

# Journal of Diagnostic Radiography and Imaging

<http://journals.cambridge.org/JDR>



Additional services for *Journal of Diagnostic Radiography and Imaging*:

Email alerts: [Click here](#)  
Subscriptions: [Click here](#)  
Commercial reprints: [Click here](#)  
Terms of use : [Click here](#)

---

## out-patients' expectations of bone scans: do they influence satisfaction?

h. rogers

Journal of Diagnostic Radiography and Imaging / Volume 5 / Issue 3-4 / March 2005, pp 151 - 157  
DOI: 10.1017/S1460472805000052, Published online: 14 September 2005

**Link to this article:** [http://journals.cambridge.org/abstract\\_S1460472805000052](http://journals.cambridge.org/abstract_S1460472805000052)

### How to cite this article:

h. rogers (2005). out-patients' expectations of bone scans: do they influence satisfaction?. Journal of Diagnostic Radiography and Imaging, 5, pp 151-157 doi:10.1017/S1460472805000052

**Request Permissions :** [Click here](#)

## Original Paper

# Out-patients' expectations of bone scans: do they influence satisfaction?

H. Rogers

*Radiography Education, University of Wales College of Medicine, Cardiff, Wales*

## Abstract

Within the health care sector there is a renewed emphasis on the satisfaction of patients and their involvement in its' evaluation. There is also some evidence to suggest that the expectations of patients play a fundamental part in forming this satisfaction. This study aimed to establish the expectations of bone scan patients who attended a Nuclear Medicine department and consequently measured their satisfaction after the visit. A possible link between the two was assessed. A questionnaire survey was undertaken to assess the patients' expectations prior to their visit and subsequently their satisfaction after their scan. The questionnaires included comment sections to encourage the addition of free text to the questionnaires by the patients. A total of 181 patients were included in the analysis which provided a range of expectations, with most patients expressing high importance to those expectations. Generally satisfaction was found to be high. Statistical analysis of the results showed a significant positive correlation between the expectations of patients and their satisfaction. The expectations of patients may therefore be targeted by health professionals in their attempts to provide the care patients need and deserve.

## Keywords

Patient expectations, patient satisfaction, nuclear medicine

## INTRODUCTION

Patients' judgments of health-related services are used to provide essential information on the effect, or delivery of health care. These judgements are usually measured by considering the satisfaction of patients.<sup>1</sup> It has been claimed however that making an accurate verdict on health experiences by patients is difficult in that their understanding of a multi-faceted, often technical field of health care may be limited.<sup>2</sup>

Informing patients of procedures which are often intricate in nature is therefore important. Patients may be regarded as the axis about which the NHS revolves and their expectation of examinations or tests and the feedback from experiences during these visits may be vital to maintain or improve standards in healthcare delivery.

Fitzpatrick<sup>3</sup> states that patients who are satisfied are more likely to follow the advice given to them or follow their medical regimes, whilst the dissatisfied patient is less likely to re-attend. This might have implications for all patients who need comparative bone scan examinations over time.

Taylor<sup>2</sup> maintains that patients are more likely to use services that satisfy emotional needs rather than services that satisfy medical needs. These

Correspondence to: Hywel Rogers, Lecturer, Radiography Education, University of Wales College of Medicine, Cardiff, Wales. Tel: +44 029 2074 8170; Fax: +44 029 2074 3836; E-mail: RogersHJ1@cardiff.ac.uk

emotional needs may formulate patients' expectations and it may be possible that these needs must be met to satisfy the patient.<sup>4</sup> Establishing patients' expectations prior to their visit to a doctor or allied health professional is therefore important to determine patients' emotional needs. Rollnick *et al*<sup>5</sup> claim that patients will expect or hope to be handled by the practitioner in a certain way and therefore to evaluate the judgements or satisfaction of the patients, an insight into their expectations is fundamental.

There have been many ways of defining or describing patient expectations. Williams *et al*<sup>4</sup> (p. 194) define expectations as 'needs', 'requests' and 'desires' whilst Staniszewska<sup>6</sup> (pp. 95–96) describes expectations as 'a type of belief and thus are a result of cognitive processes.' Cognition is defined in the Collins English Dictionary<sup>7</sup> (p. 217) as, 'the mental act or process by which knowledge is acquired, including perception, intuition and reasoning'.<sup>7</sup> Having a cognitive belief therefore would suggest that expectations lead patients to believe they know what will happen in a given situation.

It is evident that there are differing definitions and ideas of patient expectations. This study adopted the latter definition of expectations in that patients included in this study had previously attended the X-ray department and were able to draw upon their experience to formulate their expectations.

This study was concerned with finding the expectations and also the satisfaction of bone scan patients. Patient satisfaction may be described as getting what one wants or achieving a pre-determined goal. Messner and Lewis<sup>8</sup> (p. 3) remark that patient satisfaction arises from 'human virtues of communication, sensitivity, respect, dependability, trust and personalised service'. This would suggest that satisfaction is partly based on the communication and care skills of the individual health care provider.

Carr-Hill<sup>9</sup> (p. 237) however suggests that there are many more factors that influence satisfaction, 'Human satisfaction is a complex concept that is related to a number of factors including life style, past experiences, future expectations and the values of both individual and society.'

A definition offered by the Oxford English Dictionary however reads as follows, 'Satisfaction – The action of gratifying (an appetite or desire) to the full, or of contenting (a person) by the complete fulfilment of a desire or supply of a want; the fact of having been gratified to the full or of having one's desire fulfilled'.<sup>10</sup> According to this definition it seems important to establish the patients' 'wants' or 'desires' to accurately measure their satisfaction.

Currently there are mixed reports on whether a relationship exists between expectations and the satisfied patient. Staniszewska and Ahmed<sup>11</sup> found that there was a positive link, in that patients had expectations of their nursing care and were able to use these expectations to evaluate the care they received. Other studies; found little indication that expectations affected the way patients appraised their experience of health care.<sup>12,13</sup>

It was this study's aim therefore to focus on bone scan patients in the nuclear medicine department and to establish their expectations and satisfaction. It was also the aim to explore possible links between their expectations and satisfaction.

## METHODOLOGY

The research question for this study appeared to suit a scientific approach to produce empirical evidence either proving that expectations affect satisfaction or not.

Bowling<sup>1</sup> (p. 114) believes that the two data collection methodologies of questionnaires and interviews may be combined in research to provide innovative ways of blending different perspectives and a combination of the two methods was carried out for this study i.e. methodological triangulation to allow a scientific approach facilitating deductive reasoning for the research question, but also using an element of a qualitative approach in developing the research tool.

Self-administered questionnaires were used for this study which were developed using interviews with patients and with focus-group discussions. Also as a final check for content validity, two open-ended questions were included in the pilot questionnaire to allow patients to introduce additional themes and to raise any concerns they had. These

were also included in the main study's questionnaires. Questionnaires were used to predominantly facilitate anonymity of the respondents.

The content of the questions in the expectations questionnaire were also formulated by considering previous research carried out by Staniszewska and Ahmed.<sup>11</sup> In this research, cardiac patients' expectations were sought using a questionnaire, based on qualitative interviews. Themes that were extracted from these interviews and developed for the questionnaire included patients' expectations of doctors, nurses, the patient's own participation and the outcomes of care.

This study followed these themes. It examined the patients' expectations of the radiographer, the patients' own participation and the outcome of care i.e. the result of the scan. In keeping with the work of Staniszewska and Ahmed<sup>11</sup> the satisfaction questionnaire allowed the patients to evaluate these aspects of the visit at a later date.

The questions developed for the questionnaires were presented in a mixture of Likert five-point scales, ten point rating scales (of Likert type) and open questions. The questions were worded passively to limit bias.

The population for this study was taken from adult bone scan patients in one NHS trust from January 2003 to June 2003. All patients were included in the study thus providing a sample of 292 patients. Demographic checks of age and gender were made to ensure that a wide range of individuals were included in the sample.

Within the 6 months time scale of the study, variables such as staff, equipment and the department environment were constant. Linking of the expectation questionnaire to the satisfaction questionnaire was done in such a way as to preserve anonymity. The reliability of the questionnaires were tested using the Cronbach's alpha test which was calculated after gathering the data from the patients.

## RESULTS

During the data collection period, a total of 292 patients were targeted of which 239 responded. From these however, a total of 181 matched and

complete expectations and satisfaction questionnaires were gathered and included in the study representing 62% of the 292 target patients.

The results of the Cronbach's alpha test for the expectations and satisfaction questionnaires were 0.8055 and 0.9422 respectively. These values represent good internal consistency reliability as Bowling<sup>1</sup> asserts, a value of 0.7 or above indicates good reliability.

## Expectations results

One of the intentions of the study was to gather patients' additional expectations and concerns in the free text sections of the questionnaires.

Concerns about the results were made by 43 respondents and were the most common of the free text comments gathered. It seems therefore that patients assign a high importance to the outcome of the visit which is understandable.

A high expectation of an explanation of the procedure was seen where the majority of respondents expected the radiographer to thoroughly explain the procedure to them.

A number of respondents ( $n = 18$ ) indicated that they were nervous. This was mainly of the visit as a whole, but some were nervous of the injection and the gamma camera. The results for the respondents' expectation of being nervous in the scanner measured on a 10-point scale showed an even spread of expectations from low to high.

Concerns that were raised were: purpose or significance of the scan, waiting period between injection and scan and contact with others.

Several respondents had commented on this latter aspect, but also were worried about contact with their pet animals.

The bone scan information leaflet sent with the appointment letter provides information on contact with humans, but does not consider animals. This may be an outcome or area that may be clarified on the information leaflet.

Concerns regarding the waiting period are also considered in the information leaflet, but concerns

regarding the significance or purpose of the scan are usually considered during the consultation with the referring clinician. If this does not occur, the patient may have some degree of confusion as to the purpose of the examination. To include this aspect in the expectations questionnaire may have raised the anxiety of some patients, for instance patients being scanned for bone metastases, which may have affected the internal validity of the expectations questionnaire. This aspect therefore did not make a suitable question. Certainly, this issue must be addressed by the referring clinical team and the Nuclear Medicine department in that the responsibility must be placed on the referrer to fully inform the patient.

A sizeable percentage of patients (30%) suggested that the information leaflet sent with the appointment letter should include more information on radiation and the ionising effects of radiation. It currently only relates to a 'small dose of radioactivity'. This could be considered as one of the outcomes of this study that patients would like more information on the effects of ionising radiation. This however may raise anxieties for some patients, therefore careful consideration has to be given to the delivery of this information.

A solution may be to direct patients to a reliable and appropriate information source on the world wide web or to a particular document available at local libraries, approved by a relevant society such as the British Nuclear Medicine Society. The patients would then have the choice of whether to seek the facts or not. The text within the information leaflet directing the patients to the source would of course need to be updated in line with current practices of patient preparation, examination protocols and radiation protection.

The analysis of the expectations questions revealed a considerable proportion of the respondents having a high total expectation score. The histogram (Fig. 1) shows a noticeable skew towards the higher end of the percentage scale indicating high expectations.

In fact the number of respondents ( $n = 24$ ) having low scores (scores of below 50) on the expectations questionnaire were very low at 13.25%.

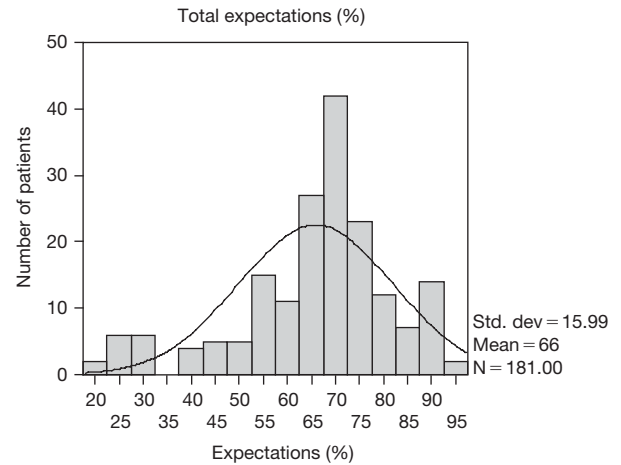


Figure 1.

Seemingly, therefore it was found that respondents had a high expectation of most aspects of the questionnaire such as expectations of the radiographer, their own participation, and the outcome of the visit. But, on closer inspection six aspects of expectations revealed a mixed response.

The expectation of the opportunity to ask questions revealed nearly a quarter of the respondents having a low expectation. The radiographer's ability to answer questions also attracted a low expectation response (39% of respondents). The reason for this may be attributed to the lack of awareness of a radiographer as a professional – radiographers may not be as familiar to patients as nurses or doctors for example.

The attitudes of nervousness in the scanner and anxiousness attracted the widest range of response with a mixture of high and low expectations. This may be due to an unfamiliarity with the equipment, expectations may therefore reflect this unfamiliarity in that they have no prior knowledge to base their expectation upon. The question revealing the lowest expectation was for embarrassment, with most respondents expecting not to feel embarrassed. This may be attributed to a possibility that embarrassment is not easy for patients to admit to.

It is evident therefore that although there is a mix of expectations for some questions, expectations on the whole were high with no respondent indicating low expectations for all questions. Some

questions attracted a wider range of response than others, consequently it can be deduced that expectations did vary.

This concurs with the findings of Staniszewska and Ahmed<sup>11</sup> in that the expectations of the patients in their study varied, in particular a variation of negative (low) expectations and positive (high) expectations.

Further comparison of the present study to other studies is more difficult as the differing levels and ranges of each aspect of patients' expectations are not routinely reported within the literature. Some authors have generally presented and discussed expectations within the perspective of their satisfaction findings.<sup>4,14,15</sup>

### Satisfaction results

On review of the satisfaction questionnaire results it is apparent that a high proportion of patients experienced a high satisfaction of their visit for a bone scan which can be seen in the skewed distribution of Figure 2. Hall and Dornan (1988) have provided a comprehensive review of satisfaction studies in their meta-analysis of 221 studies of patient satisfaction and found that generally satisfaction was high throughout. This is confirmed more recently by Staniszewska and Ahmed<sup>11</sup> in that in their review, patients were also generally satisfied with their care.

The similarity of the satisfaction findings of this study may reflect the success of the department and

staff to satisfy the patient, but certainly concurs with satisfaction findings of other clinical specialties reviewed in the literature, in that high satisfaction scores have consistently been collated Hall and Dornan, 1988. The aim of this study however was to establish a link between expectations of patients and their satisfaction.

Analysis of the data reveals that 18.3% of the patients scored below 67% for their satisfaction and as Fitzpatrick<sup>3</sup> has commented, the findings of 20% of dissatisfied patients is worrying. Undoubtedly the majority of patients were highly satisfied, but it would be valuable to assess why nearly a fifth of the respondents scored as low on the satisfaction questionnaire.

Analysis of the free text of the questionnaire provides some reasons for this. Comments received were mainly relating to the following: the unpleasantness of the waiting room, having to wait between the injection and scan, the fact that there was no water fountain in the department to facilitate the hydration necessary for the scan and pain felt during the scan. Comments relating to the waiting room, having to wait and water can easily be addressed by giving due consideration and a small investment in making the waiting area more comfortable, with the provision of a water fountain. The concern of patients who experienced pain may be addressed by the information leaflet. Information may be included suggesting the prophylactic use of a pain killing tablet for example.

Whilst the findings of this study are encouraging in that patients are reporting that they are highly satisfied with the experience, the answers from the open questions do raise a concern that patients are not supplied enough information with their appointment letter. As discussed earlier this may or may not raise anxieties. The supply of information in turn may have the effect of increasing the patients' expectations as they would then have information to base their judgements upon. Whether or not their expectations would consequently change their satisfaction is seen in the following section.

### Expectations and satisfaction

A Spearman rank correlation coefficient test was performed on the collected data which indicated

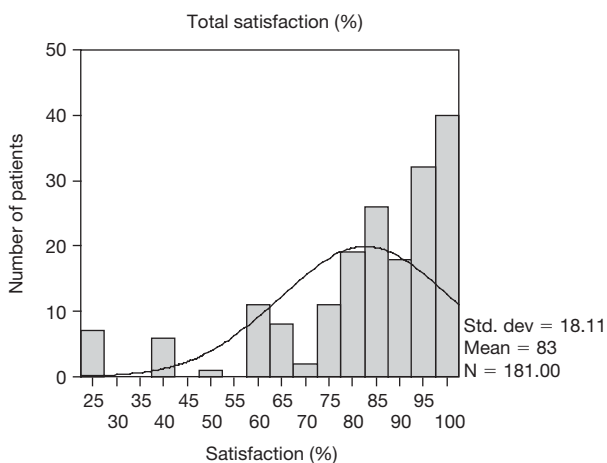


Figure 2.



a positive correlation between bone scan patients' expectations and their satisfaction levels. This was found to be significant with  $p < 0.05$  of a positive correlation, with the implication that patients' expectations do actually affect their satisfaction. This finding was also reported by Thompson and Yarnold<sup>16</sup> who found that patients' satisfaction levels were linked to their expectations. In their experience, patient satisfaction depended on the expectation of that patient being met or exceeded. A review of the literature undertaken by Rao *et al*<sup>17</sup> also revealed a link between expectations and satisfaction. The majority of the studies in their review indicated that the more fulfilled expectations, the higher the satisfaction level of the patient.

The results of the current study demonstrate this correlation but also show that the higher the patients' expectations, the higher their satisfaction levels and conversely the lower their expectations, the lower their satisfaction level. This may be due to the fact that patients with higher expectations and consequently satisfaction placed more importance on their visit to the X-ray department than those with low expectations and wanted to acknowledge their experience of the highly professional and efficient staff within the department.

## CONCLUSION

The aim of this study was to fully explore the relationship between bone scan patients' expectations and their satisfaction. This to a certain extent has been achieved by establishing the patients' expectations, their satisfaction and exploring the link between them.

When considering high satisfaction, which was a discovery of this study, receiving accolades and praise from the patients not only provides health care professionals with the commendation they undoubtedly deserve, but is also useful to recognise that patients are pleased with the treatment they have received. In light of the finding however that 18.3% of patients were dissatisfied (scored below 67% for total satisfaction), in future work researchers could concentrate on patient dissatisfaction to understand what goes wrong in the health care

experience, to discover specific areas that health care professionals may be able to improve.

The objective of finding a link between expectations and satisfaction was achieved. A positive correlation was found, but in all probability, because of the few low expectations and low satisfaction scores received, this link was found to be weak. Certainly, there were many patients that scored highly on both questionnaires and conversely low numbers of patients who scored low on both questionnaires, but whether this significant positive correlation would become stronger or not with an increased sample size would be an interesting finding, beneficial to studies of this nature.

It can be concluded therefore that by establishing the patients' expectations, health care professionals can endeavour to fulfil those expectations and in so doing try and satisfy patients. The measurement of these factors would provide the essential information needed for effective service delivery.

## References

1. Bowling A. *Research Methods in Health*, 2nd edn. Buckingham. Open University Press 2002.
2. Taylor. *Health Psychology*, 5th edn. New York. Mc Graw-Hill 2003.
3. Fitzpatrick R. Scope and measurement of patient satisfaction. In: Fitzpatrick R, Hopkins A (eds) *Measurement of Patients' Satisfaction with their Care*. London. Royal college of Physicians of London 1993.
4. Williams S, Weinman J, Dale J, Newman S. Patient expectations: what do primary care patients want from the GP and how far does meeting expectations affect patient satisfaction? *Fam Pract* 1995; **12**(2): 193–201.
5. Rollnick S, Mason P, Butler C. *Health Behaviour Change*. London. Churchill Livingstone 1999.
6. Staniszewska S. Patient expectations and health-related quality of life. *Health Expect* 1999; **2**: 93–104.
7. Collins. *English Dictionary and Thesaurus*, 21st century edn. Glasgow. HarperCollins 2002.
8. Messner R L, Lewis S J. *Increasing patient satisfaction*. New York. Springer publishing company 1996.
9. Carr-Hill R. The measurement of patient satisfaction. *J Public Health Med* 1992; **14**(3): 235–249.
10. *Oxford Dictionary*. Oxford English Dictionary. Oxford. Oxford University Press 1989.
11. Staniszewska S, Ahmed L. The concepts of expectation and satisfaction: do they capture the way patients evaluate their care? *J Adv Nurs* 1999; **29**(2): 364–372.

12. Williams B. Patient satisfaction: a valid concept? *Soc Sci Med* 1994; **38(4)**: 509–516.
13. Sanchez-Menegay C, Hudes E S, Cummings S R. Patient expectations and satisfaction with medical care for upper respiratory infections. *J Gen Intern Med* 1992; **7**: 432–434.
14. Hsieh M, Doner-Kagle J. Understanding patient satisfaction and dissatisfaction with health care. *Health Soc Work* 1991; **16(4)**: 281–290.
15. Kucukarslan S, Schommer J C. Patients' expectations and their satisfaction with pharmacy services. *J Am Pharm Assoc* 2002; **42(3)**: 489–496.
16. Thompson D A, Yarnold P R. Relating patient satisfaction to waiting time perceptions and expectations: The disconfirmation paradigm. *Acad Emerg Med* 1995; **2**: 1057–1062.
17. Rao J K, Weinberger M, Kroenke K. Visit-Specific expectations and patient-centered outcomes. *Arch Fam Med* 2000; **9**: 1148–1155.



