# The Flemish version of a new European standardised outcome instrument for measuring patients' assessment of the quality of care in general practice

by

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## Abstract

*Introduction*: *Patients satisfaction is a concept that is receiving increasing attention in medical care. It is important that valid and reliable instruments for obtaining patients' evaluations are available. The EUROPEP-project developed an internationally standardised instrument for patients' evaluations of general practice care. This instrument consists of a written questionnaire, comprising 23 questions that focus on patients' evaluations of a wide range of aspects of general practice care.*

*Objectives*: *The purpose of this study is to examine the psychometric properties of the Flemish version of the EUROPEP instrument. The fol-*

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*lowing specific questions will be considered: is there sufficient item-response; is there sufficient response variability; is it possible to discriminate between groups; can we identify different subdimensions and are the individual items and the instrument reliable?*

**Methods:** *3120 patients visiting 39 general practices were approached and offered a self-administered questionnaire, including the EUROPEP instrument. A total of 2545 questionnaires returned to the research unit.*

**Results:** *The item response was good or acceptable for most items. We were confronted with a lack of response variability because of a ceiling-effect. It is possible to discriminate between groups: older patients reported higher levels of satisfaction and higher educational attainment is associated with dissatisfaction. We can identify 5 different subdimensions. The reliability of the items and of the different sub-scales is very high.*

**Conclusion:** *The EUROPEP instrument can be a valuable instrument in assessing patients' evaluations of primary health care.*

## Keywords

## Introduction

It is now widely recognised that the views of patients are important in the measurement of the quality of health care. Patients' evaluation of care is increasingly seen as a valuable outcome in itself beside measures of clinical effectiveness and economic efficiency (1, 2). Patient satisfaction measures quality of care from the perspective of the patient. Patients' evaluation of their health care may reveal quality problems and provide suggestions for improving the quality of care.

User input to the assessment of services which provide health care is motivated by a perceived need to democratise the health services, or by a wish to stress the interests of the patient as a consumer (3, 4).

Furthermore, evidence has accumulated that care that is less satisfactory to the patient is associated with non-compliance with medical regimens

and return appointments and a poor understanding and retention of medical information. This indicates that satisfaction could also offer a way of optimising health status and preventing wastage of medical resources (5).

In order to measure patients' assessment of care, various methods have already been used, including in-depth interviews, focus-discussion groups, consultation of voluntary groups, analysis of complaints and patient opinion surveys (6).

Performing a patient survey is a frequently used method for assessing patients' evaluations (7). It is therefore important that valid and reliable instruments for obtaining patients' evaluations are available. A number of instruments that can be used in those surveys have been developed, but there are still methodological difficulties. There might be problems with validity and reliability for the available scales (3, 8).

There is a lack of standardisation and meaningful comparison rates. Many questionnaires have been developed for single studies and have not achieved widespread use despite the apparent need for consistent measures. Attention needs to be paid to standardised methods for measuring patient satisfaction (3, 9). In their meta-analysis of over 200 studies, Hall and Dornan (10) rapport that most studies (around 75%) used "home made" instruments. This prevents comparison across studies. A lot of those "home made" instruments are also hardly validated by good scientific research (7, 11).

In many instruments patients were not involved in the selection of aspects of care included. By ignoring the patients' views on preferred care, we may neglect aspects of care provision which are important from the perspective of the consumers of health care (8).

Satisfaction is considered generally to be a multidimensional concept, it is necessary to identify sub-scales within questionnaires which measures the levels of satisfaction obtained for different aspects of care (8). By aspects we mean such features of care as humaneness, informativeness, competence, access, continuity of care among others. Several classifications of components have been proposed (4, 5, 12, 13). A single measure of general satisfaction is also inadequate as an indicator of where, or how, any changes may be made to the service provided by a general practice.

Scales should be able to discriminate between groups or individuals and produce scores that are reasonably spread across the response range. This appears to be a particular problem with high levels of satisfaction and

narrow ranges of scores being reported (5). Lack of response variability is a problem for researchers, who are often forced into comparing positive with less positive responses, and it casts doubt on their ability to detect real differences in patients' opinions. However, greater response variability is found with regard to specific aspects of health care (4, 14, 15). Further, Hall and Dornan (10) find that "home-made" questionnaires indicate on average 10% higher satisfaction than standardised, published instruments using the basic criteria of psychometry.

The "EUROPEP" project developed a validated internationally standardised instrument for patients' evaluations of general practice care. This instrument consists of a written questionnaire, comprising questions that focus on patients' evaluations of a wide range of aspects of general practice care.

While many international questionnaires have been developed in one specific country and were next translated into other languages, which may induce cultural and linguistic problems (the transferability problem), the unique feature of the EUROPEP-instrument is that it has been developed in an international group from the very beginning (16).

The purpose of this study is to examine some properties of the Flemish (Dutch) version of the EUROPEP-instrument. The following questions will be considered: (i) is there sufficient item-response (ii) is there sufficient response variability; (iii) is it possible to discriminate between groups; (iv) since the concept is considered generally to be multidimensional, can we identify different subdimensions and (v) are the individual items and the instrument reliable?

## Methods

*Instrument development*

The EUROPEP-instrument was developed and validated in a series of steps by a task group of research institutes from different European countries.

It is important that patients are involved in selecting the indicators to have a valid instrument. For this instrument, aspects and indicators of the quality of general practice care are derived from a review of the literature on patient priorities, from some qualitative and quantitative pilotstudies

with small numbers of patients from different countries and from an international study of patient priorities on general practice care (7).

The questionnaire was further developed in some qualitative and quantitative pilot studies in the participating countries to test different versions. Items that showed good variation across patients, that produced high item response, and showed no problems with translation where selected for the final instrument. This final instrument comprises a set of 23 questions using a five point answering scale with the extremes labelled as "poor" and "excellent", without labels for the middle categories. Every question had also a category "not applicable/not relevant". The questionnaire includes 5 sub-scales each measuring different aspects of care (7).

A systematic procedure was followed to translate the English source version of the questionnaire into the different languages. Three independently working individuals, including researchers in general practice and a professional translator forward translated the English source version of the questionnaire into the national language. At a consensus meeting of these individuals the forward translations were compared and one forward translation version was derived. Next, the forward translation version was backward translated into English by two independent professional translators. At a consensus meeting of the back-translators and the Europep researchers discrepancies were discussed and a final version of the national questionnaire was derived (1).

The standardised instrument exists in thirteen different languages and is used for documenting and comparing patients' evaluations of the quality of general practice care in 16 European countries (7).

*Data collection*

The questionnaire comprises the internationally standardised outcome instrument. The questionnaire further includes some questions on patients' age, sex, perceived health status, education, diseases and frequency of visiting the general practitioner.

A sample of 3120 patients from 39 different general practitioners from 39 different general practices or health centres was approached (that is 80 patients per practice). In every practice, patients consecutively visiting the general practice are included using the following inclusion criteria: 18 years or older, being able to understand the native language. Parents or adults who accompany persons younger than 18 year are also included.

The questionnaires are handed out by the GP themselves. The patient can fill in the questionnaire at home and send it in a pre-paid envelope to the research unit. Reminders were sent to patients at three/four weeks to increase the response rate. A total of 2545 questionnaires were returned (response rate 81,6%).

*Analysis*

One of the goals in this study was the evaluation of the multidimensional nature of the concept. We hypothesise that the EUROPEP instrument consist of 5 separate subdimenions that measures different aspects of care. In this context, we have a clear idea at the onset what aspects we think underlie the items. In order to test a priori a theory or a model of how indicators and latent constructs relate, confirmatory factor analysis (CFA) is the ideal approach.

In confirmatory factor analysis, once a model is specified, it is tested by comparing the goodness of fit of the sample correlation matrix to the correlation matrix implied by the model. A number of goodness-of-fit measures have been proposed. We will use the RMSEA (Root Mean Square Error of Approximation) developed by Steiger (17). Unlike other absolute fit indices, the RMSEA has the important advantage of going beyond point estimates to the provision of 90% confidence intervals for the point estimate (18). A perfect fit will yield an RMSEA value of zero; scores less than 0,08 are considered to be adequate, and scores of less than 0,05 are considered to be good (19,20)

If the proposed model has acceptable fit, it is still possible that several different models might have equally acceptable, or better, model fit. Therefore, we will compare the five-factor model with an alternative simpler model with only one underlying latent construct (a competing models strategy).

Because a more complex model will usually provide better fit than a less complex model, e.g. a five-factor model will typically provide a better fit than a one-factor model, competing models need to be compared not only for their fit to the data, but also their relative simplicity. At a given level of accuracy, a more parsimonious model is preferable. Three strongly related criteria take parsimony into account when comparing models: Akaike's information criterion (AIC), the consistent Akaike information criterion (CAIC), and the single sample cross-validation index (ECVI) (20). The model with the smallest value would be chosen. AIC and ECVI will always

give the same rank order of the models, whereas the rank ordering of AIC and CAIC can differ. Therefore, we will use AIC and CAIC to compare the five-factor model with the one-factor model.

In this study, our indicators are all ordinal-level measures. With ordinal variables, estimates of the polychoric correlations should be computed (21). Polychoric correlations are not correlations between pairs of raw score values. Rather, they are estimates of the correlations between the continuous variables underlying the observed ordinal variables. Polychoric correlations have been found to be the least biased correlations among a number of correlations measures for ordinal variables both for normal and non-normal underlying continuous variables (21). When a matrix of estimated polychoric correlations is analysed, the weighted least squares (WLS) estimation method should be used to fit a model to the data (22). With the WLS-method, the inverse of the estimated asymptotic covariance matrix of the estimated polychoric correlations is the correct weight matrix (22). PRELIS2 is used to compute the polychoric correlations (pairwise deletion of missing values) and the corresponding asymptotic covariance matrix. LISREL8 is used to fit the specified model to the polychoric correlations with WLS and to assess the fit of the model.

One of the features of the use of confirmatory factor analysis in scale construction applications is the ability to calculate reliability coefficients for individual items and for the composite scales.

Empirical measures used to operationalise unobservable constructs should be reliable, that is, as free from random error as possible. In classical test score theory, the reliability of a variable is a measure of the degree of true-score variation relative to the observed-score variation. Indicator reliability is defined as the square of the correlation between the true score (i.e., the latent construct for which that variable is assumed to be an indicator) and that indicator and represents the percent of variation in the indicator that is explained by the factor. Reliability can be interpreted as the proportion of the observed variable that is free from error (23). The indicator reliabilities should exceed 0,50 (24).

More important than the reliability of any given item is the reliability, or internal consistency of the composite scale itself. In other applications, a coefficient alpha is used to summarise the reliability of a scale. In confirmatory factor analysis, the principal approach used in assessing the measurement model is the "composite reliability" and "variance extracted" measures for each construct (24). Composite reliability is a measure of the internal consistency of the construct indicators, depicting the degree

to which they "indicate" the common latent (unobserved) construct. More reliable measures provide the researcher with greater confidence that the individual indicators are all consistent in their measurements. A commonly used threshold value for acceptable reliability is 0,70 (24). Another measure of reliability is the variance extracted measure. This measure reflects the overall amount of variance in the indicators accounted for by the latent construct. Higher variance extracted values occur when the indicators are truly representative of the latent construct. The variance extracted measure is a complementary measure to the construct reliability value. Recommendations typically suggest that the variance extracted value for a construct should exceed 0,50 (24).

## Results

The characteristics of the respondents are shown in table 1.

TABLE 1
*Description of the patient sample (N = 2545)*

| **Sex** | |
| --- | --- |
| Female | 64,4% |
| Male | 35,6% |
| **Age** (mean) | 50,4 years (median: 49) |
| < 40 years | 31,7% |
| 40-64 years | 43,0% |
| > 64 years | 25,3% |
| **Education** | |
| No education or only primary school | 21,3% |
| Lower secondary school | 20,1% |
| Higher secondary school | 33,2% |
| Higher vocational school or university | 25,4% |
| **Times seen GP in last 12 months** (mean) | 9,6 times (median: 7) |
| **Perceived health status** | |
| Very good/excellent | 33,8% |
| Good | 42,6% |
| Fair/poor | 23,6% |

*Item-response*

For each indicator, we determined the percentage of patients who gave a valid answer (= item-response). The item-response for most indicators was 85% or higher (table 2), except for the questions "offering you services for preventing diseases" (81,6%), "helping you deal with emotional problems related to your health problems" (79%), "preparing you for what to expect from specialist of hospital care" (74,8%) and "the helpfulness of the staff (other than the doctor)" (48%).

*Response variability*

Most patients gave positive evaluations of general practice care, so that the frequency distributions of all questions are skewed and we are confronted with a lack of response variability (table 2).

The patients gave most positive evaluations with respect to "keeping your records and data confidential" (79,3% felt this was "excellent"), "getting through the practice on the phone" (70%) "providing quick services for urgent health problems" (66,4%) and "listening to you" (66,3%). On most other indicators, more than 50% of patients used the most positive answering category. Less positive evaluations were given with respect to "waiting time in the waiting room" (29%), "quick relief of symptoms" (44,7%), "helping you to feel well so that you can perform your normal daily activities" (49,7%) and "offering you services for preventing diseases" (49,7%).

But then, it is still possible to discriminate between groups (table 3). Older patients reported higher levels of satisfaction (table 3b). This finding is in line with many other studies (14, 25). Hall and Dornan (26) confirmed that age is the most consistent and significant demographic variable. This may reflect real differences in the experience of health care between generations; older patients may, for example, have closer relationships with their doctors. However, it may also reflect a greater deference and respect for, coupled with lower or more modest expectations of, health care (14).

In table 3c, we see also that educational attainment is having a bearing on satisfaction: higher educational attainment is associated with dissatisfaction. This accords also with several other studies (3).

In their meta-analysis, Hall and Dornan (26) report that in general patients' sex appears not to have any consistent relation with satisfaction. Also in this study, there were no notable differences between male and female patients (table 3a).

TABLE 2

*Item variability and item-response (N = 2545)*

| | Poor 1 | 2 | 3 | 4 | Excellent 5 | Item-response |
|---|---|---|---|---|---|---|
| **Relation and Communication** | | | | | | |
| 1. Making you feel you had time during consultations? | 0,3 | 0,9 | 7,0 | 28,5 | 63,3 | 99,4 |
| 2. Interest in your personal situation? | 0,3 | 1,4 | 7,9 | 30,2 | 60,1 | 98,5 |
| 3. Making it easy for you to tell him or her about your problems? | 0,5 | 1,7 | 9,5 | 30,4 | 58,0 | 98,1 |
| 4. Involving you in decisions about your medical care? | 0,6 | 1,9 | 10,4 | 30,6 | 56,4 | 95,3 |
| 5. Listening to you | 0,3 | 1,3 | 5,5 | 26,7 | 66,3 | 99,3 |
| 6. Keeping your records and data confidential? | 0,3 | 0,5 | 2,7 | 17,3 | 79,3 | 95,1 |
| **Medical Care** | | | | | | |
| 7. Quick relief of your symptoms? | 0,5 | 2,2 | 13,2 | 39,4 | 44,7 | 96,4 |
| 8. Helping you to feel well so that you can perform your normal daily activities? | 0,3 | 1,2 | 9,3 | 39,4 | 49,7 | 91,2 |
| 9. Thoroughness? | 0,2 | 1,2 | 9,4 | 32,3 | 56,9 | 98,1 |
| 10. Physical examination of you? | 0,4 | 2,2 | 9,3 | 31,6 | 56,6 | 97,6 |
| 11. Offering you services for preventing diseases (eg. Screening, health checks, immunisations)? | 1,8 | 5,1 | 16,2 | 27,3 | 49,7 | 81,6 |
| **Information and Support** | | | | | | |
| 12. Explaining the purpose of tests and treatments? | 0,7 | 1,6 | 8,7 | 26,7 | 62,5 | 95,8 |
| 13. Telling you what you wanted to know about your symptoms and/or illness? | 0,4 | 1,6 | 7,7 | 29,5 | 60,7 | 97,9 |
| 14. Helping you deal with emotional problems related to your health status? | 1,1 | 3,0 | 11,3 | 29,7 | 55,0 | 79,0 |
| 15. Helping you understand the importance of following his or her advice? | 0,6 | 2,0 | 11,7 | 31,4 | 54,3 | 93,2 |
| **Continuity and Co-operation** | | | | | | |
| 16. Knowing what s/he had done or told you during previous contacts? | 0,7 | 2,8 | 12,3 | 34,2 | 50,0 | 91,1 |
| 17. Preparing you for what to expect from specialist or hospital care? | 1,3 | 2,7 | 11,3 | 32,9 | 51,8 | 74,8 |
| **Availability and Accessibility** | | | | | | |
| 18. The helpfulness of the staff (other than the doctor)? | 1,2 | 2,1 | 13,5 | 31,9 | 51,2 | 48,0 |
| 19. Getting an appointment to suit you? | 1,2 | 2,4 | 7,9 | 26,6 | 61,9 | 88,6 |
| 20. Getting through the practice on the phone? | 0,5 | 1,3 | 5,3 | 22,9 | 70,0 | 98,2 |
| 21. Being able to speak to the general practitioner on the telephone? | 0,9 | 1,6 | 7,5 | 26,7 | 63,3 | 96,5 |
| 22. Waiting time in the waiting room? | 3,6 | 8,4 | 22,2 | 36,7 | 29,0 | 92,7 |
| 23. Providing quick services for urgent health problems? | 0,3 | 0,8 | 5,7 | 26,8 | 66,4 | 89,6 |

TABLE 3a

*Description of patients evaluations: percentage of patients who used the most positive answering category by sex*

| | Male | Female | $\chi^2$-test |
|---|---|---|---|
| **Relation and Communication** | | | |
| 1. Making you feel you had time during consultations? | 61,5 (N = 875) | 63,7 (N = 1584) | ns |
| 2. Interest in your personal situation? | 57,9 (N = 862) | 60,6 (N = 1575) | ns |
| 3. Making it easy for you to tell him or her about your problems? | 55,6 (N = 858) | 58,4 (N = 1568) | ns |
| 4. Involving you in decisions about your medical care? | 54,2 (N = 836) | 56,5 (N = 1523) | ns |
| 5. Listening to you | 63,2 (N = 873) | 67,1 (N = 1586) | ns |
| 6. Keeping your records and data confidential? | 77,9 (N = 834) | 79,4 (N = 1517) | ns |
| **Medical Care** | | | |
| 7. Quick relief of your symptoms? | 43,0 (N = 842) | 44,4 (N = 1544) | ns |
| 8. Helping you to feel well so that you can perform your normal daily activities? | 47,2 (N = 810) | 50,0 (N = 1453) | ns |
| 9. Thoroughness? | 55,0 (N = 871) | 56,7 (N = 1559) | ns |
| 10. Physical examination of you? | 55,1 (N = 868) | 56,3 (N = 1548) | ns |
| 11. Offering you services for preventing diseases (eg. Screening, health checks, immunisations)? | 47,5 (N = 713) | 49,3 (N = 1302) | ns |
| **Information and support** | | | |
| 12. Explaining the purpose of tests and treatments? | 59,3 (N = 848) | 63,7 (N = 1528) | p < 0,05 |
| 13. Telling you what you wanted to know about your symptoms and/or illness? | 57,4 (N = 866) | 61,9 (N = 1561) | p < 0,05 |
| 14. Helping you deal with emotional problems related to your health status? | 51,4 (N = 661) | 56,0 (N = 1288) | ns |
| 15. Helping you understand the importance of following his or her advice? | 50,5 (N = 827) | 55,1 (N = 1478) | p < 0,05 |
| **Continuity and Co-operation** | | | |
| 16. Knowing what s/he had done or told you during previous contacts? | 47,5 (N = 808) | 50,2 (N = 1448) | ns |
| 17. Preparing you for what to expect from specialist or hospital care? | 48,3 (N = 679) | 53,0 (N = 1176) | ns |
| **Availability and accessibility** | | | |
| 18. The helpfulness of the staff (other than the doctor)? | 47,5 (N = 381) | 51,6 (N = 805) | ns |
| 19. Getting an appointment to suit you? | 58,5 (N = 768) | 62,8 (N = 1423) | p < 0,05 |
| 20. Getting through the practice on the phone? | 70,6 (N = 861) | 68,9 (N = 1573) | ns |
| 21. Being able to speak to the general practitioner on the telephone? | 62,5 (N = 850) | 62,9 (N = 1538) | ns |
| 22. Waiting time in the waiting room? | 28,8 (N = 820) | 27,9 (N = 1488) | ns |
| 23. Providing quick services for urgent health problems? | 65,1 (N = 794) | 66,0 (N = 1421) | ns |

ns = not significant.

TABLE 3b

*Description of patients evaluations: percentage of patients who used the most positive answering category by age*

| | ≤ 34 | 35-50 | 51-65 | ≥ 66 | $\chi^2$-test |
|---|---|---|---|---|---|
| **Relation and Communication** | | | | | |
| 1. Making you feel you had time during consultations? | 53,7 (N = 531) | 60,2 (N = 778) | 67,8 (N = 583) | 70,5 (N = 573) | p < 0,001 |
| 2. Interest in your personal situation? | 48,9 (N = 528) | 54,1 (N = 769) | 65,8 (N = 579) | 71,1 (N = 568) | p < 0,001 |
| 3. Making it easy for you to tell him or her about your problems? | 42,2 (N = 521) | 53,3 (N = 765) | 64,4 (N = 581) | 70,1 (N = 565) | p < 0,001 |
| 4. Involving you in decisions about your medical care? | 39,4 (N = 495) | 48,2 (N = 753) | 65,8 (N = 565) | 70,5 (N = 552) | p < 0,001 |
| 5. Listening to you | 56,4 (N = 530) | 60,0 (N = 777) | 69,5 (N = 584) | 78,6 (N = 574) | p < 0,001 |
| 6. Keeping your records and data confidential? | 71,9 (N = 502) | 77,6 (N = 744) | 80,6 (N = 558) | 85,4 (N = 553) | p < 0,001 |
| **Medical Care** | | | | | |
| 7. Quick relief of your symptoms? | 32,3 (N = 511) | 34,4 (N = 764) | 49,8 (N = 560) | 62,1 (N = 557) | p < 0,001 |
| 8. Helping you to feel well so that you can perform your normal daily activities? | 36,9 (N = 482) | 40,9 (N = 729) | 55,0 (N = 529) | 65,7 (N = 527) | p < 0,001 |
| 9. Thoroughness? | 44,0 (N = 523) | 50,1 (N = 775) | 60,9 (N = 576) | 71,3 (N = 561) | p < 0,001 |
| 10. Physical examination of you? | 41,7 (N = 521) | 49,7 (N = 766) | 64,4 (N = 568) | 69,5 (N = 567) | p < 0,001 |
| 11. Offering you services for preventing diseases (eg. Screening, health checks, immunisations)? | 30,1 (N = 402) | 36,8 (N = 642) | 57,6 (N = 481) | 71,4 (N = 496) | p < 0,001 |
| **Information and support** | | | | | |
| 12. Explaining the purpose of tests and treatments? | 50,6 (N = 506) | 58,7 (N = 750) | 67,4 (N = 571) | 72,4 (N = 554) | p < 0,001 |
| 13. Telling you what you wanted to know about your symptoms and/or illness? | 49,2 (N = 520) | 54,2 (N = 771) | 67,8 (N = 580) | 71,5 (N = 561) | p < 0,001 |
| 14. Helping you deal with emotional problems related to your health status? | 42,4 (N = 377) | 46,2 (N = 639) | 63,2 (N = 478) | 66,8 (N = 461) | p < 0,001 |
| 15. Helping you understand the importance of following his or her advice? | 38,4 (N = 490) | 46,6 (N = 729) | 59,4 (N = 557) | 70,7 (N = 536) | p < 0,001 |
| **Continuity and Co-operation** | | | | | |
| 16. Knowing what s/he had done or told you during previous contacts? | 38,0 (N = 476) | 42,2 (N = 718) | 51,3 (N = 544) | 67,6 (N = 525) | p < 0,001 |
| 17. Preparing you for what to expect from specialist or hospital care? | 36,9 (N = 360) | 43,9 (N = 608) | 57,4 (N = 446) | 66,9 (N = 444) | p < 0,001 |
| **Availability and accessibility** | | | | | |
| 18. The helpfulness of the staff (other than the doctor)? | 35,2 (N = 236) | 41,2 (N = 374) | 57,5 (N = 273) | 67,7 (N = 303) | p < 0,001 |
| 19. Getting an appointment to suit you? | 50,8 (N = 455) | 54,3 (N = 711) | 67,3 (N = 513) | 75,1 (N = 515) | p < 0,001 |
| 20. Getting through the practice on the phone? | 55,9 (N = 522) | 65,7 (N = 773) | 75,3 (N = 578) | 81,7 (N = 567) | p < 0,001 |
| 21. Being able to speak to the general practitioner on the telephone? | 48,3 (N = 505) | 58,2 (N = 763) | 69,7 (N = 571) | 75,4 (N = 556) | p < 0,001 |
| 22. Waiting time in the waiting room? | 14,3 (N = 519) | 19,3 (N = 758) | 35,7 (N = 546) | 48,8 (N = 490) | p < 0,001 |
| 23. Providing quick services for urgent health problems? | 51,6 (N = 446) | 59,9 (N = 708) | 72,0 (N = 532) | 79,4 (N = 534) | p < 0,001 |

TABLE 3c

*Description of patients evaluations: percentage of patients who used the most positive answering category by education*

| | Low | | High | | $\chi^2$-test |
|---|---|---|---|---|---|
| **Relation and Communication** | | | | | |
| 1. Making you feel you had time during consultations? | 71,8 (N = 518) | 66,9 (N = 487) | 57,5 (N = 805) | 59,4 (N = 618) | p < 0,001 |
| 2. Interest in your personal situation? | 70,1 (N = 509) | 64,4 (N = 483) | 56,9 (N = 802) | 50,7 (N = 613) | p < 0,001 |
| 3. Making it easy for you to tell him or her about your problems? | 70,6 (N = 507) | 61,9 (N = 480) | 53,7 (N = 795) | 47,8 (N = 615) | p < 0,001 |
| 4. Involving you in decisions about your medical care? | 68,7 (N = 501) | 61,0 (N = 464) | 51,7 (N = 773) | 45,9 (N = 590) | p < 0,001 |
| 5. Listening to you | 77,7 (N = 516) | 68,5 (N = 485) | 63,1 (N = 807) | 57,3 (N = 620) | p < 0,001 |
| 6. Keeping your records and data confidential? | 83,7 (N = 503) | 80,9 (N = 472) | 77,3 (N = 777) | 74,9 (N = 574) | p < 0,002 |
| **Medical Care** | | | | | |
| 7. Quick relief of your symptoms? | 60,0 (N = 500) | 48,4 (N = 481) | 39,8 (N = 788) | 33,2 (N = 588) | p < 0,001 |
| 8. Helping you to feel well so that you can perform your normal daily activities? | 64,2 (N = 486) | 53,2 (N = 442) | 45,0 (N = 736) | 38,7 (N = 568) | p < 0,001 |
| 9. Thoroughness? | 70,3 (N = 508) | 59,9 (N = 479) | 51,8 (N = 798) | 47,4 (N = 614) | p < 0,001 |
| 10. Physical examination of you? | 70,1 (N = 509) | 60,0 (N = 482) | 51,8 (N = 789) | 46,0 (N = 607) | p < 0,001 |
| 11. Offering you services for preventing diseases (eg. Screening, health checks, immunisations)? | 66,1 (N = 449) | 55,3 (N = 423) | 43,2 (N = 659) | 34,8 (N = 465) | p < 0,001 |
| **Information and support** | | | | | |
| 12. Explaining the purpose of tests and treatments? | 70,7 (N = 499) | 62,2 (N = 471) | 60,0 (N = 775) | 58,3 (N = 599) | p < 0,001 |
| 13. Telling you what you wanted to know about your symptoms and/or illness? | 70,8 (N = 503) | 60,3 (N = 486) | 56,5 (N = 797) | 56,7 (N = 609) | p < 0,001 |
| 14. Helping you deal with emotional problems related to your health status? | 62,6 (N = 446) | 60,3 (N = 390) | 52,4 (N = 634) | 44,4 (N = 455) | p < 0,001 |
| 15. Helping you understand the importance of following his or her advice? | 67,9 (N = 495) | 59,2 (N = 463) | 48,4 (N = 752) | 43,5 (N = 570) | p < 0,001 |
| **Continuity and Co-operation** | | | | | |
| 16. Knowing what s/he had done or told you during previous contacts? | 60,3 (N = 479) | 50,6 (N = 453) | 47,6 (N = 736) | 41,9 (N = 568) | p < 0,001 |
| 17. Preparing you for what to expect from specialist or hospital care? | 65,1 (N = 430) | 52,7 (N = 376) | 50,9 (N = 601) | 36,9 (N = 423) | p < 0,001 |
| **Availability and accessibility** | | | | | |
| 18. The helpfulness of the staff (other than the doctor)? | 64,1 (N = 312) | 54,4 (N = 250) | 40,8 (N = 375) | 42,2 (N = 225) | p < 0,001 |
| 19. Getting an appointment to suit you? | 71,1 (N = 471) | 66,6 (N = 440) | 56,0 (N = 714) | 55,0 (N = 542) | p < 0,001 |
| 20. Getting through the practice on the phone? | 80,2 (N = 409) | 75,7 (N = 368) | 64,5 (N = 513) | 61,3 (N = 376) | p < 0,001 |
| 21. Being able to speak to the general practitioner on the telephone? | 74,6 (N = 511) | 68,1 (N = 474) | 58,9 (N = 779) | 52,7 (N = 598) | p < 0,001 |
| 22. Waiting time in the waiting room? | 49,9 (N = 477) | 30,6 (N = 454) | 20,0 (N = 766) | 18,1 (N = 580) | p < 0,001 |
| 23. Providing quick services for urgent health problems? | 77,2 (N = 487) | 70,0 (N = 450) | 61,8 (N = 719) | 57,9 (N = 534) | p < 0,001 |

TABLE 4

*Indicator reliabilities: the squared factor-loading*

| | Squared loading | Scale |
|---|---|---|
| **Relation and communication (scale 1)** | | |
| 1. Making you feel you had time during consultations? | 0,81 | (scale 1) |
| 2. Interest in your personal situation? | 0,86 | (scale 1) |
| 3. Making it easy for you to tell him or her about your problems? | 0,90 | (scale 1) |
| 4. Involving you in decisions about your medical care? | 0,77 | (scale 1) |
| 5. Listening to you | 0,92 | (scale 1) |
| 6. Keeping your records and data confidential? | 0,81 | (scale 1) |
| **Medical care (scale 2)** | | |
| 7. Quick relief of your symptoms? | 0,79 | (scale 2) |
| 8. Helping you to feel well so that you can perform your normal daily activities? | 0,90 | (scale 2) |
| 9. Thoroughness? | 0,90 | (scale 2) |
| 10. Physical examination of you? | 0,83 | (scale 2) |
| 11. Offering you services for preventing diseases (eg. Screening, health checks, immunisations)? | 0,56 | (scale 2) |
| **Information and support (scale 3)** | | |
| 12. Explaining the purpose of tests and treatments? | 0,86 | (scale 3) |
| 13. Telling you what you wanted to know about your symptoms and/or illness? | 0,86 | (scale 3) |
| 14. Helping you deal with emotional problems related to your health status? | 0,90 | (scale 3) |
| 15. Helping you understand the importance of following his or her advice? | 0,88 | (scale 3) |
| **Continuity and co-operation (scale 4)** | | |
| 16. Knowing what s/he had done or told you during previous contacts? | 0,83 | (scale 4) |
| 17. Preparing you for what to expect from specialist or hospital care? | 0,83 | (scale 5) |
| **Availability and accessibility (scale 5)** | | |
| 18. The helpfulness of the staff (other than the doctor)? | 0,66 | (scale 5) |
| 19. Getting an appointment to suit you? | 0,79 | (scale 5) |
| 20. Getting through the practice on the phone? | 0,92 | (scale 5) |
| 21. Being able to speak to the general practitioner on the telephone? | 0,81 | (scale 5) |
| 22. Waiting time in the waiting room? | 0,40 | (scale 5) |
| 23. Providing quick services for urgent health problems? | 0,81 | (scale 5) |

*Determination of the scale structure*

The results of the confirmatory factor analysis support our hypothesised 5-factor model. The goodness-of fit measure is acceptable (RMSEA = 0,07; 90%-confidence interval: 0,068 – 0,072). Although those 5 subdimensions are highly correlated, a model that identified 5 different aspects of care has a better fit then a model with only one dimension (AIC = 3056,13 and CAIC = 3439,28 for a 5-factor model; AIC = 3726,34 and CAIC = 4041,07 for a 1-factor model). The confirmatory factor analysis provides adequate support for the proposed 5-factor model. We can conclude that there are 5 different subdimensions in our instrument.

Now that the overall model has been accepted, each of the constructs can be evaluated separately by examining the indicator loadings (table 4) and by assessing the construct's reliability and variance extracted (table 5).

TABLE 5
*Reliability and Variance Extracted Estimates for the different sub-scales*
*in the confirmatory factor analysis*

|  | Construct Reliability | Variance Extracted |
|---|---|---|
| Relation and communication (scale 1) | 0,97 | 0,86 |
| Medical care (scale 2) | 0,95 | 0,81 |
| Information and support (scale 3) | 0,97 | 0,89 |
| Continuity and co-operation (scale 4) | 0,91 | 0,84 |
| Availability and accessibility (scale 5) | 0,94 | 0,76 |

First, our examination of the squared indicator loadings (table 4) tells us that all indicators, except one (waiting time in the waiting room), are very reliable indicators of the underlying construct they are assumed to represent.

To assess whether the specified indicators are sufficient in their representation of the constructs, we can inspect the estimates of the reliability and variance extracted measures for each construct (table 5). This learns us that all constructs exceed the recommended levels amply.

**Discussion**

In seeking to improve the quality of health care, repeated evaluation of patients' views of both primary care and hospital services should become an integral part of routine care provision (27). Surveys of patients are regarded as an important mean for involving patients' perspective in the assessment and improvement of care delivery. In this context it is very important that patients' judgements of care have been shown to be valid and reliable. Otherwise, wrong decisions will be taken on the basis of findings from inadequate questionnaires (28). For Whitfield and Baker (29) "poor questionnaires act as a form of censorship imposed on patients. They give misleading results, limit the opportunity of patients to express their concerns about different aspects of care, and can encourage professionals to believe that patients are satisfied when they are highly discontented".

The EUROPEP instrument can be a valuable instrument in assessing patients' evaluations of primary health care. It is an internationally standardised instrument. Content validity is demonstrated: it contains different aspects of care, based on what patients expect of and value in general practice care and the item response was good or acceptable for most items. The reliability of the items and of the different sub-scales is very high. We are confronted with a lack of response variability because of a ceiling-effect, due to very high reported rates of satisfaction. However, it is still possible to discriminate between groups: older patients reported higher levels of satisfaction and higher educational attainment is associated with dissatisfaction.

The high reported ratings of satisfaction appears to be a problem with most instruments assessing patient satisfaction. Williams et al (30) conclude that "high reported satisfaction ratings cannot be taken to indicate that patients have had or are having good experiences in relation to a particular service. "Dissatisfaction" rates, however, may be of more use as an indication of a minimum level of negative experience and may therefore be of potential use in benchmarking exercises".

There is a theoretical debate about the concepts of satisfaction and evaluation of care: what do these concepts include (affective or cognitive aspects), how are they related to needs and expectations, and what does a positive or negative evaluation of general practice care actually mean? Despite the proliferation of patient opinion surveys, there has been little clarification of what the term means either to researchers who employ it or respondents who respond to it. In the absence of a fully developed theory, it is difficult to decide how the findings of surveys should be interpreted (31).

To be of any practical use we must know what people mean when they say they are "satisfied" with a particular aspect of a service. Furthermore, to make any relevant changes in service provision we must know why they believe what they say and how they arrived at that view (32).

The model which underpins much research is based upon an assumption that satisfaction, or a positive attitude to care, results from the patient's perception that the service has fulfilled his or her expectations (33, 34). There is evidence that the fulfilment of expectations plays some part independent of other variables (35-37), however, there is little evidence to suggest that satisfaction is largely the result of fulfilled expectations and values (4, 32, 38). Several studies have shown that patients are satisfied even when their expectations have not been met, or that their expectations are tentative or that they do not recognise what they expected from health services (32, 39). Patients' expressions of satisfaction may also be subject to their beliefs about the professional-patient relationship and, in particular, their views about adopting what they consider to be an appropriate "patient role" (32, 39). The reluctance of people to criticise health professionals contributes to consistently high ratings of patient satisfaction (40). A patient satisfaction rating is both a measure of care and a measure of the patient who provide the rating (13).

Using standardised questionnaires runs the risk of channelling patients' concerns into avenues defined by the providers, rather than promoting greater patient involvement in service development and evaluation (41). An open response space on the questionnaire is informative in adding depth of information to the numerical responses and enriches the data (3, 42). Some authors are going further, arguing the need for more qualitative approaches that will complement the quantitative (2, 14, 39, 40). Qualitative methods aim to discover how people talk about their experiences, attitudes, and behaviour without fitting them into predetermined categories, and to place these descriptions within a detailed cultural context (43).

The EUROPEP-instrument has been designed for patients who are recruited among people consulting there general practitioner. However, patients who are most dissatisfied are most likely to change their general practitioner (44), and users and non-users differ in their opinion about health services. The users are not a random population group, but a self-selected one (45). Dissatisfaction which prevents people consulting these practices, or makes them seek other forms of therapy remain unexpressed (3). Opinions of patients who rarely or never visit health practices are underrepresented. Shmueli (45) has shown that this lead to serious biases in the estimation both of the distribution of satisfaction in the population and

of the effects of various characteristics on satisfaction. Therefore, including patients who have not recently attended a health care facility or who have changed there general practitioner may sometimes be vitally important.

How do health care professionals use patients' opinions to improve their care? Research on the effects of performing patients evaluations of care are yet scarce (7). In a study conducted by general practices in England and Wales most practices who had performed a patient opinion survey said that changes had been implemented or were planned as a result of the survey (46). The most common change was to appointment systems.

A further question is what the best way or method is to give feedback on the survey results to doctors and staff. Which type of feedback is most informative and educational and will stimulate a critical reflection on current routines (7). Patient evaluation of the quality of care is probably most effective if both patients and practitioners agree about the focus of such evaluation as this will increase the likelihood that such assessments will result in real improvements (47).

Patient questionnaires consume time of doctors, staff and patients. The question is whether the costs are justified giving the profits for a practice and patients of performing such a survey. Hearnshaw et al. (46) concluded that the benefits of the surveys are also perceived by the majority of practices to outweigh the costs.

## References

  1. GROL R, WENSING M, MAINZ J et al. Patients in Europe evaluate general practice care: an international comparison. Br J Gen Pract 2000; 50: 882-887.
  2. Carr-Hill RA. The measurement of patient satisfaction. J Public Health Med 1992; 14(3): 236-249.
  3. REES LEWIS J. Patient views on quality care in general practice: literature review. Soc Sci Med 1994; 39(5): 655-670.
  4. SITZIA J, WOOD N. Patient satisfaction: a review of issues and concepts. Soc Sci Med 1997; 45(12): 1829-1843.
  5. FITZPATRICK R. Surveys of patient satisfaction: I – Important general considerations. BMJ 1991; 302: 887-889.
  6. FORD RC, BACH SA, FOTTLER MD. Methods of measuring patient satisfaction in health care organizations. Health Care Manage Rev 1997; 22(2): 74-89.
  7. GROL R, WENSING M. Patients evaluate general/family practice. The EUROPEP instrument. Nijmegen: KUN/UMC, 2000.
  8. WENSING M, GROL R, SMITS A. Quality judgements by patients on general practice care: a literature analysis. Soc Sci Med 1994; 38(1): 45-53.

9. ROSENTHAL GE, SHANNON SE. The use of patient perceptions in the evaluation of health-care delivery systems. Med Care 1997; 35(11): NS58-NS68, Supplement.
10. HALL JA, DORNAN MC. Meta-analysis of satisfaction with medical care: description of research domain and analysis of overall satisfaction levels. Soc Sci Med 1988; 27(6): 637-644.
11. SITZIA J. How valid and reliable are patient satisfaction data? An analysis of 195 studies. International Journal for Quality in Health Care 1999; 11(4): 319-328.
12. HALL JA, DORNAN MC. What patients like about their medical care and how often they are asked: a meta-analysis of the satisfaction literature. Soc Sci Med 1988; 27(9): 935-939.
13. WARE JE, SNYDER MK, WRIGHT WR, DAVIES AR. Defining and measuring patient satisfaction with medical care. Evaluation and Program Planning 1983; 6: 247-263.
14. WILLIAMS SJ, CALNAN M. Convergence and divergence: assessing criteria of consumer satisfaction across general practice, dental and hospital care settings. Soc Sci Med 1991; 33(6): 707-716.
15. WILLIAMS SJ, CALNAN M. Key determinants of consumer satisfaction with general practice. Fam Pract 1991; 8(3): 237-242.
16. WENSING M, MAINZ J, GROL R. A standardised instrument for patient evaluations of general practice care in Europe. Eur J Gen Pract 2000; 6: 82-87.
17. STEIGER JH. Structural model evaluation and modification: an interval estimation approach. Multivariate Behavioral Research 1990; 25: 173-180.
18. KELLOWAY EK. Using LISREL for Structural Equation Modeling. Thousand Oaks, CA: Sage, 1998.
19. DILALLA LF. Structural equation modeling: uses and issues. Tinsley HEA, Brown SD, eds. Handbook of applied multivariate statistics and mathematical modeling. San Diego: Academic Press, 2000.
20. JÖRESKOG KG. Testing structural equation models. Bollen KA, Long JS, eds. Testing structural equation models. Newbury Park: Sage, 1993: 294-316.
21. JÖRESKOG KG, SÖRBOM D. PRELIS: User's reference guide. Chicago: Scientific Software International, 1996.
22. JÖRESKOG KG, SÖRBOM D. LISREL: Structural Equation Modeling with the SIMPLIS command language. Chicago: Scientific Software International, 1993.
23. HUGHES MA, PRICE LR, MARRS DW. Linking theory construction and theory testing: models with multiple indicators of latent variables. Academy of Management Review 1986; 11(1): 128-144.
24. HAIR JF, ANDERSON RE, TATHAM RL, BLACK WC. Multivariate data analysis. Englewood Cliffs (N.J.): Prentice-Hall, 1995.
25. KINNERSLEY P, STOTT N, PETERS T, HARVEY I, HACKETT P. A comparison of methods for measuring patient satisfaction with consultations in primary care. Fam Pract 1996; 13(1): 41-51.
26. HALL JA, DORNAN MC. Patient sociodemographic characteristics as predictors of satisfaction with medical care: a meta-analysis. Soc Sci Med 1990; 30(7): 811-818.
27. RICHARDS T. Patients' priorities need to be assessed properly and taken into account. BMJ 1999; 318: 277.
28. BAKER R. The reliability and criterion validity of a measure of patients' satisfaction with their general practice. Fam Pract 1991; 8(2): 171-177.
29. WHITFIELD M, BAKER R. Measuring patient satisfaction for audit in general practice. Quality in Health Care 1992; 3: 151-153.
30. WILLIAMS B, COYLE J, HEALY D. The meaning of patient satisfaction: an explanation of high reported levels. Soc Sci Med 1998; 47(9): 1351-1359.

31. BAKER R. Pragmatic model of patient satisfaction in general practice: progress towards a theory. Quality in Health Care 1997; 6: 201-204.
32. WILLIAMS B. Patient satisfaction: a valid concept? Soc Sci Med 1994; 38(4): 509-516.
33. KISTEMAKER JWG, VISSER AP. Betekenis van tevredenheid van patiënten voor kwaliteit van zorg. Een zorginhoudelijke, bedrijfskundige en dienstverlenende benadering. Tijdschr Soc Gezondheidsz 1995; 73(4): 214-223.
34. BRAMADAT IJ, DRIEDGER M. Satisfaction with childbirth: theories and methods of measurement. Birth 1993; 20(1): 22-29.
35. JOOS SK, HICKHAM DH, BORDERS LM. Patients' desires and satisfaction in general medicine clinics. Public Health Rep 1993; 108(6): 751-759.
36. JACKSON JL, CHAMBERLIN J, KROENKE K. Predictors of patient satisfaction. Soc Sci Med 2001; 52(609-620).
37. MARPLE RL, KROENKE K, LUCEY CR, WILDER J, LUCAS CA. Concerns and expectations in patients presenting with physical complaints. Arch Intern Med 1997; 157: 1482-1488.
38. 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.
39. AVIS M, BOND M, ARTHUR A. Satisfying solutions? A review of some unresolved issues in the measurement of patient satisfaction. J Adv Nurs 1995; 22: 316-322.
40. DOUGALL A, RUSSEL A, RUBIN G, LING J. Rethinking patient satisfaction: patient experiences of an open access flexible sigmoidoscopy service. Soc Sci Med 2000; 50: 53-62.
41. AVIS M, BOND M, ARTHUR A. Questioning patient satisfaction: an empirical investigation in two outpatient clinics. Soc Sci Med 1997; 44(1): 85-92.
42. GROGAN S, CONNER M, WILLITS D, NORMAN P. Development of a questionnaire to measure patients' satisfaction with general practitioners' services. Br J Gen Pract 1995; 45: 525-529.
43. AVIS M. Incorporating patients' voices in the audit process. Quality in Health Care 1997; 6: 86-91.
44. BILLINGHURST B, WHITFIELD M. Why do patients change their general practitioner? A postal questionnaire study of patients in Avon. Br J Gen Pract 1993; 43: 336-338.
45. SHMUELI A. Excluding nonusers: A source of bias in research on satisfaction with health services. Med Care 1997; 35(8): 867-871.
46. HEARNSHAW H, BAKER R, COOPER A, ECCLES M, SOPER J. The cost and benefits of asking patients for their opinions about general practice. Fam Pract 1996; 13(1): 52-58.
47. WENSING M, GROL R, VAN MONTFORT P, SMITS A. Indicators of the quality of general practice care of patients with chronic illness: a step towards the real involvement of patients in the assessment of the quality of care. Quality in Health Care 1996; 5: 73-80.