

THE VALIDITY AND RELIABILITY TEST OF THE PEDIATRIC QUALITY OF LIFE INVENTORY MULTIDIMENSIONAL FATIGUE SCALE VERSIONS OF INDONESIA (PEDSQL MFS-I) IN CHILDREN WHO ARE THROUGH CHEMOTHERAPY

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Background: Most pediatric patients with cancer experienced fatigue problems, especially when undergoing chemotherapy treatment. Measurement the level of fatigue in children with cancer can be done using the MFS PedsQL instrument. The Pediatrics Instrument Quality of Life Multidimensional Fatigue Scale (PedsQL MFS) is a highly recommended instrument for measuring the level of fatigue in children with cancer undergoing chemotherapy, but currently the PedsQL MFS instrument has never been tested as valid and reliable in Indonesia.

Purpose: Test the validity and reliability of the Indonesian version of the PedsQL MFS instrument to measure the level of fatigue in children with cancer undergoing chemotherapy. **Method:** The instrument used PedsQL MFS-I with 3 subscales and 18 items. This research is a quantitative study with cross sectional design. The content validity test was measured using the Aiken's V formula adopted Cross Cultural Adaptation Brislin. The PedsQL MFS-I reliability test was measured using Cronbach Alpha.

Results: PedsQL MFS-I instrument reports of children and parents shows good validity with range of Aiken's V value of 0.667-1. Internal consistency reliability showed Cronbach Alpha results of 0.912 (> 0.7) for children's reports and 0.910 (> 0.7) for parent reports.

Conclusion: The PedsQL MFS-I instrument can be used as an instrument to measure the level of fatigue in children with cancer undergoing chemotherapy.

Keyword: children patient, Cancer, Validity and Reliability, Fatigue

INTISARI

Uji Validitas dan Reliabilitas *The Pediatric Quality Of Life Inventory Multidimensional Fatigue Scale* Versi Indonesia (PedsqI Mfs-I) pada Anak yang Menjalani Kemoterapi

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Latar Belakang: Pasien anak dengan kanker mayoritas mengalami masalah kelelahan terutama saat menjalani pengobatan kemoterapi. pengukuran tingkat kelelahan pada anak dengan kanker dapat dilakukan dengan menggunakan instrumen PedsQL MFS. Instrumen *Pediatrics Quality of Life Multidimensional Fatigue Scale* (PedsQL MFS) merupakan instrumen yang sangat direkomendasikan untuk mengukur tingkat kelelahan pada anak dengan kanker yang menjalani kemoterapi, namun saat ini instrument PedsQL MFS belum pernah dilakukan uji valid dan reliabel di Indonesia.

Tujuan Penelitian: Melakukan uji validitas dan reliabilitas instrumen PedsQL MFS versi Bahasa Indonesia untuk mengukur tingkat kelelahan pada anak dengan kanker yang menjalani kemoterapi.

Metode: Instrumen yang digunakan adalah PedsQL MFS-I dengan 3 sub-skala dan 18 item. Penelitian ini merupakan penelitian kuantitatif dengan rancangan *cross sectional*. Uji validitas isi diukur menggunakan rumus *Aiken's V*. Uji reliabilitas PedsQL MFS-I diukur menggunakan *Cronbach Alpha*.

Hasil: Instrumen PedsQL MFS-I laporan anak dan orang tua menunjukkan validitas yang baik dengan rentang nilai *Aiken's* 0,667-1. Reliabilitas konsistensi internal menunjukkan hasil hasil *Cronbach Alpha* sebesar 0,912 (>0,7) untuk laporan anak dan 0,910 (>0,7) untuk laporan orang tua.

Kesimpulan: Instrumen PedsQL MFS-I dapat digunakan sebagai salah satu instrumen untuk mengukur tingkat kelelahan pada anak dengan kanker yang menjalani kemoterapi yang valid dan reliabel.

Kata Kunci: Pasien anak, Kanker, Validitas dan Reliabilitas, Kelelahan, PedsQL MFS

MANUSCRIPT

Introduction

Cancer is a major health problem and the second largest cause of death in the world[1]. Cancer in children is usually used in the diagnosis of cancer that occurs in children aged 5-12 years[2]. According to Union for International Cancer Control (UICC) data that every year there are around 176,000 children diagnosed with cancer, the majority of whom come from low and middle income countries such as Indonesia[3]. In Indonesia there are around 11,000 cases of childhood cancer per year with a high prevalence of cancer cases of all ages in Central Java (2.1 0/00) [4], [5]. Based on the medical records of RSUD DR. Moewardi surakarta obtained data on 112 children with cancer in 2017, while in January 2018 there were 87 children with new cases of cancer in children.

Pediatric cancer patients experience various problems including diarrhea, nausea, vomiting, stomatitis, sleep disorders, inflammation and fatigue both during or after treatment[2], [6], [7]. However, cancer related fatigue (CRF) symptoms are symptoms that often occur with a prevalence of around 36% - 93% in total cancer cases and will increase in cancer patients undergoing chemotherapy, with a range of 70% - 100% experienced by cancer patients[6], [8]. According to research by Huijjer, H.A., Sagherian, K & Tamim H[9] reported that fatigue symptoms also affected 55.3% of total cancer samples in children. Therefore fatigue is a symptom of concern for health workers and families with children suffering from cancer[10].

Excessive fatigue in children with cancer will have an impact on decreased quality of life[2]. So it is important to identify fatigue early using accurate and reliable instruments in children with cancer[11]. The lack of valid and reliable measures for evaluating fatigue conditions both in general and in children prevents health workers from recognizing and interpreting the intensity of fatigue problems accurately[12]. The MFS PedsQL instrument is the most recommended instrument for measuring fatigue in children multidimensionally in various chronic diseases, one of which is children with cancer[11], [13].

PedsQL MFS is an instrument developed by Varni et al[14], [15] which is divided based on age classification. According to research by Nascimento, Darezzo, Nunes, & Bomfim [7] that children < 8 years are cognitively unable to answer the contents of the instrument independently so that parents/caregivers help in filling PedsQL instruments MFS. PedsQL MFS consists of 3 subscales representing various dimensions of fatigue (general, sleep/rest and cognitive) [2]. However, fatigue instruments using valid and reliable MFS PedsQL are only carried out in countries other than Indonesia [2], [11]. Arini, Widjanto & Haryanti's research [16] has translated MFS PedsQL instruments into Indonesian but has not carried out systematic validity and reliability tests.

Based on the descriptions, the researcher wants to know "How to Validity and Reliability of The Pediatric Quality of Life Inventory Multidimensional Fatigue Scale Indonesia Version (PedsQL MFS-I) to Children with Chemotherapy?"

Objective

To identify the results of validity and reliability test of the Indonesian version of the PedsQL MFS instrument (PedsQL MFS-I) in children undergoing chemotherapy.

methods

This research is an analytic cross-sectional study. This study is a validity and reliability test on the Indonesian version of the Pediatric Quality of Life Inventory Multidimensional Fatigue Scale (PedsQL MFS-I) instrument in pediatric cancers undergoing chemotherapy at the Melati Installation Room No. 8 and Room No. 9, Dr. Moewardi Surakarta Hospital. The total sample of the study was 60 respondents.

The instrument used was the Indonesian version of Pediatrics Quality of Life Multidimensional Fatigue Scale (PedsQL MFS-I) which was translated into Indonesian by Arini et al [16] consisting of 18 items pertaining with 3 domains, namely general fatigue (general), fatigue rest/sleep (sleep/rest), cognitive fatigue (cognitive). The validity test used was content validity test using Aiken's V and internal consistency reliability test using Cronbach Alpha.

This research was considered ethically feasible by the FK-KMK UGM Ethics Committee on September 26, 2019 with Ref: KE / FK / 1103 / EC / 201; and the Ethics Committee of RSUD Dr. Moewardi Surakarta on July 26, 2019 under number: 946 / VII / HREC / 2019.

Results

Table 1. Characteristics of child and parent respondents (n = 60)

Category	f	%	Mean±SD
Age of the child			
a. 5-7 years	26	43,3	8,2±2,418
b. 8-12 years old	34	56,7	
Child Gender			
a. Male	36	60	
b. Girl	24	40	
Duration of Diagnosis			
a. 1-6 months	14	23,3	9,48±3,234
b. 7-12 months	32	53,4	
c. > 12 months	14	23,3	
Pediatric chemotherapy Phase			
a. 1 st chemotherapy	29	49,3	
b. 2 nd chemotherapy	24	40	
c. 3 rd chemotherapy	7	11,7	
Age of Parents			
a. 18-35 years old	24	40	37,5±7,198
b. 36-55 years old	36	60	
Parent Status			
a. Father	26	43,3	
b. Mother	34	56,7	
Type of work			
a. Does not work / IRT	27	45	
b. entrepreneur	20	33,3	
c. Labor / others	13	21,7	

Based on table 1, it showed that the majority of respondents were children aged 8-12 years (35 respondents) and were accompanied by their mother (56.7%) while undergoing chemotherapy. The majority of child respondents had been diagnosed with >6 months (53.4%) and including 1st chemotherapy (49,3%). Type of work, majority of parents was Housewives are 27 parent respondents (45%).

Table 2. Test the validity of the contents of the MFS-I PedsQL Instrument at the Melati Installation Dr. Moewardi Surakarta Hospital, 2019 (n = 3)

No	Instrumen PedsQL MFS-I	Coefficient value range V	Information
1	Children 5-7 Years Report	0,667-1 (≥0,67)	Valid
2	Children Report 8-12 Years	0,778-1 (≥0,67)	Valid
3	Parent's Report	0,889-1 (≥0,67)	Valid

Table 2 obtained a description of the results of the content validity test based on the clarity and suitability assessed by 3 Pediatric expertise having a range of values ≥ 0.67 so that all items in the PedsQL MFS-I instrument report children aged 5-7 years; reports of children 8-12 years old and parents with cancer children ages 5-12 years old are valid.

Table 3. Item Reliability Tests PedsQL MFS-I Instrument Respondents of Children and Parents with Cancer Children Age 5-12 in Melati Installations of Dr. Moewardi Surakarta Hospital, 2019 (n = 60)

Instrumen PedQL MFS-I	<i>Cronbach's Alpha</i> Child	<i>Cronbach's Alpha</i> Parents
Item 1	0,910	0.908
Item 2	0,914	0.909
Item 3	0,913	0.909
Item 4	0,907	0.912
Item 5	0,906	0.905
Item 6	0,907	0.904
Item 7	0,910	0.904
Item 8	0,903	0.901
Item 9	0,904	0.902
Item 10	0,905	0.903
Item 11	0,906	0.904
Item 12	0,906	0.904
Item 13	0,912	0.910
Item 14	0,905	0.903
Item 15	0,905	0.904
Item 16	0,904	0.904
Item 17	0,905	0.903
Item 18	0,904	0.902

Cronbach Alpha values that can be considered consistent on the instrument to be used are ≥ 0.7 and are considered very good if the value is ≥ 0.90 . Based on table 3 shows that all items of the PedsQL MFS-I instrument have a very good level of internal consistency with an average Cronbach's Alpha score on children's and parent's report of 0.91.

Discussion

1. Content Validity

The results of this study found that all items on the Indonesian version of the PedsQL MFS instrument were valid in the content validity test. This is because the experts involved in the research have supporting background characteristics. The expert has experience and knowledge in the field of Child Nursing Specialist in FK-KMK Gadjah Mada University with work experience in the health field > 7 years so that he can assess aspects of the fatigue instruments of children undergoing chemotherapy.

PedsQL MFS-I is a questionnaire to measure the level of fatigue in children undergoing chemotherapy, where the domain of this questionnaire has included aspects of child fatigue. In the PedsQL MFS-I questionnaire domains include the domain of General Fatigue, Sleep Fatigue / Istirahat and Cognitive Fatigue. According to research by Varni et al [14], [15], the core aspects of fatigue in children undergoing chemotherapy include these 3 domains. This shows the content validity test using PedsQL MFS-I is very good for measuring fatigue levels in children undergoing chemotherapy.

The results of calculating the content validity of the PedsQL MFS-I instrument show that the PedsQL MFS-I instrument has a very good relevance to fatigue. In general, PedsQL MFS-I instrument items are divided by age, 5-12 for parent reports and children report aged 5-7 years and 8-12 years. This instrument shows the value of Aiken's parents of children aged 5-12 years, namely the average was 0,889-1. For children aged 5-7 years, Aiken's average was 0,667-1. In the reports of children aged 8-12 years, the average value of Aiken's value was 0,778-1. Overall, the PedsQL MFS-I instrument is very valid for measuring fatigue in children.

The average value of Aiken's reflects the value of the calculation results for each item of the PedsQL MFS-I instrument. The number of items of the PedsQL MFS-I instrument is 18 question items. According to Ye et al [17] that CVI children report was 0,96 and parent report was 0,99. When compared, the value of the content validity test in this study is lower, this happens because 43.3% of pediatric patients aged 5-7% cannot read about how to improve children related to the PedsQL MFS-I instrument.

2. Internal Consistency Reliability

In this study, the results of the reliability test on all items of the PedsQL MFS-I instrument were declared to be reliable with the Cronbach's Alpha value for the child respondent of 0.91 and the parent / guardian respondent of 0.91. These results have a good level of consistency with the original PedsQL MFS instrument which is 0.88 (child report) and 0.90 (parent report) [14]. The instrument that has been used to measure fatigue in children has been tested for validity and reliability in Indonesia and abroad. In the

study of Tri Arini et al (2015) that the Indonesian version of Cronbach's Alpha PedsQL MFS is 0.92 (> 0.7) for child reports and 0.84 (> 0.7) for parent reports, meaning the PedsQL MFS instrument version Indonesian is reliable.

Research Gordijn et al [18] also tested the reliability of the Dutch version of the PedsQL MFS instrument by reporting a Cronbach's Alpha value of 0.83 for child reports and 0.91 for parent reports. The Panepinto et al [13] study reported that the Cronbach's Alpha value for children aged 5-7 years was 0.91 (> 0.7), children aged 8-12 amounted to 0.88 (> 0.7). Whereas the report of parents with children aged 5-7 years was 0.95 (> 0.7) and the report of parents with children aged 8-12 years was 0.93 (> 0.7).

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