

The shortened EMpowerment of PArents in THe Intensive Care 30 questionnaire adequately measured parent satisfaction in pediatric intensive care units

Jos M. Latour^{a,b,*}, Hugo J. Duivenvoorden^b, Dick Tibboel^b, Jan A. Hazelzet^b, and the EMPATHIC Study Group

^aNeonatal Intensive Care, Department of Pediatrics, Erasmus MC—Sophia Children's Hospital, PO Box 2060, 3000 CB Rotterdam, The Netherlands

^bIntensive Care, Department of Pediatric Surgery, Erasmus MC—Sophia Children's Hospital, PO Box 2060, 3000 CB Rotterdam, The Netherlands

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Abstract

Objective: To shorten and validate the EMpowerment of PArents in THe Intensive Care (EMPATHIC) questionnaire of optimal length to measure satisfaction of parents whose child has been admitted to pediatric intensive care units (PICUs).

Study Design and Setting: A total of 3,354 (55.4%) parents in eight PICUs completed the 65-item EMPATHIC questionnaire. Multiple regression analysis was applied to evaluate the statistical performances. The reduced domains were intercorrelated by the Pearson's product moment correlation coefficient. The robustness of the findings was evaluated by adjusted R^2 for internal cross-validations. Reliability was assessed by internal consistency.

Results: Multiple regression analysis based on statistical redundancy established the optimal length at 30 items over five different domains: information (5 items), care and cure (8 items), organization (5 items), parental participation (6 items), and professional attitude (6 items). The explained variances of the domains ranged from 85% to 93%. The domains of the full and optimal version showed strong correlations ($r = 0.92$ – 0.97). Cross-validation among eight centers and across time provided adjusted R^2 values on domain level between 85% and 95%. The reliability estimates of the domains, assessed by Cronbach's α , varied between 0.73 and 0.93.

Conclusion: By statistically eliminating the redundant items, the EMPATHIC questionnaire could be reduced from 65 to 30 items. © 2013 Elsevier Inc. All rights reserved.

Keywords: Patient satisfaction; Family; Intensive care; Assessment; Psychometrics; Reliability; Validity

The EMPATHIC study group members are Marcel J.I.J. Albers, Beatrix Children's Hospital, University Medical Center Groningen, Groningen, The Netherlands; Nicolette A.M. van Dam, Leiden University Medical Center, Leiden, The Netherlands; Eugenie Dullaart, Maastricht University Medical Center, Maastricht, The Netherlands; Jan A. Hazelzet, Erasmus MC—Sophia Children's Hospital, Rotterdam, The Netherlands; Marc van Heerde, VU University Medical Center, Amsterdam, The Netherlands; Jos M. Latour, Erasmus MC—Sophia Children's Hospital, Rotterdam, The Netherlands; Marjorie de Neef, AMC—Emma Children's Hospital, Amsterdam, The Netherlands; Carin W.M. Verlaet, University Medical Center St Radboud, Nijmegen, The Netherlands; and Elise M. van Vught, University Medical Center Utrecht—Wilhelmina Children's Hospital, Utrecht, The Netherlands.

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* Corresponding author. Tel.: +31-10-703-7174; fax: +31-10-703-6685.

E-mail address: j.latour@erasmusmc.nl (J.M. Latour).

1. Introduction

Patient satisfaction is increasingly recognized as a quality performance indicator that has found acceptance in many hospitals. For example, the Hospital Consumer Assessment of Healthcare Providers and Systems is currently used in 3,900 general acute care hospitals in the United States [1]. Another national initiative to measure patient hospital satisfaction is the English National Health Service Choices homepage [2]. Large-scale patient satisfaction data can be used for benchmarking among hospitals and to document the impact of patient satisfaction on hospital performance [3,4]. However, the current evidence is too limited to confirm the effect of public participation in satisfaction reporting on the effectiveness of care, safety, or improvements in patient- or family-centered care [5]. A limitation of general hospital satisfaction instruments is that they may not be suitable for specific units. Basically, of main relevance is that patients should be empowered to provide

What is new?

Key findings

- Shortening the 65-item EMpowerment of PArEnts in The Intensive Care (EMPATHIC) instrument to measure parent satisfaction in the pediatric intensive care was possible without substantial loss of information and retaining its reliability and validity.

What this adds to what was known?

- With the shortened EMPATHIC-30, we are able to offer parents a questionnaire that takes less time to complete and reproducing at least 97% of the variances of the total items.

What is the implication and what should change now?

- The EMPATHIC-30 empowers parents to provide feedback on their experiences in pediatric intensive care and may facilitate health care professionals to improve quality of care.
- Parental satisfaction assessment and outcome measures may serve as a valuable quality performance indicator and should therefore be widely implemented.

feedback to the unit they were admitted to. Therefore, specific satisfaction instruments are valuable to address unit's performance from a patient's perspective [6].

The 65-item EMpowerment of PArEnts in THE Intensive Care (EMPATHIC) questionnaire was developed and tested among eight PICUs in The Netherlands. Based on the experiences of both parents and health professionals [7,8], this parent satisfaction instrument is used as a standard quality performance measure in The Netherlands. However, a shortened version would be commendable to make it more user-friendly and increase response rates. Item reduction should be based on eliminating redundant items [9]. In addition, an EMPATHIC questionnaire of optimal length provides an instrument for continuing assessment and benchmarking [10].

The aim of this study was to construct an EMPATHIC questionnaire of optimal length by statistically eliminating redundant items from the full 65-item version. More specifically, elimination was guided by the following statistical requirements: (1) the version of optimal length should explain at least 95% of the variance of the full version and 85% of the variances of the individual domains and (2) the version of optimal length should have adequate reliability and validity in terms of internal consistency and performance by cross-validation.

2. Methods

2.1. Participants

Eligible study participants were parents whose child was admitted and discharged from one of the eight participating PICUs in The Netherlands from February 2009 till December 2010. Two to three weeks after discharge of the child, parents received a mailing including an invitation letter, information about the study, the EMPATHIC questionnaire, a consent form to be signed, and a prepaid reply envelope. To send one reminder if no response was received, the questionnaires were coded. Three exclusion criteria were defined: (1) discharge from PICU within 24 hours; (2) PICU readmission, a questionnaire was only sent after first admission; and (3) child's death during PICU admission. In the 23-month study period, 6,050 parents were invited to complete the EMPATHIC questionnaire, and 3,354 (55.4%) parents returned the completed questionnaire.

2.2. Questionnaire

The validated EMPATHIC questionnaire is a self-administered feedback form consisting of 65 statements divided into five domains: information (9 items), care and cure (30 items), parental participation (8 items), organization (6 items), and professional attitude (12 items) [11]. Responses are given on a six-point scoring scale ranging from 1 "certainly no" to 6 "certainly yes." A separate box "not applicable" is available for all statements. Psychometric testing of the EMPATHIC questionnaire revealed that standardized factor loadings of 63 items were above 0.40. Cronbach's alpha measures per domain ranged from 0.73 to 0.93. The congruent validity and nondifferential validity tests yielded satisfactory results. The statistical tests confirmed that the EMPATHIC questionnaire is adequate in clinical practice for measuring parent satisfaction of PICU services.

2.3. Statistical analysis

Reducing items from a validated instrument should be done cautiously. Several criteria need to be considered to maintain reliability at an adequate level and preserve the validity, which implies that elimination must not lead to substantial loss of information.

As a measure of central tendency, means (continuous data) and percentages (categorical data) were used. If the mean was calculated, then the standard deviation is presented as a measure of dispersion. In case of the domains, mean scores were calculated on the items if at least 75% of the items in the domain were answered. If the median was measured, then interquartile range is presented as a measure of dispersion. For nonnormal data, the Mann–Whitney *U*-test served to evaluate two different categories. For categorical data, chi-square test was performed to evaluate bivariate associations.

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