



A Validity and Reliability of the Atraumatic Care Education Model Questionnaire Based on Family-Centred Care in Minimising the Stress of Hospitalisation in Children

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Abstract

Background/Aim: Hospitalisation is a traumatic occurrence in which children must be admitted for acute or chronic diseases. The purpose of this study was to test the validity and reliability of the atraumatic care education model test, instrument based on family-centred care of mother behaviour in minimising children's hospitalisation stress.

Methods: Questionnaires were developed based on each parameter of each variable. After the questionnaires were developed, the researcher conducted a pilot study with 50 respondents to assess their validity and reliability. The validity test used the Product Moment test, while the reliability test used Cronbach's alpha value.

Results: All questionnaire statement items on the nurse factor, the mother factor, the service factor, the learning process, the atraumatic care education factor and on mother behaviour variables were declared valid (r count = 0.280-0.854), (r count = 0.292-0.767), (r count = 0.517-0.779), (r count = 0.737-0.918), (r count = 0.303-0.781; r table = 0.275) and (r count = 0.315-0.815; r table = 0.275), respectively. All questionnaires to measure nurse factors, maternal factors, service factors, learning process factors, atraumatic care education, maternal behaviour variables and distress questionnaires were reliable. The internal consistency (alpha coefficient) of the total scale ranged between 0.713-0.925.

Conclusion: All questionnaires developed to assess the atraumatic care education model based on family-centred care on mother behaviour in minimising children's hospitalisation stress were valid and reliable and thus have certain application value.

Key words: Research design; Trauma; Care; Education; Hospitalisation; Child; Reproducibility of results; Data accuracy.

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Introduction

Hospitalisation is a traumatic occurrence in which children must be admitted for acute or chronic diseases.¹ Children are vulnerable to physical and psychological stress as a result of procedures that produce discomfort (pain, anxiety, unfamiliar surroundings and loss of control).²⁻⁴ Stress

that is not managed appropriately increases the likelihood of developmental abnormalities, decreased immunity, illness complications and longer days of care.^{1, 5} One of the ideas for reducing stress during hospitalisation is to give traumatised care to the youngster. A family-

centred approach is used while providing atraumatic treatment. Parents, particularly mothers, must be involved in atraumatic care for the duration of their child's hospital stay. The behaviour of mothers in minimising the stress of hospitalisation of children is influenced by several factors, namely, nurses' competence factors, mothers' factors, service factors and learning means factors.^{6, 7} Nurses can educate parents/families on the role of the family in atraumatic care to improve their knowledge, attitudes and behaviour when providing atraumatic care to children.⁸

In this study, focus was on the development of questionnaires to assess antecedents, behaviour and consequences of the atraumatic care education model based on family-centred care on mother behaviour in minimising children's hospitalisation stress; then, assess the test instrument's validity and reliability. Antecedents include nurse factors, mother factors, service factors and learning process factors.^{6, 7} Atraumatic care education consists of preventing separation, improving care control, minimising physical and psychological trauma and modifying the environment. The consequences of this model are the mother's behaviour in minimising the stress of a child's hospitalisation that is assessed based on four indicators: basic needs fulfilment, comfort measures, injury prevention and growth and development stimulation.^{1, 5, 9} The researchers developed 24 questionnaires in the development of this model.

The purpose of this study was to test the validity and reliability of the atraumatic care education model test, instrument based on family-centred care of mother behaviour in minimising children's hospitalisation stress.

Methods

Study design

The feasibility of this questionnaire was determined by a pilot study. Data were collected from 50 mothers of children hospitalised with acute illness who met the criteria. Inclusion criteria included: mothers who accompanied their children during hospitalisation, the length of the child's stay was 3-6 days, mothers whose children were

treated for acute illnesses (acute gastroenteritis/diarrhoea, acute respiratory infection, typhoid fever, dengue haemorrhagic fever, febrile seizures), mothers who had preschool-age children (3-6 years), willing to become respondents and able to read and write well. Exclusion criteria included: mothers with communication barriers and psychosocial disorders and mothers whose children were experiencing severe conditions had to be transferred to the intensive care unit.

Data collection techniques

Data were collected in January 2024. The researcher explained the study to respondents who fit the criteria, then they were asked to sign an informed consent. Fifty copies of the questionnaire were distributed as a convenience sampling method to mothers whose children were hospitalised. On average, respondents took 45-60 minutes to complete. The results of the preliminary survey were found to be satisfactory as all statement items in the questionnaire were understood by the respondents. The researcher accompanied the respondents in filling out the questionnaire to ensure that the respondents understood and filled in all statement items in the questionnaire. There were 50 responses which were then analysed.

Measurement variable

The questionnaire developed included four variables, namely nurse competency factors, maternal factors, service factors and learning process factors. Each variable had parameters. Nurse competence was assessed based on knowledge, attitude, motivation and communication parameters. Maternal factors were assessed based on indicators of maternal presence, willingness to participate, willingness to share responsibility, perceived communication, perceived information and perceived self-efficacy. Service factors were assessed based on policy parameters, guidelines and standard operating procedures. Learning process factors were assessed based on indicators of media, methods and learning environment. Atraumatic care education was assessed based on indicators of preventing separation, controlling child care, minimising trauma and modifying the environment. Mother behaviour in minimising hospitalisation stress was measured based on parameters of basic needs fulfilment, comfort measures, injury prevention and stimulation of growth and development.

This paper searched for literature about factors influencing atraumatic care education based on family-centred care in mothers during children's hospitalisation in databases such as *Scopus*, *Pubmed*, *ScienceDirect*, *Medline*, *CINAHL*, *EBSCO*, etc. Researchers also used questionnaires from previous studies as a reference in developing this instrument. The questionnaire had two parts: participants' sociodemographic data (mother and children) and six dimensions of the questionnaire, including the nurse factor (totalling 84 statement items), the mother factor (totalling 82 statement items), the service factor (totalling 15 statement items) and the learning process factor (totalling 15 statement items), atraumatic care education (36 statement items) and mother behaviour (51 statement items).

Data analysis

Descriptive statistics were generated to explain the participant's general characteristics. The instrument validity test was determined by correlating the score of each statement item with the total score. A variable was said to be valid if the variable score correlates significantly with the total score. The correlation technique used was Pearson's product-moment correlation formula. The validity test decision was obtained by comparing the *r* count with the *r* table. If *r* count > *r* table means the statement was valid, while if *r* count < *r* table means the instrument was invalid (*r* table = 0.275). The internal consistency of all questionnaires and their subscales were assessed by Cronbach's alpha. The collected data were analysed using SPSS for Windows version 26.0. The measuring instrument was reliable if Cronbach's alpha was more than 0.6 or 0.7. If the scale is grouped into five classes with the same range, the reliability measure based on Cronbach's alpha value can be interpreted as follows: very low (Cronbach's alpha = 0.00-0.19), low (Cronbach's alpha = 0.20-0.39), moderate (Cronbach's alpha = 0.40-0.59), high (Cronbach's alpha = 0.60-0.79) and very high (Cronbach's alpha = 0.80-1.00).

Results

Demographics

The participants were 50 mothers. The mean age was 32.7 ± 7.17 years. By age category, 6 (12 %) were late adolescent, 25 (50 %) were early adulthood, 17 (34 %) were late adulthood and 2 (4 %) were early elderly.

The distribution of education levels showed 30 (60 %) participants had a high school education or lower and 20 (40 %) had a college education. Almost all participants reported that they had never received or known about atraumatic care education (90 %). The mean age of children was 45.68 ± 7.54 months. There were 24 males (48 %) and 26 females (52 %). Almost all children had previous hospitalisation experience (86 %). Participants' demographic characteristics are described in Table 1.

Table 1: Sociodemographic characteristics of participants

Variables	n (%)
Children	
Age (month) (mean \pm SD: 45.68 \pm 7.54)	
Preschoolers	50 (100.0)
Gender	
Male	24 (48.0)
Female	26 (52.0)
Hospitalisation experience	
Yes	43 (86.0)
No	7 (14.0)
Mother	
Age (year) (mean \pm SD: 32.78 \pm 7.17)	
Late adolescence (17-25 years)	6 (12.0)
Early adulthood (26-35 years)	25 (50.0)
Late adulthood (36-45 years)	17 (34.0)
Early elderly (46-55 years)	2 (4.0)
Education	
\leq High school	30 (60.0)
\geq College	20 (40.0)
Experience with atraumatic care education	
Ever	5 (90.0)
Never	45 (10.0)

Validity of questionnaire

All questionnaire statement items on the nurse factor variable, mother factor variable and service factor variable were declared valid (*r* count = 0.280-0.854; *r* table = 0.275), (*r* count = 0.517-0.779; *r* table = 0.275), respectively. All questionnaire statement items on the learning process factor variable and atraumatic care education factor variable were declared valid (*r* count = 0.737-0.918; *r* table = 0.275) and (*r* count = 0.303-0.781; *r* table = 0.275), respectively. The detailed validity test results are described in Table 2. All questionnaire statement items on the atraumatic care education factor variable were declared valid (*r* count = 0.303-0.781; *r* table = 0.275). All questionnaire statement items on maternal behaviour variables were declared valid (*r* count = 0.315-0.815; *r* table = 0.275).

Table 2: Validity test results

No	Variables	Questionnaire	Number of items	r count	Interpretation
1.	Nurse factor	Knowledge	15	0.280-0.854	All items are valid
		Attitude	29	0.314-0.763	All items are valid
		Motivation	12	0.555-0.758	All items are valid
		Communication	28	0.300-0.802	All items are valid
2.	Maternal factor	Maternal presence	15	0.338-0.767	All items are valid
		Willingness to participate	15	0.436-0.705	All items are valid
		Willingness to share responsibility	10	0.456-0.701	All items are valid
		Perceived communication	22	0.292-0.654	All items are valid
		Perceived information	10	0.432-0.667	All items are valid
3.	Service factor	Perceived self-efficacy	10	0.359-0.668	All items are valid
		Policy	5	0.517-0.775	All items are valid
		Guidance	5	0.544-0.779	All items are valid
4.	Learning process factor	Standard operating procedures	5	0.618-0.776	All items are valid
		Learning media	5	0.748-0.904	All items are valid
		Learning method	5	0.737-0.918	All items are valid
5.	Atraumatic care education based on family-centered care	Learning environment	5	0.761-0.893	All items are valid
		Preventing separation	10	0.333-0.626	All items are valid
		Controlling child care	8	0.356-0.699	All items are valid
		Minimising trauma	10	0.303-0.781	All items are valid
6.	Mother behaviour	Modifying the environment	8	0.397-0.736	All items are valid
		Basic needs fulfilment	15	0.415-0.815	All items are valid
		Comfort measures	10	0.343-0.687	All items are valid
		Injury prevention	16	0.315-0.723	All items are valid
		Stimulation of growth and development	10	0.466-0.788	All items are valid

Table 3: Reliability test results

No	Variables	Questionnaire	Number of items	Cronbach's alpha	Interpretation and level of reliability
1.	Nurse factor	Knowledge	15	0.853	Reliable (very high)
		Attitude	29	0.925	Reliable (very high)
		Motivation	12	0.889	Reliable (very high)
		Communication	28	0.861	Reliable (very high)
2.	Maternal factor	Maternal presence	15	0.846	Reliable (very high)
		Willingness to participate	15	0.857	Reliable (very high)
		Willingness to share responsibility	10	0.774	Reliable (high)
		Perceived communication	22	0.785	Reliable (high)
		Perceived information	10	0.746	Reliable (high)
3.	Service factor	Perceived self-efficacy	10	0.736	Reliable (high)
		Policy	5	0.731	Reliable (high)
		Guidance	5	0.742	Reliable (high)
4.	Learning process factor	Standard operating procedures	5	0.729	Reliable (high)
		Learning media	5	0.887	Reliable (very high)
		Learning method	5	0.896	Reliable (very high)
5.	Atraumatic care education based on family-centered care	Learning environment	5	0.892	Reliable (very high)
		Preventing separation	10	0.715	Reliable (high)
		Controlling child care	8	0.731	Reliable (high)
		Minimising trauma	10	0.773	Reliable (high)
6.	Mother behaviour	Modifying the environment	8	0.704	Reliable (high)
		Basic needs fulfilment	15	0.842	Reliable (very high)
		Comfort measures	10	0.713	Reliable (high)
		Injury prevention	16	0.836	Reliable (very high)
		Stimulation of growth and development	10	0.839	Reliable (very high)

Reliability of questionnaire

The results of the instrument reliability test in this study, all questionnaires to measure nurse factors, maternal factors, service factors, learning process factors, atraumatic care education and maternal behaviour variables were declared reliable (Cronbach's alpha coefficient = 0.713-0.925). The level of reliability varied according to Cronbach's alpha coefficient, including high and very high reliability. The detailed reliability test results are described in Table 3.

Discussion

Hospitalisation may be a difficult experience for children; thus, it is critical to investigate innovative approaches for reducing the related stress. This study examines the development and validation of questionnaires for analysing the impact of an atraumatic care education model based on family-centred care on mother behaviour in minimising children's hospitalisation stress. The findings of the instrument reliability test in this study, all questionnaires to assess nurse factors, mother factors, service factors, learning process factors, atraumatic care education and maternal behaviour variables were certified reliable. All questionnaire statement items on the nurse factor variable, mother factors, service factors, learning process factors, atraumatic care education and maternal behaviour variables were declared valid.

Nurse competency factor

Knowledge

The knowledge questionnaire was developed based on the concepts of atraumatic care, family-centred care and research results^{4, 10, 11} and covered six indicators: definition, purpose, components, media, methods and family involvement in atraumatic care. The instrument consisted of 15 statements that were scored using a 2-point Guttman scale (0 = false, 1 = true). The total score ranges from 0-15 and is classified into 3 categories, namely good (11-15), fair (7-10) and poor (0-6).

Attitude

The attitude questionnaire was developed based on the concept of family-centred care,^{10, 12, 13} the concept of caring and research results.¹¹ Indicators in developing attitude instruments includ-

ed respect for family, collaboration, information sharing and family support. The instrument consisted of 29 statements scored using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree). The total score ranged from 29-145 and was classified into 2 categories: positive (88-145) and negative (29-87).

Motivation

The questionnaire was developed based on motivation integrated with the concept of atraumatic care education and family-centred care theory.¹⁴ There were three indicators in the preparation of motivation questionnaires: general motivation, instrumental orientation and integrative orientation. The instrument consisted of 12 statements that were scored using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree and 5 = strongly agree). The total score ranged from 12-60 and was classified into 3 categories: good (44-60), fair (28-43) and poor (12-27).^{6, 10, 11}

Communication

Nurses' therapeutic communication competence was modified from the Global Interprofessional Therapeutic Communication Scale (GITCS) questionnaire.^{15, 16} Indicators in questionnaire development included setting the stage, building trust, active communication, communication skills, patient-family centred and potential barriers. The questionnaire consisted of 28 statement items scored on a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often and 5 = always). The total score ranged from 23-115 and was classified into 3 categories, namely good (85-115), fair (54-84) and poor (23-53).

Maternal factor

Maternal presence

The parental presence questionnaire was modified from the Family Centered Care Assessment Scale (FCCAS) questionnaire. The instrument consisted of 15 statement items that were scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). Indicators in the development of the questionnaire covered the aspects of parent support, motivation and comfort actions, as well as the presence of parents in childcare. The total score ranged from 15-75 and was classified into 2 categories: supportive (46-75) and unsupportive (15-45).

Willingness to participate

The researcher developed the questionnaire on parents' willingness to participate based on the concept of family-centred care of hospitalised children described by a previous study.¹⁷ Indicators in the development of questionnaires included motivation to accompany the child and motivation for participation in childcare. The instrument consisted of 15 statement items that were scored using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = disagree, 4 = agree, 5 = strongly agree). The total score ranged from 15-75 and was classified into 3 categories, namely good (55-75), fair (35-54) and poor (15-34).

Willingness to share responsibility

The researcher developed the questionnaire on willingness to share responsibility based on the concept of family-centred care of hospitalised children.⁶ The concept of various responsibilities was divided into 3 domains, namely information sharing, decision-making and sharing responsibilities in child care. The instrument consisted of 10 statement items that were scored using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = disagree, 4 = agree, 5 = strongly agree). The total score ranged from 10-50 and was classified into 3 categories, namely good (37-50), sufficient (23-36) and deficient (10-22).

Perceived communication

The perceived communication questionnaire was modified from the Health Communication Assessment Tool (HCAT).¹⁸ The instrument consisted of 22 statements measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Indicators in the development of questionnaires covered three aspects: therapeutic communication attitudes, verbal communication and non-verbal communication. The total score was between 22-110, which was classified into 3 levels: low (22-51), medium (52-80) and high (81-110).

Perceived information

The perceived information questionnaire was modified from The Information Support Scale (ISS). The questionnaire consisted of 20 statement items, which were divided into three dimensions, namely information and protection of human rights (8 items); information on illness, treatment and nursing practice (8 items); and information for activities (4 items). Parameters in

the development of questionnaires included the opportunity to obtain and provide information and the provision and availability of information by nurses. The instrument consisted of 22 statements measured on a 4-point Likert scale (1 = never, 2 = rarely, 3 = often and 4 = always). The total score ranged from 0-80 and was classified into four levels, namely: none (0), low (1-26), medium (27-53) and high (54-80).

Perceived self-efficacy

The perceived self-efficacy questionnaire was modified from the Parent Perceived Self-Efficacy (PPSS) instrument.¹⁹ The instrument was modified and adapted to the concept of self-efficacy of parents during caring for children in the hospital. Parameters in the development of questionnaires included generality (mothers' conviction to participate in childcare), level (mothers' confidence in facing difficulties/problems) and strength (mothers' confidence in their abilities). The questionnaire consisted of 10 statements rated on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = disagree, 4 = agree, 5 = strongly agree). The total score ranged from 10-50 and was classified into 3 categories: good (37-50), fair (23-36) and poor (10-22).

Service factor

The researcher developed a questionnaire of policy guidelines and standard operating procedures concerning the concept of family-centred care policy according to the Institute for Patient and Family-Centered Care.²⁰ The policy questionnaire was developed based on two indicators: the rules on atraumatic care and the rules about family-centred care. The guideline questionnaire contained two parameters, the atraumatic care guidelines and the family-centred care. The standard questionnaire of operational procedures contained two indicators: the standard procedure of atraumatic care and family-centred care. The questionnaire consisted of 5 statement items that were scored using a 2-point Guttman scale (0 = no, 1 = yes). The total score was between 0-5 which was classified into 2 categories, namely appropriate (score 3-5) and inappropriate (score 0-2).

Learning process factor

Learning media

The learning media questionnaire was developed by the researcher based on the results of research on the application of situated learning in health

promotion.²¹ A learning media questionnaire included two indications in its development: the kind and quantity of learning media used. The questionnaire consisted of 5 statements to explore the suitability of the educational media used. The statements were scored using a 2-point Guttman scale (0 = no, 1 = yes). The total score ranged from 0-5 and was classified into 2 categories, namely appropriate (score 3-5) and inappropriate (score 0-2).

Learning methods

The learning methods questionnaire consisted of 5 statements to explore the suitability of the educational methods used. The questionnaire was developed by the researcher based on the literature that discusses health education strategies or methods with a situated learning approach.²¹⁻²³ The learning method questionnaire's development contained two indicators: the duration and the learning approaches employed. Statements were scored using a 2-point Guttman scale (0 = no, 1 = yes). The total score ranged from 0-5 and was classified into 2 categories, namely appropriate (score 3-5) and inappropriate (score 0-2).

Learning environment

The learning environment questionnaire was developed by the researcher based on the literature on situated learning environments.^{21, 24} The questionnaire consisted of 5 statements to explore the suitability of the educational environment. The learning environment questionnaire included two indications in its development: the availability of a learning space and the condition of a study environment. The statements were scored using a 2-point Guttman scale (0 = no, 1 = yes). The total score ranged from 0-5 and was classified into 2 categories: conducive (score 3-5) and not conducive (score 0-2).

Atraumatic care education

Preventing separation

The questionnaire was developed by the researcher based on the concept of preventing separation in atraumatic care and family-centred care theory.^{4, 6, 10, 25, 26} There were four main points in this instrument: shared responsibility in preventing separation, parent autonomy and control in preventing separation.^{12, 27, 28} The questionnaire consisted of 8 statements scored on a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 10-

50 and was classified into 3 categories: good (37-50), fair (23-36) and poor (10-22).

Controlling childcare

The questionnaire was developed by the researcher based on the concept of parent autonomy and control in atraumatic care theory which states that parents are experts in child care and are most responsible for child care in the hospital.^{6, 10, 12, 29} This instrument had four major points: shared responsibility for regulating child care, parental autonomy and control over childcare, family support in controlled child care and negotiation in child care control.¹² The questionnaire consisted of 10 statement items that were scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 8-40 and was classified into 3 categories, namely good (29-40), fair (19-28) and poor (8-18).

Minimising trauma

The questionnaire was developed by the researcher based on the Family Centered Care Assessment Scale (FCCAS), the concept of atraumatic care and the concept of family-centred care.^{10, 12, 30-32} There were four main points in this instrument: shared responsibility in minimising trauma, parent autonomy and control in minimising traumas, support of family in minimising trauma and negotiation in minimising trauma. The questionnaire consisted of 8 statements that were scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 10-50 and was classified into 3 categories: good (37-50), fair (23-36) and poor (10-22).

Modifying the environment

The modified questionnaire was developed by the researcher based on a review of research results, the concept of atraumatic care and the concept of family-centred care.^{6, 10, 11, 33, 34} There were four main points in this instrument: shared responsibility in environmental modification, parent autonomy and control in environment modification, support of family in environmental change and negotiation in environmental modification. The questionnaire consisted of 10 statements that were scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 8-40 and was classified into 3 categories: good (29-40), fair (19-28) and poor (8-18).

Mother's behaviour

Basic needs fulfilment

The instrument for fulfilling children's basic needs was developed based on the concept of parental behaviour in hospital care.⁹ There were four main points in this instrument: behaviour in physical care, behaviours in psychological care and behaviours in learning and social care. The questionnaire consisted of 15 statements scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 15-75 and was classified into 3 categories, namely good (55-75), fair (35-54) and poor (15-34).

Comfort measures

This instrument was developed based on the concept that explains that parental behaviour in the aspect of comfort consists of 2 aspects, namely giving hugs to children and providing child comfort interventions.⁹ There were two main points in this instrument: therapeutic hugs, comfort actions and relaxation. The questionnaire consisted of 10 statements scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 10-50 and was classified into 3 categories, namely good (37-50), fair (23-36) and poor (10-22).

Injury prevention

The injury prevention instrument was developed based on The Hospital Safety Scale for Kids. The instrument consisted of 16 statements divided into 4 domains, namely: preventing falls (6 statements), preventing general injuries (4 statements), preventing burns (3 statements) and preventing injuries from medical equipment (3 statements).³⁵ Each statement was scored using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged from 16-90 and was classified into 3 categories, namely good (66-90), fair (42-65) and poor (16-41).

Stimulation of growth and development

Growth and development stimulation questionnaire was developed and modified based on the Care for Child Development Guide for Clinical Practice module some research recommendations.^{34, 36, 37} The questionnaire consisted of 10 statements evaluated using a 5-point Likert scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = always). The total score ranged between 10-50 and was classified into 3 categories, namely good (37-50), enough (23-36) and less (10-22).

Conclusion

A total of 24 questionnaires were developed and tested for reliability in this study. All questionnaires developed to assess the atraumatic care education model based on family-centred care on mother behaviour in minimising children's hospitalisation stress were valid and reliable, thus have certain application value and are amenable for use in paediatric clinical practice. The questionnaire in the development of the family-centred care education model can be applied in research to determine the influence of antecedent factors on behaviour and consequences.

Ethics

This research has received ethical approval from the Health Research Ethics Committee of RSUD dr. Adhyatma, MPH Semarang, Indonesia (decision No: 002/KEPK.EC/I/2024), dated 23 January 2024.

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Conflicts of interest

The authors declare that there is no conflict of interest.

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Data access

The data that support the findings of this study are available from the corresponding author upon reasonable individual request.

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