satisfaction and patient enablement. As most of the literature primarily focuses on positive experiences, there is a need for further research centered on negative experiences in healthcare, as these could have a significant impact on patient enablement.

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Authors' Contributions

Not applicable.

Declaration of Conflicting Interest

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: AJÄ and ST are employees of Terveystalo PLC.

Ethical Approval

Informed consent was not necessitated as the study was noninterventional and registry-based, solely involving the analysis of de-identified data obtained from pre-existing records. The legal foundation for data processing was provided by the Act on the Secondary Use of Data, 552 (Chapter 41) in 2019. The study was conducted while upholding stringent standards of data privacy and protection of personally identifiable information. Researchers did not have access to any personally identifiable data.

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Statement of Human and Animal Rights

Not applicable.

Statement of Informed Consent

Not applicable.

References

1. Institute of Medicine (US) Committee on Quality of Health Care in America. *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academies Press (US); 2001.
2. Howie JG, Heaney DJ, Maxwell M. Measuring quality in general practice. Pilot study of a needs, process and outcome measure. *Occas Pap R Coll Gen Pract*. 1997;75:i-xii,1-32.
3. Molgaard Nielsen A, Hartvigsen J, Kongsted A, et al. The patient enablement instrument for back pain: reliability, content validity, construct validity and responsiveness. *Health Qual Life Outcomes*. 2021;19(1):116.
4. Enthoven P, Peolsson A, Ludvigsson ML, Wibault J, Peterson G, Oberg B. Validity, internal consistency and self-rated change of the patient enablement instrument in patients with chronic musculoskeletal pain. *J Rehabil Med*. 2019;51(8): 587-597.
5. Lam CL, Yuen NY, Mercer SW, Wong W. A pilot study on the validity and reliability of the patient enablement instrument (PEI) in a Chinese population. *Fam Pract*. 2010;27(4):395-403.
6. Rööst M, Zielinski A, Petersson C, Strandberg EL. Reliability and applicability of the patient enablement instrument (PEI) in a Swedish general practice setting. *BMC Fam Pract*. 2015;16:31.
7. Pawlikowska TR, Walker JJ, Nowak PR, Szumilo-Grzesik W. Patient involvement in assessing consultation quality: a quantitative study of the patient enablement instrument in Poland. *Health Expect*. 2010;13(1):13-23.
8. Skarbalienė A, Jurgutis A, Strandberg EL, Pawlikowska T. Patient involvement in assessing consultation quality: validation of patient enablement instrument (PEI) in Lithuanian general practice. *BMC Fam Pract*. 2019;20(1):167.
9. Tolvanen E, Koskela TH, Kosunen E. Comparison of the patient enablement instrument (PEI) with two single-item measures among Finnish health care centre patients. *BMC Health Serv Res*. 2019;19(1):376.
10. Urden LD. Patient satisfaction measurement: current issues and implications. *Outcomes Manag*. 2002;6(3):125-131.
11. Ferreira DC, Vieira I, Pedro MI, Caldas P, Varela M. Patient satisfaction with healthcare services and the techniques used for its assessment: a systematic literature review and a bibliometric analysis. *Healthcare (Basel)*. 2023;11(5).
12. Sargent SK, Waldman R. The patient experience and safety. *Obstet Gynecol Clin North Am*. 2019;46(2):199-214.
13. Miaoulis G Jr, Gutman J, Snow MM. Closing the gap: the patient-physician disconnect. *Health Mark Q*. 2009;26(1):56-68.

14. Anderson R, Barbara A, Feldman S. What patients want: a content analysis of key qualities that influence patient satisfaction. *J Med Pract Manage*. 2007;22(5):255-261.
15. Street RL Jr. Information-giving in medical consultations: the influence of patients' communicative styles and personal characteristics. *Soc Sci Med*. 1991;32(5):541-548.
16. Howie JG, Heaney DJ, Maxwell M, Walker JJ. A comparison of a patient enablement instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. *Fam Pract*. 1998;15(2):165-171.
17. Wiederhoefer L. *Digital Customer Experience Engineering Strategies for Creating Effective Digital Experiences*. A press; 2021.
18. Ibrahim M, Yusheng K. Service innovation and organisational performance: mediating role of customer satisfaction. *Int J Manage Entrepreneurship Res*. 2020;2(3):97-108.
19. Chen S, Guo X, Wu T, Ju X. Exploring the online doctor-patient interaction on patient satisfaction based on text mining and empirical analysis. *Inf Process Manag.* 2020; 57(5):102253.
20. Haverfield MC, Tierney A, Schwartz R, et al. Can patient-provider interpersonal interventions achieve the quadruple aim of healthcare? A systematic review. *J Gen Intern Med*. 2020;35(7):2107-2117.
21. Drossman DA, Chang L, Deutsch JK, et al. A review of the evidence and recommendations on communication skills and the patient-provider relationship: a Rome foundation working team report. *Gastroenterology*. 2021;161(5):1670-1688.e7.
22. Choi SW, Bae JY, Shin YH, Jung YJ, Park HS, Kim JK. Patient expectations and satisfaction in hand surgery: a new assessment approach through a valid and reliable survey questionnaire. *PLoS One*. 2022;17(12):e0279341.
23. Krauss P, Reinartz F, Sonnleitner C, et al. The relation of patient expectations, satisfaction, and outcome in surgery of the cervical spine: a prospective study. *Spine (Phila PA 1976)*. 2022;47(12):849-858.
24. Zhang H, Glassman SD, Bisson EF, Potts EA, Jazini E, Carreon LY. Patient expectations impact patient-reported outcomes and satisfaction after lumbar fusion. *Spine J*. 2024;24(2):273-277.
25. Tolvanen E, Koskela TH, Helminen M, Kosunen E. The validity and reliability of the patient enablement instrument (PEI) after GP appointments in Finnish health care centres. *J Patient Rep Outcomes*. 2020;4(1):79.
26. Raileanu G. CSAT: definition, calculation & 2023 benchmarks. Accessed 2024. 2023.
27. Siddiqui MUH, Khafagy AA, Majeed F. Program report: improving patient experience at an outpatient clinic using continuous improvement tools. *Healthcare (Basel)*. 2023;11(16).
28. Desborough J, Banfield M, Parker R. A tool to evaluate patients' experiences of nursing care in Australian general practice: development of the patient enablement and satisfaction survey. *Aust J Prim Health*. 2014;20(2):209-215.
29. Cohidon C, Wild P, Senn N. Coping better with health problems after a visit to the family physician: associations with patients and physicians characteristics. *BMC Fam Pract*. 2018;19(1):27.
30. Rigopoulos D, Lazaridou E, Papadavid E, et al. Sub-population analysis of patients with plaque psoriasis treated with calcipotriol/betamethasone aerosol foam; effectiveness and patient satisfaction, according to baseline disease severity and prior psoriasis treatment experience, in a Greek population. *Dermatol Ther*. 2022;35(6):e15484.
31. Fors M, Öberg B, Enthoven P, Schröder K, Abbott A. The association between patients' illness perceptions and longitudinal clinical outcome in patients with low back pain. *Pain Rep*. 2022;7(3):e1004.
32. Räisänen P, Hedman L, Andersson M, et al. Non-response did not affect prevalence estimates of asthma and respiratory symptoms – results from a postal questionnaire survey of the general population. *Respir Med*. 2020;173:106017.
33. Rönmark EP, Ekerljung L, Lötvall J, Torén K, Rönmark E, Lundbäck B. Large scale questionnaire survey on respiratory health in Sweden: effects of late- and non-response. *Respir Med*. 2009;103(12):1807-1815.
34. Harris IA, Cashman K, Lorimer M, et al. Are responders to patient health surveys representative of those invited to participate? An analysis of the patient-reported outcome measures pilot from the Australian Orthopaedic Association National Joint Replacement Registry. *PLoS One*. 2021;16(7): e0254196.
35. Postema A, Ferreira JA, van der Klis F, de Melker H, Mollema L. Investigating sources of non-response bias in a population-based seroprevalence study of vaccine-preventable diseases in the Netherlands. *BMC Infect Dis*. 2024;24(1):249.