

Development of a tool to measure patient expectations with complete removable dentures

SADJ August 2020, Vol. 75 No. 7 p362 - p366

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ABSTRACT

Introduction

Patients' expectations of complete removable dentures may play a role in determining their level of satisfaction with newly constructed complete removable dentures.

Aims and objectives

To develop a Patient Expectation Questionnaire using a validated satisfaction questionnaire as framework and subsequently determine patients' expectations of complete removable dentures.

Objectives

1. To formulate a patient expectations questionnaire using a validated satisfaction questionnaire framework that will assess their perceptions of new dentures.
2. To determine patient expectations related to masticatory functional, pain, psychological discomfort and social disability with complete removable dentures.

Methodology

All the aspects of the newly formed Patient Expectation Questionnaire (PEQ) was formulated following the framework of the OHIP-20 patient satisfaction tool. The expectation questionnaire was administered to patients at their first dental visit with the information sheet and informed consent form.

Results

A series of statistical tests was done to assess the validity and reliability of the Patient Expectation Questionnaire. These tests concluded that the newly formulated questionnaire was reliable.

Conclusion

Patient expectations can be determined prior to treatment thereby allowing the clinician to manage these expectations and strive to meet the attainable ones during the construction of the complete removable denture.

Amongst others masticatory efficiency and pain were identified as being high on the request list for new complete removable dentures.

Keywords

Patient expectations, satisfaction, locus of control, complete dentures.

INTRODUCTION

The importance of meeting patients' expectations is a core objective in the management of edentulous patients. Ample research has been conducted around patient satisfaction and quality of life. Several studies have focussed on the factors influencing patient expectations in complete removable dentures (CRD).¹⁻⁴

Expectation is defined as "a feeling of hope, being in a state of expecting, anticipation with confidence of fulfilment, and in some cases apprehension".⁵ All of these emotions may be experienced by the edentulous patient prior to them getting a new set of dentures. In some cases, their experience with past or existing complete removable dentures (CRD) may also influence their expectations.^{2,6} Determining pre-treatment expectations have the ability to affect the success of patient treatment outcomes whilst, failure may result from a misinterpretation of these perceptions and patient expectations. Compromises to treatment outcomes are readily accepted by patients when they have been included in the diagnosis and clinical decision-making.^{6,7}

Patient expectations can be influenced by age, gender, levels of education and psychosocial factors.³ Studies have reported on the premise that expectations are developed from experiences and are influenced by patients' existing knowledge regarding treatment.¹³ Other studies have, however, refuted this indicating that perceptions regarding new CRD were not influenced by the level of education or previous denture experience.^{13,16} This is in contrast with Lee et al, (2008) who investigated the influence of clinical variables on patients' perception and concluded education is a determining factor in expectations.

Many factors play an integral part in the psyche of the patient and understanding these factors will result in effective patient management.^{1,8,9} The psychosomatic phenomenon, which is a combination of expectations, emotional and psychosocial factors, play a pivotal role in the patient's adaptation to his or her CRD.¹⁰⁻¹⁴

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No studies have been able to show that personality traits influence patient expectation and satisfaction with dental treatment, however, it still warrants incorporating this into the holistic treatment of the edentulous patient.¹⁰⁻¹² Locus of control (LOC) is a theory in personality psychology which refers to the extent individuals believe that they can control events that causes positive or negative results in their lives.¹⁰⁻¹²

It is a measure of non-cognitive skills that can influence the manner in which the patient will attribute their own shortcomings or external factors and relate these to the clinician and to the success of their treatment. The development of LOC originates from past experiences, family and culture. The LOC can be further divided into Internal and External sources.^{10,11}

i. Internal Locus of control

Patients with an internal LOC see the events of their life primarily as a result of their own actions and behaviour. These individuals have better control of their behaviour, actively seek knowledge concerning their situation and usually have a great belief in their success.

People with an internal LOC believe in controlling their destiny and relying on their personal skills and efforts. Literature shows that these individuals are part of families that place emphasis on education, responsibility and effort. Patients with a high internal locus of control tend to experience higher levels of satisfaction with the treatment they received because of the level of trust between patient and health care provider.¹⁰⁻¹²

ii. External Locus of control

Patients with an external LOC see the events of their life as circumstances out of their control. These individuals believe that fate, chance, luck or the influence of others are determining factors in their lives and usually do not have high levels of expectations and lack determination.¹⁰⁻¹² Patients with an external LOC tend to be more maladjusted than those in the internal groups.

Studies have concluded that the LOC is a useful tool in the prediction of human behaviour and that there is a relationship between internal and external LOC and patient adjustment. The study concluded that patients with an internal LOC adapt faster and tend to cooperate with a treatment plan, and are vocal about complaints and dissatisfaction.¹⁵

Bellini et al, (2009) conducted a study in which the effect of the type of LOC a patient exhibits and its influences on expectations as well as satisfaction was established.¹⁷ These different profiles are verified using a validated questionnaire that contains questions regarding patient beliefs about the control of their lives. It was evident that patients with an external LOC would tend to blame the denture and the clinician for the dissatisfaction and would most likely request unnecessary adjustments.

Auerbach et al, (2004) conducted a study wherein the expectation of the study was that patients with an internal LOC would respond positively to being given auto-

nomy in their treatment objectives and decision-making, while external LOC patients who theoretically have lower expectations would do better in the low control conditions.

The results of the randomized study showed there was no effect on meeting expectations regardless of being in the decision-making or none decision-making cohort.

In addition, this research confirmed that inter personal relationships between patients and clinician played a pivotal role in satisfaction and meeting the treatment objectives.¹⁷ Open dialogue between clinician and patient and the involvement of the patient in treatment planning is instrumental in achieving a satisfactory experience for the patient.¹⁸

In previous patient expectation and complete denture studies, visual analogue scales (VAS) or specific questions were used to measure pre-treatment expectations.¹⁷⁻²⁰ In these studies, the focus was on aesthetics, masticatory function, phonetics and comfort.^{5,7,17,18}

Similar questions were asked post-delivery of the CRD to assess satisfaction. In this way, the relationship between patients' expectation and satisfaction could be investigated. The results of the expectations investigation in these studies were used as base line indicators to determine what is important to the patient and allowed for a meaningful understanding for the dental practitioner when commencing treatment.

The most significant result of these studies showed a weak correlation between the patient's expectation and satisfaction with CRD in relation to aesthetics. It was interesting to note the expectation factor regarding aesthetics were higher for males than females.¹⁸

Based on the established research that the understanding of patient's expectations can positively influence the outcome of CRD treatment, the manner in which patient expectations are measured would be of interest.

The purpose of this research was to determine whether patients' expectations influenced their satisfaction with new complete dentures constructed by undergraduate dental students. The Oral Health Impact Profile-20 (OHIP-20) was used to measure patient's satisfaction with CRD and the newly formulated PEQ was used to measure expectations.

The OHIP was chosen as the preferred tool for measuring CRD satisfaction because the instrument was derived by patients and not clinicians. It is a subjective tool developed and validated by Slade and Spencer using the World Health Organisation framework to classify disabilities, handicaps and impairments.^{13,20}

The OHIP-20 consisting of 20 questions which includes conceptual domains such as functional limitation, pain, psychological discomfort physical disability, psychological disability, social disability and handicap.

The responses are based on a Likert-type scale ranging from 0 to 4, and recorded as 'never' to 'very often'. The higher the OHIP score determined by the 5-point

Likert scale coded never (score 0), hardly ever (score 1), occasionally (score 2), fairly often (score 3) and very often (score 4), the more likely the patient has a poor oral health status.¹⁹

METHODOLOGY

The Patient Expectation Questionnaire (PEQ) was formulated by the principal researcher using the framework of the OHIP-20 by amending the questions in such a way that they would give insight into patient expectations. An example of how the questions were formulated is showed below in Table 1.

In doing so, it allowed for some correlations between the specific variables between this questionnaire and the follow up OHIP-20. The PEQ (Table 2) questions were based on conceptual subscales that related to; functional limitation, physical disability, physical pain, psychological disability and the handicap of the patient.

OHIP-20 Functional limitations subscale	PEQ Functional limitations subscale
1. Have you had difficulty chewing because of problems with your teeth/dentures?	1. Do you expect to have difficulty chewing because of problems with your dentures?
2. Have you had food catching in your teeth or dentures?	2. Do you expect to have food catching underneath your dentures?
3. Have you felt that your dentures have not been fitting properly?	3. Do you expect your dentures to fit retentively/properly?

FL	1.	Do you expect to have difficulty chewing because of problems with your dentures?	Very Often	Fairly Often	Very Often	Fairly Often
FL	2.	Do you expect to have food catching underneath your dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PD2	3.	Do you expect to avoid eating some foods because of problems with your new dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PD2	4.	Do you expect your diet to change/ be unsatisfactory because of problems with your new dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PD2	5.	Do you expect that you will be unable to eat with your new dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PD2	6.	Do you expect to interrupt your meals because of problems with your new dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PP	7.	Do you expect to pain in your mouth as a result of your new dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PP	8.	Do you expect to have sore spots/ ulcers in your mouth because of your dentures?	Very Often	Fairly Often	Very Often	Fairly Often
PP	9.	Do you expect your new dentures to be uncomfortable? (if not applicable, please mark Never	Very Often	Fairly Often	Very Often	Fairly Often
PD1	10.	Do you expect to be self-conscious because of problems with your dentures?	Very Often	Fairly Often	Very Often	Fairly Often
FL	11.	Do you expect your dentures to fit retentively/ properly?	Very Often	Fairly Often	Very Often	Fairly Often
H	12.	Do you expect your dentures to affect your Quality of Life?	Very Often	Fairly Often	Very Often	Fairly Often
H	13.	Do you expect you will be satisfied with your new dentures?	Very Often	Fairly Often	Very Often	Fairly Often

Participants were asked to record their responses in one of five categories with the use of a Likert scale exactly the same as in answering the OHIP-20. For the questions on the PEQ with responses very often and fairly often, never and hardly ever were combined into one group as 'often' and 'never' to assess the impact on all variables. Since the PEQ was a new tool a series of statistical tests was done to assess the validity and reliability of it. Reliability tests were done on the questions that form the PEQ.

This was determined by using Cronbach's Alpha. A factor analysis was conducted as a data reduction technique to summarise the items loading under factors summarising the research instrument. A convenience sample of a 100 patients that were being treated for CRD by undergraduate students was used in this study. The PEQ was completed by the edentulous patient at the first dental visit and a frequency distribution was done on the data. This data was correlated with the results of OHIP-20 a few months later.

RESULTS

The results for the PEQ statistical tests include:

1. Cronbach's Alpha equalled to .773, which indicates a good reliability. Cronbach's Alpha between 0.7- 0.8 indicates acceptable α value, therefore the findings reveal that the scale was very reliable.
2. A factor analysis was conducted as a data reduction technique. In the process of validation a factor analysis yielded a four factor solution (Eigen values of extracted factors >1).

The total variance of the four factors was 64.4%. Reliability for two of the identified factors yielded was conceptually stronger than the latter two and was disregarded from the analysis. These two factors were related to functioning (mastication) and pain.

The PEQ proved significant and reliable during the initial assessment of the patient. The structure of the PEQ made correlation between the expectation and satisfaction factor easy and allowed for deductions to be made. During the construction of CRD less emphasis placed on psychometric measures by clinicians due to lack of understanding.

Description of the frequency distribution of PEQ

Questions relating to Functional Limitations (FL)

- Majority of the sample (n=100) indicated that they never expected to encounter difficulty with chewing or have food catching as a result of the new CRDs.
- A large portion of the sample (87 %) did not expect their CRDs not to fit properly.

Questions relating to Physical Disability (PD 2)

- Majority (66.6%) of the sample felt that they would never avoid certain foods or feel that their diet would be unsatisfactory because of CRDs.

- In addition the largest part of the sample expressed an expectation to never be unable to eat or to interrupt their meals because of problems with the new CRDs.

Questions relating to Physical Pain (PP)

- About half of the sample expected to experience pain as a result of the new CRDs but this was not evident in relation to the satisfaction scores for this question.
- More than two thirds (64%) of the sample felt that their new CRDs would never be uncomfortable.

Questions relating to Psychological Discomfort (PD1)

- Less than half of the sample (44.5%) felt they would be self-conscious because of problems with their CDs.

Questions relating to Handicap (H)

- The greater part of the sample (95.5%) felt that their dentures would impact on their Quality of life and (97.8%) felt they would be satisfied with their new CRDs.

DISCUSSION

Reliability tests using Cronbach's Alpha was required in order to validate the PEQ. Cronbach's Alpha between 0.7- 0.8 indicates acceptable α value, therefore the findings reveal that the scale was very reliable.

Once the reliability was ascertained, factor analysis was conducted as a data reduction technique thereby removing redundancy or duplication from a set of correlated variables.

These factors were related to mastication and pain and cover the functional limitations and physical disability domains as identified in previous studies.^{6,8} The analysis of the frequency distribution of the PEQ yielded high expectations in all the sub-sections of the questionnaire. High expectation was recorded for ease of mastication and lack of pain, however it can be deemed unrealistic to not have adaptation issues with the new CRD.^{6,7,8}

A result that was noteworthy was that more than half of the sample felt they would be self-conscious as a result of problems with their new CRD.

The item quality of life showed a high level of expectation and there was a great expectation regarding satisfaction with new CRD.⁷ The high levels of expectations can also be explained by the high percentage of females in the sample and since females tend to have higher expectation than male counterparts for aesthetics and function and tend to seek treatment for edentulism more readily.²²

In addition to the above mentioned clinical aspects of patient expectations the fact that treatment was received at a teaching institution could influence the high levels of expectation perceived in this study.

CONCLUSION

This study allows for exploration of those factors in relation to edentulous patients and supported findings by other researchers in which factors such as aesthetics, function and pain were identified as the areas where patients expressed high levels of expectations.

Educating patients and spending sufficient time understanding the needs of patients play a fundamental role in meeting patient's expectations and a successful outcome.

Clinical significance

Pre-treatment planning and effective treatment planning is the foundation of successful dental treatment. Areas of high expectations can be modified or amended by using the PEQ. The PEQ allows for participation and understanding from both the dentist as well as the patient thus forging a common ground before actual treatment commences.

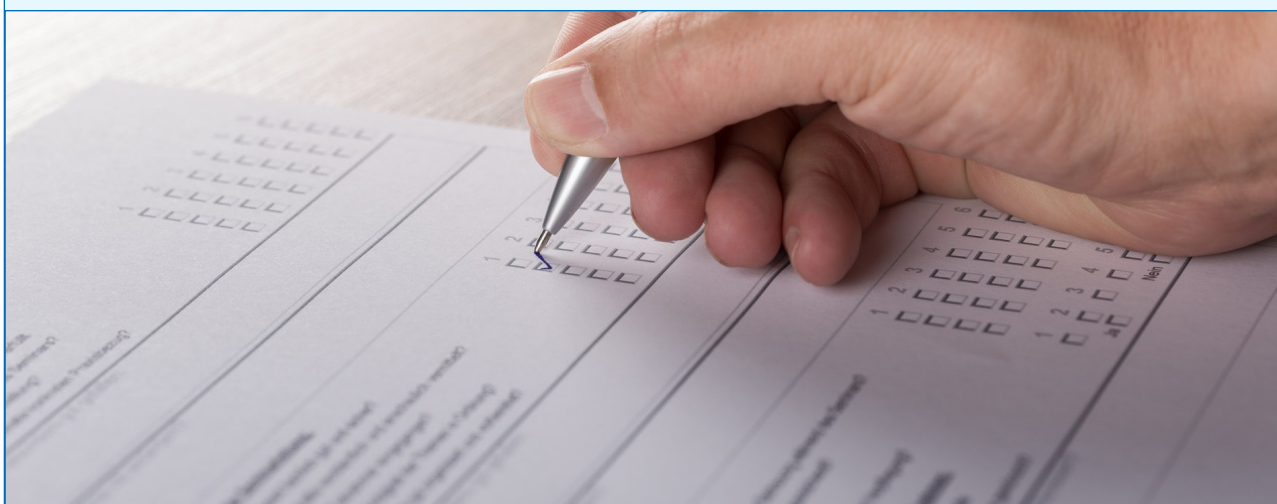
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Do the CPD questionnaire on page 400

The Continuous Professional Development (CPD) section provides for twenty general questions and five ethics questions. The section provides members with a valuable source of CPD points whilst also achieving the objective of CPD, to assure continuing education. The importance of continuing professional development should not be underestimated, it is a career-long obligation for practicing professionals.



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