Development of Psychometrics for Adolescents' Care Based on the Local Wisdom of the Pandalungan Family in Indonesia

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Abstract

Objective – This study aims to develop a psychometric for assessing family care in adolescents using Indonesian local wisdom among Pandalungan families in the Eastern region of Java Island, Indonesia. **Methods** – This was a cross-sectional study conducted with N=1,023 using questionnaires developed to identify the domain of inquiry into Pandalungan local wisdom, which is strongly related to spirituality, structure, function, and family development tasks. Multiple factors of the psychometric were examined using construct validity with exploratory factor analysis (EFA), confirmatory factor analysis (CFA), as well as content validity using Content Validity Index (CVI). Additionally, internal consistency was explored using Cronbach's alpha coefficient. **Results** – The EFA results showed eleven factors including family faith and beliefs, communication, values and norms, role, decision making, affective, socialization, economy, reproduction, health care, and development tasks with 52 items accounting for 62.13% of explained variance and the CFA fit for the construct validity of Caring Adolescent with Local Wisdom. Furthermore, the CVI indicated adequate content validity ranging from 0.80 – 0.10 and high internal consistency of 0.98. **Conclusion** – The psychometric scale contains valid, reliable, and robust measures, but the domain of family healthcare exhibited slightly low internal consistency, thereby demonstrating the need for further investigations.

Key Words: Psychometric ▪ Adolescents ▪ Family ▪ Local Wisdom ▪ Ethnonursing ▪ Pandalungan.

Introduction

Globalization is bridging the gap between cultures, leading to the adoption of new norms and values that were not found in previous generations (1), especially in the aspect of family care for adolescents (2). Meanwhile, generational conflict occurs in Latin societies in the United States when adolescents adopt values and beliefs that support autonomy and individualism because it contradicts traditional family-centered values (3). This shift in behavior is due to the adolescents' assumption that the nature of local wisdom values is rigid and outdated (4).

The Indonesian Pandalungan tribe is an acculturation of the Javanese and Madurese, they majorly practice Islam and inhabit the "Tapal Kuda" area in East Java including Pasuruan, Probolinggo, Lumajang, Jember, Bondowoso, Situbondo, and Banyuwangi. The identity of the Pandalungan family is consistent with the dominant ethnic group in East Java Province which is a blend of Javanese and Madurese ethnic groups (5). This tribe shows similar characteristics in the form of new values which are different from local wisdom (2). However, the actual values of local wisdom are often the same. Although few changes exist to adopt a new

perspective and increase productivity, they are not targeted at completely breaking from tradition (6).

This is demonstrated by the Pandalungan Tribe family, who has internalized the value of local wisdom in family spirituality, structure, function, and task development in caring for adolescents. Consequently, the family can direct adolescents to develop healthily and optimally (7). Family as the first social environment has an essential role in internalizing the local wisdom values to support adolescent growth and development towards healthy behavior, hence, a method is needed to explore aspects of family parenting with a local wisdom approach in adolescents. In the future, the caring of adolescents can also be practiced by parents with cultural sensitivity.

Several studies have developed methods of measuring parenting styles with different approaches. The first Alabama Parenting Questionnaire (APQ) version was developed by Frick (1991) in six languages (8). It aims to measure parenting styles and was tested on parents with children aged 6 to 18 years and adolescents as recipients of care (9). APQ measures parenting in 5 domains, including Involvement, Positive Parenting, Poor Supervision, Inconsistent Discipline, and Corporal Punishment. Several other related studies include the development of the Parenting Style and Questionnaire (PSDQ) Chinese version by Fu et al. (10) adapting the PSDQ by Robinson et al. (11) and the development of PSDQ 58 items (12) using the parental approach. Although the development of PSDQ in Indonesia uses teenagers' perceptions as recipients of care, only 10 out of 62 items were identified as invalid due to cultural differences (13). Different parenting styles due to culture were reported during the development of the PS-FFQ (Parenting Style Four Factor Questionnaire) in India (14). Meanwhile, Leininger argues that community culture is another factor that affects health outcomes (15).

Considering that several negative behavioral changes occur during puberty, more attention is needed on caring for adolescent development (1). Therefore, it is necessary to improve adolescents' parenting styles by using the values of local wisdom inherent in society. Additionally, there is a need to maximize the level of family health by focusing on the noble values of adolescents suitable with the local wisdom of the environment.

The family environment is an essential factor in the development process of adolescents (16). It is a place where behavior is manifested, supported, studied, and limited as the most basic ecology (17). Although the family component is an external factor in adolescent development (18), parenting has been shown to contribute significantly to the variation of superficial behavior in adolescence than internal factors (17). In other words, the family plays an essential role in shaping the attitudes and behavior of adolescents.

The failure to instill the noble values of local wisdom by the family can harm adolescents' future development, including the lack of welfare and social life, as well as family formation (2). Conversely, the revitalization of noble values and the communicative environment by the parents potentially shape adolescent personalities, both in attitude and behavior, decrease juvenile delinquency (19), but also increase mental resilience in facing the current era of globalization and digitalization (20).

Local cultural wisdom influences and forms the basis for developing unique parenting styles for the care and education of adolescents (7). Family as part of the kinship values is close to local culture and wisdom because of unity (15). Meanwhile, culture significantly influences the adoption of excellent and healthy behavior, especially when it is consistent with the held values. This implies that culture indirectly affects health outcomes (15). Therefore, the Caring Adolescents Regarding Locally Wisdom (CA-LW) psychometric scale needs to be developed to assist families in caring for adolescents with a local wisdom approach.

A previous qualitative study affirmed that the Pandalungan tribe is a mixed ethnic group of Javanese and Madurese which has a local wisdom approach for child care in relation to the Islamic religion. The local wisdom values in this community have been identified as inherent in several aspects, including family spirituality, structure, function,

and task development in providing care to adolescents (7), these aspects need to be identified to facilitate adequate adolescent parenting. This study aims to develop a psychometric for assessing family care for adolescents using local wisdom among Pandalungan families in the Eastern region of Java Island, Indonesia.

Methods

Item Pool Development

This study aims to develop the CA-LW psychometrics in the Indonesian Pandalungan Tribe. To achieve the main objectives, the study was conducted in two phases including the development and validity of the CA-LW psychometric scale.

First, the instrument development phase was carried out based on the results of a previous ethnonursing study by Susanto et al. (7), where the questionnaire question items focused on four themes internalized in the care of adolescents among the Pandalungan Tribe, including family spirituality, structure, function, and developmental tasks. Furthermore, an expert panel consisting of two pediatric and four family nurses reviewed and described the format of questions from the four themes. A questionnaire which comprises 171 question items in four domains and 12 subdomains was generated from the expert panel discussion that examined family sociodemographic. Subsequently, a standardized questionnaire was designated as a psychometric CA-LW scale. All questions on psychometrics were measured using a Likert scale consisting of 5 grades, including strongly agree, agree, neutral, disagree, and strongly disagree. The measurement results were interpreted in the form of a minimum and maximum values between 171 to 855. The higher the score obtained, the better the family parenting using the local wisdom approach to adolescents and vice versa. The 171 version of the CA-LW item was tested psychometrically in the first phase of the study.

Second, the instrument's validity was tested in two stages, the first stage exploratory factor analysis (EFA) was used to determine the number of domains in the CA-LW. Meanwhile, confirmatory factor analysis (CFA) was used in the second stage to determine the construct validity.

Study Design and Participants

This study was conducted from 1 August to 31 October 2020 using a cross-sectional approach with a family-based survey. The participants were recruited using the multi-stage cluster random sampling method in the Pandalungan Tribe community of the Besuki horseshoe area, covering Probolinggo, Lumajang, Jember, Bondowoso, Situbondo, and Banyuwangi. Adolescents were used as an intermediary for the survey. Subsequently, data were collected by providing a study on adolescents from 21 junior high schools based on the responses from their foster parents. A total of 2,213 parents participated in the first phase, then in the second phase, participants with a history of primary and junior high school education were excluded. Consequently, only 1,023 participants who met the criteria were included in the analysis process.

Procedure

The psychometric scale was developed with a pre-defined questionnaire survey method using Google Form media. This questionnaire was tested on parents with adolescents aged 12-16 years as the representative population of the Pandalungan Tribe in Indonesia. The first stage provided information related to the study objectives and education of adolescents by utilizing group chat forums through the WhatsApp application between parents and teachers. Subsequently, informed consent was sent to the parents, and participants who agreed were given a questionnaire through a google form link by the school. A chat forum was used to obtain responses, while direct data were collected online through Google Form.

Ethics Statement

This study was approved by the ethics committee of the University of Jember in Indonesia and the procedures were conducted with the participants' consent.

Statistical Analyses

Data analysis performed using SPSS version 22.0 software in statistical tests included testing sample characteristics, descriptive statistics, content validity assessment, internal consistency reliability, and construct validity. The data were analyzed several times, including the validation stage where the test was carried out with a two-tailed model with a significance value of $P<0.5$. The first phase was conducted by compiling a CA-LW psychometric scale through content validity analysis with a qualitative approach based on four themes from the ethnonursing study by Susanto et al. (7). CA-LW survey items were compiled to measure local wisdom-based family care for adolescents. Furthermore, the validity of the CA-LW final determination was tested by the EFA method using principal axis factoring with varimax rotation. Decisions on test results were determined using a fixed eigenvalue of ≥1 and dimensional factor loadings of >0.5 for retained items. Through this test, the maximum amount of variance in the sample with improved component interpretability was determined. Meanwhile, the uncorrelated primary factors were performed using orthogonal rotation. The second phase analyzed content validity based on EFA results with the content validity index method (21). The CA-LW Psychometric scale was then tested for reliability with Cronbach's alpha by measuring difficulty for judgment and endorsement purposes, statistical means, and standard deviations of items. Confirmatory Factor Analysis (CFA) with maximum likelihood estimation was carried out for the validity of the CA-LW construct to determine whether the model is consistent (model fit) (22) as found in the culture-based four themes of family care for adolescents by Susanto et al. (7).

Results

Demographic Data

This study was carried out in two phases with a total of 2,213 and 1,023 parents surveyed in the first and second phases respectively (Table 1). The

Table 1. Participants Demographic Characteristic		
Variable	First Phase (N=2213)	Second Phase (N=1023)
	N (%)	N (%)
Parents' age (years)		
Median	42	43
Min-Max	29-75	29-75
Gender of parents		
Male	1,387 (62.7)	657 (64.2)
Female	826 (37.3)	366 (35.8)
Religion		
Islam	2,187 (98.8)	1000 (97.8)
Christian	19 (0.9)	16 (1.6)
Catholic	3 (0.1)	3 (0.3)
Hindu	3 (0.1)	3 (0.3)
Buddha	1 (0.001)	1 (0.1)
Parents' Education		
Elementary	656 (29.6)	0 (0)
Junior High	525 (23.7)	0 (0)
High school	720 (32.5)	711 (69.5)
Bachelor	284 (12.6)	284 (27.8)
Master	29 (1.3)	28 (2.7)
Ethnic		
Java	1675 (75.7)	855 (83.6)
Madura	511 (23.1)	146 (14.3)
Osing	3 (0.1)	3 (0.3)
Mixed	24 (1.1)	19 (1.9)
Parents' employment		
Farmer	406 (18.3)	69 (6.7)
Civil servants	134 (6.1)	121 (11.8)
entrepreneur	760 (34.3)	356 (34.8)
Traders	186 (8.4)	72 (7.0)
Employees	168 (7.6)	135 (13.2)
Others	559 (25.3)	270 (26.4)
Variable	Median (Min-Max)	Median (Min-Max)
Parents' age (years)	42 (29-75)	43 (29-75)
Income (IDR)	1,000,000 (300,000 – 30,000,000)	1,500,000 (500,000 – 20,000,000)
Length of stay (years)	20 (10-25)	16 (10-23)
Number of children	1 (1-5)	1 (1-5)
Adolescent age (years)	14 (13-17)	14 (13-17)
Gender of adolescent		
Male	944 (42.7)	481 (47.0)
Female	1269 (57.3)	542 (53.0)

IDR = Indonesian Rupiah.

participant's demographic characteristic for the final stage showed that the median age of the parent was 43 years with minimum-maximum value of 29-75. Moreover, the majority of parents who responded to the CA-LW were the father namely 62.7% vs. 64.2% in the first and second phase respectively. Although all participants in this study were from the Pandalungan tribe, they have different background cultures, including Javanese, Madurese, Osingese, the major ethnic group was Java with 75.7% vs. 83.6% in the first and second phases. The median length of stay in the horseshoe area was 16 years (10-23).

Construct Validity

The construct validity test was conducted on 1,023 participants from the second study and was supported by factor analysis. Factor analysis using principal axis factoring and the varimax rotation method was performed on 54 items in the first phase. Furthermore, Eigenvalues (≥1), Kaiser–Meyer–Olkin (KMO) sampling adequacy values, screen plots, coefficients of factor loadings over 0.50, and explainable percentages of variance over 60%, were employed to determine the number of factors (23), the KMO of 0.990 indicates the adequacy of sampling (>0.5) (23). Eleven factors were retained in Bartlett's test of sphericity (χ^2=236363.568 P<0.001), accounting for 62.13% of the variance after rotation. The eigenvalues were between 1.10 and 5.331, while all 54 items showed moderate to strong loading as demonstrated in Table 2.

The first to the eleventh factors which were labeled family faith and beliefs, communication,

Table 2. Factor Analysis of the Caring Adolescent Regarding Local Wisdom (N=1,023)											
Factor and Loading											
Item	1	2	3	4	5	6	7	8	9	10	11
Q2	**0.740**	-0.463	0.044	0.287	-0.051	-0.008	0.041	-0.124	0.105	-0.038	-0.018
Q3	**0.850**	-0.526	0.074	0.342	-0.059	-0.057	0.050	-0.041	0.076	-0.020	-0.022
Q6	**0.871**	-0.505	0.120	0.364	-0.055	-0.038	0.003	-0.058	0.042	-0.025	0.020
Q10	**0.760**	-0.545	0.087	0.387	-0.061	-0.067	0.025	-0.044	0.054	-0.011	0.013
Q16	0.122	**0.572**	0.322	0.393	-0.041	-0.065	0.025	-0.044	0.059	-0.008	0.019
Q17	0.203	**0.602**	0.203	0.327	-0.029	-0.058	-0.039	-0.049	-0.008	-0.017	0.039
Q25	0.149	**0.587**	0.349	0.364	-0.033	-0.048	0.010	-0.044	-0.023	0.050	0.009
Q27	0.147	**0.611**	0.347	0.325	-0.070	-0.026	-0.029	-0.053	0.015	0.027	-0.025
Q32	0.164	**0.612**	0.364	0.342	-0.064	-0.029	-0.013	-0.018	-0.030	0.047	0.000
Q33	0.101	**0.513**	0.301	0.291	-0.053	0.022	0.097	-0.013	0.003	-0.014	0.012
Q39	-0.071	-0.446	**0.622**	0.305	-0.062	-0.034	-0.006	-0.053	-0.016	0.010	-0.007
Q41	-0.009	-0.350	**0.608**	0.239	-0.027	-0.069	-0.040	-0.024	-0.049	0.073	-0.052
Q46	0.126	-0.470	**0.623**	0.281	-0.015	-0.024	0.021	-0.023	-0.019	0.040	-0.031
Q47	-0.010	-0.172	**0.667**	-0.106	-0.087	0.055	-0.063	-0.055	0.026	0.082	-0.017
Q55	-0.084	-0.123	0.302	**0.693**	-0.019	0.038	-0.132	-0.019	-0.010	0.110	0.009
Q56	-0.083	-0.132	0.367	**0.691**	-0.045	0.055	-0.092	-0.032	0.027	0.058	0.025
Q58	-0.106	-0.246	0.259	**0.696**	0.025	0.074	-0.091	0.031	-0.009	0.036	-0.013
Q59	-0.183	-0.082	0.409	**0.688**	-0.035	0.074	-0.085	-0.043	0.044	0.028	0.003
Q67	0.010	-0.154	0.313	-0.151	**0.711**	0.055	-0.058	-0.006	-0.016	0.066	0.008
Q68	-0.029	-0.026	0.368	-0.084	**0.614**	0.070	-0.180	0.028	-0.084	0.060	0.074
Q69	-0.013	-0.071	0.332	-0.151	**0.721**	0.068	-0.111	0.061	-0.083	0.023	0.045

Continuation of Table 2. Factor Analysis of the Caring Adolescent Regarding Local Wisdom (N=1,023)										
Factor and Loading										
Item	1	2	3	4	5	6	7	8	9	10	11
Q70	0.097	-0.009	0.357	-0.134	**0.697**	0.100	-0.176	0.071	-0.106	0.013	0.033
Q82	0.150	0.126	0.367	-0.022	0.027	**0.572**	-0.203	0.136	-0.183	-0.043	0.098
Q83	0.103	-0.010	0.296	-0.112	0.002	**0.715**	-0.159	0.077	-0.117	-0.002	0.003
Q84	0.085	-0.121	0.276	-0.182	0.002	**0.690**	-0.018	0.006	-0.012	-0.004	-0.016
Q95	-0.173	0.008	0.016	0.061	0.075	-0.030	-0.079	-0.047	0.146	-0.081	0.018
Q102	0.036	-0.203	0.193	-0.146	0.011	0.150	**0.675**	0.135	-0.059	0.081	-0.007
Q103	0.028	-0.062	0.334	-0.213	-0.005	0.103	**0.688**	0.019	-0.074	0.103	-0.007
Q104	0.066	-0.056	0.325	-0.246	0.008	0.085	**0.700**	0.013	-0.018	0.104	-0.051
Q105	0.060	-0.099	0.289	-0.212	-0.020	0.116	**0.635**	-0.002	0.083	-0.018	-0.041
Q112	0.045	-0.115	0.280	-0.222	0.006	0.038	0.003	**0.699**	0.039	0.088	-0.089
Q113	0.033	-0.036	0.345	-0.235	0.023	0.078	-0.035	**0.729**	0.018	0.043	-0.068
Q114	0.098	0.040	0.330	-0.149	0.032	-0.019	-0.017	**0.643**	0.015	-0.088	-0.077
Q115	0.003	0.052	0.315	-0.240	-0.023	-0.065	0.125	**0.649**	0.051	-0.108	-0.050
Q116	-0.016	0.120	0.324	-0.160	-0.115	-0.133	0.199	**0.582**	0.106	-0.157	0.026
Q120	0.126	0.036	0.262	-0.176	-0.028	-0.024	0.049	0.072	**0.726**	-0.103	-0.060
Q121	0.172	-0.250	-0.006	-0.119	0.025	0.093	0.166	0.137	**0.672**	-0.118	-0.025
Q123	0.138	-0.062	0.215	-0.196	0.008	0.044	0.057	0.053	**0.738**	-0.018	-0.078
Q124	0.143	-0.021	0.219	-0.173	0.008	0.016	0.061	0.075	**0.743**	-0.129	-0.092
Q126	0.193	0.205	0.209	0.021	0.078	-0.129	-0.027	0.023	**0.693**	-0.260	-0.120
Q128	0.330	-0.149	0.032	-0.019	-0.018	0.104	-0.051	0.028	-0.062	0.334	0.177
Q131	0.215	0.439	0.172	0.342	0.128	0.130	0.033	0.276	0.062	**0.715**	-0.106
Q132	0.106	-0.002	0.048	-0.134	0.090	-0.109	-0.002	0.012	0.175	**0.606**	-0.074
Q133	0.024	0.524	0.222	0.354	0.117	0.177	0.146	0.267	0.279	**0.724**	-0.199
Q134	0.142	0.219	0.194	-0.042	-0.118	-0.172	0.251	0.200	-0.047	**0.542**	0.132
Q135	0.130	-0.079	-0.013	-0.045	0.156	-0.081	0.051	0.118	-0.075	**0.730**	-0.016
Q136	0.142	-0.341	-0.107	0.005	0.149	-0.025	0.130	0.184	0.026	**0.642**	0.042
Q137	0.112	0.356	0.146	0.282	0.101	0.171	0.040	0.261	0.143	**0.512**	0.110
Q151	0.167	-0.030	-0.079	-0.047	0.146	-0.081	0.018	0.096	0.066	-0.132	**0.501**
Q152	0.323	0.142	-0.016	0.123	0.228	-0.084	-0.203	0.193	-0.046	-0.064	**0.505**
Q161	0.002	0.604	0.213	0.305	0.145	-0.001	0.003	0.151	0.171	0.260	**0.685**
Q163	0.353	0.270	0.085	0.098	0.223	-0.250	-0.166	0.046	0.134	-0.018	**0.720**
Q164	0.226	0.114	0.020	-0.010	0.172	-0.307	-0.112	-0.014	0.026	-0.020	**0.524**
Q165	0.268	-0.313	-0.179	-0.007	0.183	-0.043	0.063	0.195	0.012	-0.070	**0.540**
FE	3.980	4.829	2.010	1.690	1.650	1.480	1.340	1.170	1.100	5.331	5.129
%	7.94	9.64	4.05	3.23	3.34	2.83	3.63	2.27	2.21	11.76	11.23
TPE	62.13										

FE=Factor eigenvalues; % of explanatory variance; TPR=Total % of explanatory variance.

Table 3. Summary of Confirmatory Factor Analysis of the Caring Adolescent Regarding Local Wisdom (N=1,023)

Model	χ^2 (d.f.)	χ^2 (d.f.)	GFI*	AGFI†	NFI‡	RMSEA§
Ideal model	-	<3.00	>0.90	>0.80	>0.90	<0.05
54 item	11238.722 (1219)***	9.220	0.782	0.754	0.875	0.061
52 item	9062.479 (1120)***	8.091	0.826	0.801	0.897	0.057

*Goodness-of-fit index; †Adjusted goodness-of-fit index; ‡Normed fit index; §Root mean square error of approximation.

values and norms, role, decision making, affective, socialization, economy, reproduction, healthcare, and developmental tasks consisted of four, six, four, four, four, three, four, five, five, seven, and six items, explaining 7.94%, 9.64%, 4.05%, 3.23%, 3.34%, 6.28%, 3.63%, 2.27%, 2.21%, 11.76%, and 11.23% of the variance, respectively. All factors reflected the measurements of the CA-LW psychometric scale.

CFA was used in the second phase of construct validity examination to confirm the eleven domain models and assess the goodness of fit with interfactor correlations (Table 3). The indicators of fit indices were included value of chi-square goodness of fit divided by degrees of freedom (χ^2GoF/df) <3.0, goodness-of-fit index (GFI) >0.90, adjusted GFI (AGFI) >0.80, the value of the normed fit index (NFI), and cutoff root mean square error of approximation (RMSEA) <0.06.

The results showed that interfactor correlations ranged from 0.20 to 0.60, χ^2 (1219) of 11238.722 (P<0.001), χ^2GoF/df of 9.220, GFI was 0.782, AGFI was 0.754, NFI was 0.875, and RMSEA was 0.061. Given that the analytical model did not fit the

data adequately, particularly the RMSEA value, a modified model was constructed to improve the model fitting, then, items Q-53 and Q-54 were deleted. The modified model was found to have a χ^2 (1120) of 9062.479 (P< 0.001), χ^2Gof/d.f. of 8.091, GFI of 0.826, AGFI of 0.801, NFI of 0.897, and RMSEA of 0.057. Moreover, it was fitted to 52 items and had greater explanatory as well as feasibility parameters than the model fitted to 54 items. The test statistics were compared with general rules of thumb for each statistic (22). The summary of the model fits for CA-LW is shown in Table 4, while the model structure is presented in Fig. 2, generally, the 52-item scale had a high internal consistency of alpha = 0.983.

Validation Phase of CA-LW Psychometric Scales Development

In the first phase, 171 questions answered by 2,213 Indonesian parents were tested by EFA. The EFA provision testing used eigenvalues of ≥1 and accounted for 62.43% of the total variance with 16 components (Fig. 1A). Subsequently, the 16 loading factors used were limited to 11 based on the

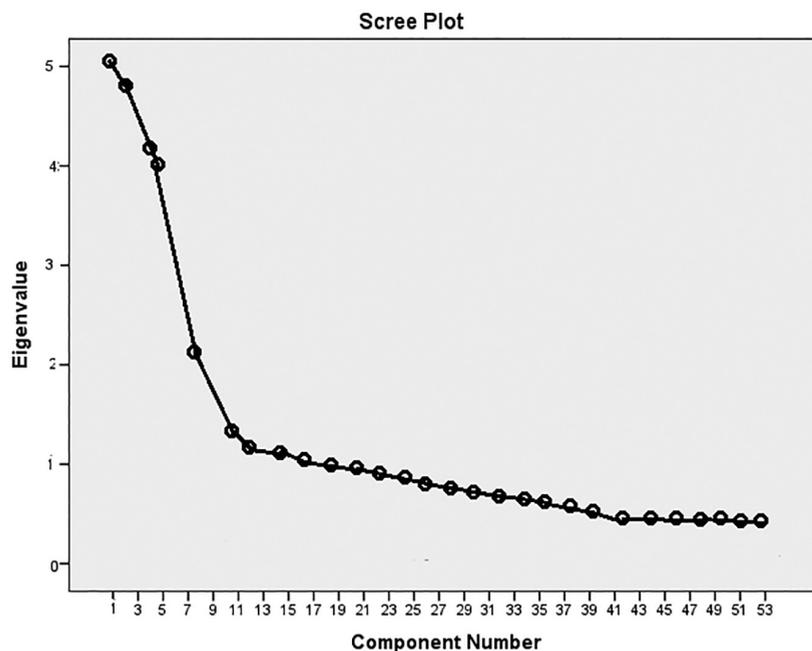**Fig. 1A.** *Loading factors of 171 items.*

Fig. 1B. *Loading factors of 54 items.*

decision making 0.881, affective 0.861, socialization 0.874, economy 0.878, and reproduction 0.849. Moreover, the family role and development task had robust and relatively high consistency of 0.827 and 0.705 respectively, while healthcare had a slightly low with 0.692.

Based on the result, the corrected item-total correlation coefficients (CITC) were between 0.093 (item Q49) and 0.838 (item Q7). The Squared Multiple Correlation Test was used to measure the CA-LW's ability to explain shared

result of the test, while several questions with a similar meaning were reduced in each domain and scale for the second study by re-analyzing the content validity through qualitative analyses.

Eventually, 171 questions were formulated and focused on 1,023 parents with senior high school to master's degrees in the second phase study leading to 11 loading factors with eigenvalues of ≥1 (Fig. 1B). These factors accounted for 62.13% of the total variance. The provision test with values of loading >0.5 obtained 54 question points which were then divided into eleven loading factors for analysis through reliability testing, further detail of this phase below is presented below.

Reliability Analysis

The reliability analysis showed that CA-LW had an acceptable high internal consistency of 0.983 as presented in Table 4. The Cronbach's alpha of each CA-LW domain was differentiated into a category based on consistency (24). The family communication domain had excellent consistency of 0.933, while the others had reliable consistency including faith and beliefs of 0.871, values and norms 0.858,

Table 4. Items Means, Standard Deviation, Corrected Item to Total Correlations, Squared Multiple Correlation, and Alpha of Item Deleted for the CA-LW Scale (N=1,023)

Item	Mean	SD*	CITC†	SMC‡	AID§,
Faith and family beliefs (α cronbach: 0.871)					
Q1	4.70	0.630	0.585	0.344	0.898
Q2	4.72	0.528	0.762	0.608	0.821
Q3	4.66	0.557	0.769	0.660	0.817
Q4	4.69	0.531	0.812	0.715	0.802
Family communication (α cronbach: 0.933)					
Q5	4.61	0.561	0.821	0.684	0.915
Q6	4.55	0.571	0.806	0.662	0.917
Q7	4.58	0.557	0.838	0.710	0.913
Q8	4.56	0.572	0.817	0.690	0.916
Q9	4.57	0.568	0.833	0.706	0.914
Q10	4.60	0.641	0.691	0.478	0.934
Family values and norms (α cronbach: 0.858)					
Q11	4.55	0.576	0.751	0.598	0.792
Q12	4.45	0.605	0.719	0.535	0.805
Q13	4.57	0.561	0.754	0.602	0.792
Q14	4.33	0.652	0.580	0.337	0.868
Family role (α cronbach:: 0.827)					
Q15	4.30	0.631	0.726	0.529	0.874
Q16	4.30	0.647	0.804	0.654	0.845
Q17	4.40	0.603	0.743	0.553	0.868
Q18	4.25	0.675	0.778	0.621	0.855

Continuation of Table 4. Items Means, Standard Deviation, Corrected Item to Total Correlations, Squared Multiple Correlation, and Alpha of Item Deleted for the CA-LW Scale (N=1,023)					
Item	Mean	SD[*]	CITC[†]	SMC[‡]	AID[§,]
Family decision making (α cronbach: 0.881)					
Q19	4.33	0.628	0.733	0.545	0.848
Q20	4.19	0.713	0.702	0.498	0.863
Q21	4.27	0.623	0.789	0.624	0.827
Q22	4.25	0.636	0.742	0.561	0.844
Family affective (α cronbach: 0.861)					
Q23	4.07	0.735	0.615	0.415	0.739
Q24	4.25	0.586	0.713	0.508	0.639
Q25	4.29	0.649	0.580	0.364	0.762
Family socialization (α cronbach: 0.874)					
Q26	4.42	0.611	0.680	0.468	0.853
Q27	4.26	0.625	0.774	0.638	0.817
Q28	4.25	0.633	0.785	0.647	0.812
Q29	4.28	0.712	0.676	0.461	0.860
Family economy (α cronbach: 0.878)					
Q30	4.31	0.609	0.699	0.556	0.852
Q31	4.24	0.632	0.749	0.611	0.840
Q32	4.16	0.668	0.675	0.476	0.857
Q33	4.18	0.683	0.766	0.609	0.834
Q34	4.09	0.739	0.654	0.488	0.864
Family reproduction (α cronbach: 0.849)					
Q35	4.25	0.627	0.710	0.542	0.770
Q36	4.50	0.606	0.596	0.417	0.801
Q37	4.30	0.593	0.725	0.586	0.769
Q38	4.26	0.606	0.763	0.627	0.757
Q39	3.88	0.890	0.451	0.221	0.871
Family health care (α cronbach: 0.692)					
Q40	3.42	1.007	0.460	0.297	0.595
Q41	4.24	0.672	0.344	0.293	0.634
Q42	2.62	1.159	0.289	0.281	0.672
Q43	4.03	0.717	0.443	0.250	0.608
Q44	4.33	0.582	0.410	0.456	0.623
Q45	4.54	0.564	0.268	0.402	0.651
Q46	3.66	0.889	0.483	0.270	0.588
Family development tasks (α cronbach: 0.705)					
Q47	4.29	0.631	0.427	0.371	0.547
Q48	4.10	0.684	0.485	0.280	0.522
Q49	2.04	1.281	0.093	0.160	0.764
Q50	3.81	0.769	0.547	0.339	0.487
Q51	4.15	0.634	0.549	0.393	0.506
Q52	4.52	0.570	0.310	0.378	0.586
Overall alpha questionnaire: 0.983					

[*]Standard deviation; [†]Corrected item-total correlation; [‡]Squared multiple correlation; [§]Alpha of item deleted.

variance items and was represented by the R-Square Value (R2). The result showed that the R2 value ranged from 0.160 (item Q49) to 0.715 (item Q4). Furthermore, the strength of the CA-LW consistency is reflected in the R2 value, higher values indicate greater consistency among the items (25). The coefficient alpha for item deletion ranged from 0.487 (item Q50) to 0.934 (item Q10) as shown in Table 2. This proves that the reduction of the previous item from the analysis process did not reduce the alpha coefficient value. A higher value denotes high reliability, hence, the 54 items with eleven domains had high internal consistency and questionable psychometric scale.

Content Validity

To determine item validity, the content validity index (CVI) was employed, six experts, consisting of four family health and two pediatric nurses, were asked to rate each of the 52 CA-LW items based on relevance, clarity, and simplicity. The questions were rated using a four-point Likert scale with a score of 1 meaning not relevant, 2 somewhat relevant, 3 quite relevant, and 4 indicating highly relevant. Subsequently, the CVI was computed by dividing the number of experts giving a rating of either 3 or 4 by the total number of experts. The CVI of CA-LW items ranged from 0.80 to 1.0, and the total CVI of the final version was 0.91. This suggests that the content validity was adequate (26). The final items were developed into a psychometric scale described in Table 5 on 11 domains of development for assessing family care in adolescents using local wisdom among Pandalungan families in the Eastern region of Java Island, Indonesia.

Table 5. Item Development for Psychometric Scales

Items	Questions
Faith and family beliefs	
	Q1: Parents instill the values of religious beliefs in children
	Q2: Parents teach obligations that should be carried out based on the values of religious beliefs
	Q3: Children practice obligations that should be carried out based on religious beliefs
	Q4: Parents forbid their children to do something that is forbidden by religion
Family communication	
	Q5 Children can tell teenagers' problems to their parents
	Q6 Parents can be good listeners of their children's stories
	Q7 Parents approach when there is a problem with teenagers
	Q8 Children are comfortable and happy when invited to discuss youth activities with their parents
	Q9: Parents give a particular time allocation for teenagers to discuss their problems
	Q10: Parents start discussing adolescent problems at puberty
Family values and norms	
	Q11: Parents monitor the development and activities of adolescents by involving other family members
	Q12: Parents monitor the information media (such as television, internet, and telephone) used and accessed by adolescents
	Q13: Parents give their children the freedom to get along with their peers
	Q14: Parents teach the procedures for choosing friends in the association
Family role	
	Q15: The head of the family plays an important role in decisions to solve problems related to adolescent problems
	Q16: Parents invite teenagers to share things every day and try to identify problems in teenagers
	Q17: Parents carry out their role as parents well
	Q18: Parents begin to divide the roles of teenagers in the family according to their age development
Family reproduction	
	Q35: Parents teach about reproductive health to teenagers
	Q36: Discussions related to reproductive health need to be facilitated by parents when children start puberty
	Q37: Parents teach the procedures for the association between the opposite sex when the child starts puberty
	Q38: Parents teach reproductive health care procedures when their child starts menstruating or has a wet dream
	Q39: Schools can provide information on adolescent reproductive health for children
Family health care	
	Q40: Parents provide health care for children
	Q41: Parents are skilled in providing health education to teenagers
	Q42: Healthy and sick values need to be instilled in the family
	Q43: Families can access local health services
	Q44: Parents can recognize health problems in children
	Q45: Parents can make decisions when teenagers have health problems
	Q46: Clean and healthy living behavior is maintained and maintained in the family
Family development tasks	
	Q47: Parents give freedom to children to choose friends
	Q48: Parents facilitate the resources that teenagers with adolescent problems access
	Q49: Parents give some small responsibilities to teenagers
	Q50: Both parents discuss adolescent health issues
	Q51: Parents bring teenagers to health services to get information about adolescent health
	Q52: Parents take their teens for recreation on the weekends

Discussion

The CA-LW was developed based on an ethnonursing study by Susanto et al. (7) which measured 11 domains of adolescent care from the family using local wisdom. This psychometric is used for adolescent care in Indonesia due to its conformity with local wisdom. Furthermore, the CA-LW is a valid and reliable psychometric measurement scale for estimating family care in 11 domains of development including family faith and beliefs, communication, values and norms, roles, affective, socialization, economy, reproduction, healthcare, and developmental task (7). Each domain is represented by 52 questions fit for the construct validity of 0.91. The CA-LW scale had high internal consistency namely 0.983, hence, it is applicable for measuring parenting style affected by local wisdom in adolescent care, the measurement runs natively based on daily care.

Moreover, the parents' education tends to influence the use of the psychometric scale. Highly educated parents were more willing to use this tool after the low-level study was deleted in the EFA steps. This is because the ease of care and facilitation of parental growth and development is strongly influenced by the availability of information sources. This is also supported by the family characteristics namely the duration of stay in the area and the parents' age. Previous studies stated that maturity as a parent depends on age and length of time in adapting to the immediate environment and the availability of information (26, 27, 29). Therefore, the preparation to become a parent is very decisive in the care of teenagers based on local cultural backgrounds.

Based on a qualitative study described previously (7), the spiritual value was used for structuring the family in terms of communication pattern, value, roles, power, and decision making. Subsequently, local wisdom was internalized to functionalize the family care for adolescents including affective, economic, socialization, reproduction, and healthcare functions. Family structuring and functionalization regarding the local wisdom of Pandalungan were used to achieve the life cycle development of adolescents (7).

The results showed that family healthcare domains had a slightly low consistency. This is consistent with Leininger's theory which states that the health care outcome is affected by culture (15). This is because parenting is unique with a deep-rooted feeling, thinking process, and behavioral manifestations based on each culture (30). The CA-LW scale fixes the limitation of PSDQ developed by Fahiroh, Tairas, and Retnowati (13) which had several invalid items due to cultural differences.

The 52 items CA-LW scale had high internal consistency in all 11 domains, this is consistent with a previous study which stated that the CA-LW measurement scale on parenting style of adolescents with cultural approach was the same under consistent conditions (31). The highest consistency was found in the family communication domain followed by values and functions, as well as decision-making. Communication between parents and adolescents is a medium for strengthening the family structure by the majority of the Pandalungan tribe (7). A communicative environment can shape adolescent personalities, both in attitude and behavior, as well as decrease juvenile delinquency (19). This implies that a high-quality environment between parents and adolescents is needed to embed cultural values and norms, including the involvement in the decision-making process to make the family structure more resilient towards the influence of globalization in changing the value of local wisdom.

The faith and family beliefs domain had reliable consistency, this is consistent with the preview study which stated that spiritual value was internalized as the essential foundation of the Pandalungan family. It is a family basis in educating and caring for adolescents (7). Faith and beliefs as an impact of family religion not only improve affection, structure, autonomy-support, and reduce rejection, chaos, and coercion (32), but also sharpen parenting skills (33). Consequently, local norms developed by faith and beliefs in society need to be internalized in parenting. From the Pandalungan Tribe's perspective, religion is the foremost aspect in every part of life.

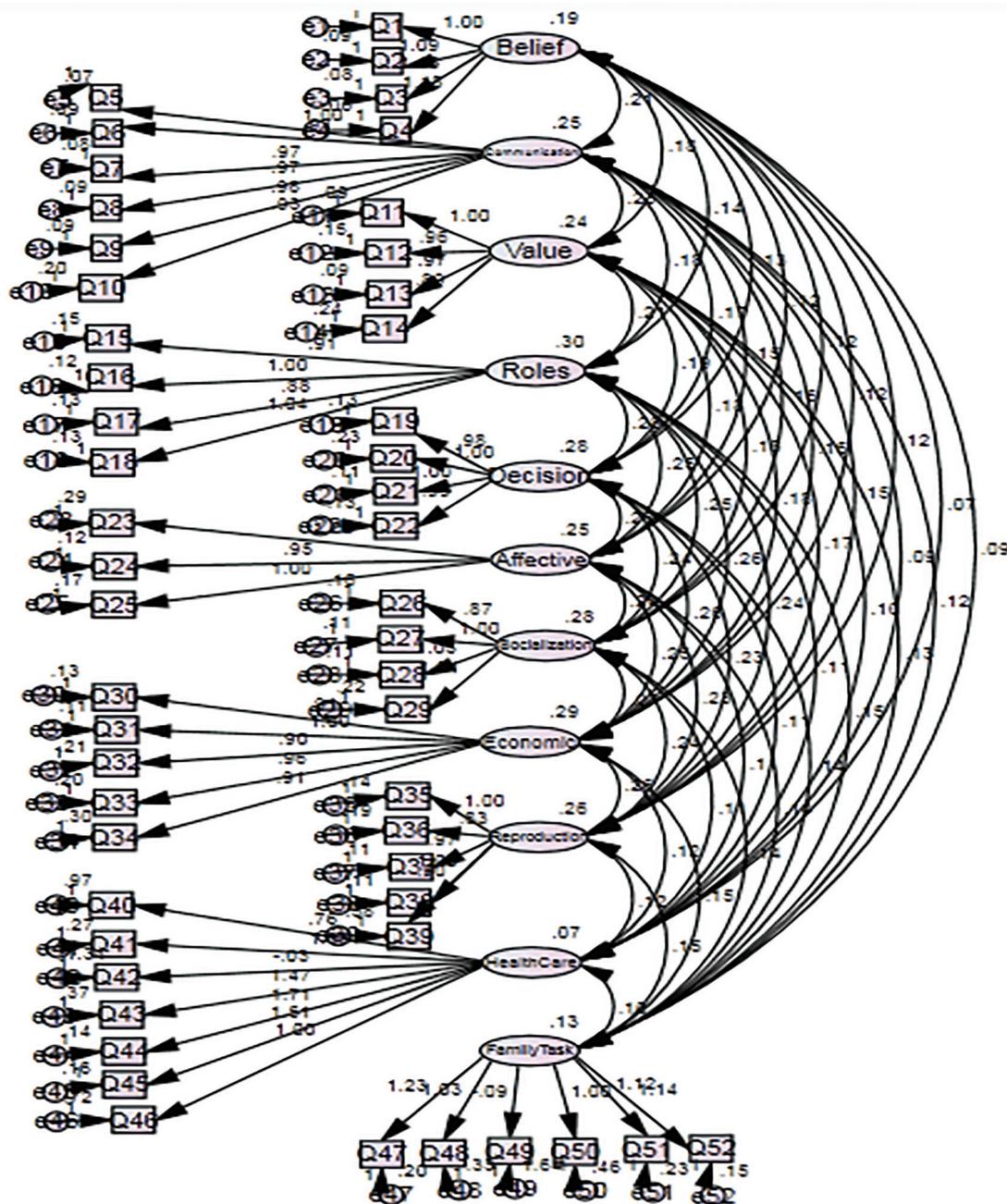The majority of the family function domain have reliable consistency including affective,

Fig. 2. *Confirmatory factor analysis of the Caring Adolescent Regarding Local Wisdom.*

socialization, economy, and reproduction, while family role and healthcare had robust and slightly low consistency respectively. All aspects of the family structure play a role in supporting adolescent development. Furthermore, integrating all functions through emotional care such as bonding and connectedness makes it easier for the family to introduce adolescents to socialization by interacting or relating to one another in learning disciplines, norms, culture, and behavior (7). Family socialization psychologically supports and integrates adolescents into society. Consequently, adolescents no

longer feel inferior to older people but have the perception of being at the same level (34). Culture can shape health attribution through its influence on belief and behavior, however, cultural aspects differ significantly depending on the community (35). The varying consistency in the parents' responses might influence community growth. The rural community often has other alternatives of healthcare compared to the urban, for example, the rural family sometimes uses traditional treatments such as herb therapy and can postpone medical visits compared to urban communities which are closer to health facilities and perceive medical treatment to be more efficient.

Based on the results, the family development task domain had relatively high consistency. At adolescence, parents begin to view their children as independent individuals, although they still need to be directed. Pandalungan parents tend to maintain the balance between freedom and responsibility, although there are still family rules that must be obeyed (7). Parents need to always pay attention to the development of adolescents as well as developmental tasks. According to Erikson's (1968) theory (36), adolescents are at risk of confusion to become more mature and unique through past identity crises. Family conflicts mostly occur in early adolescence due to puberty tension and the need to demand autonomy (37). Therefore, at this stage, parents play an essential role in guiding adolescents to develop a coherent self-existence by paying attention to their demand for autonomy.

The CA-LW scale had an adequate content validity index of 0.91 indicating that the psychometric scale can measure family care for adolescents in the context of Indonesian local wisdom relevance, accuracy, clarity, and efficiency. Therefore, it is applicable for measuring family health care towards adolescents with a local wisdom approach.

Implication for Nursing Practice

The CA-LW psychometric scale is suitable for pediatric and family nursing. Measurement of adolescents' care with the local wisdom approach can be used to evaluate the success of parenting, including meeting the needs of adolescents in achieving optimal developmental tasks. Through the 11-domain system, including family faith and beliefs, communication, values and norms, roles, decision making, affective, socialization, economics, reproduction, healthcare, and developmental tasks, parents, as well as families with adolescents, can develop healthily and optimally. Therefore, advanced practice nurses need to create interventions for both parents and adolescents with an evidence-based local wisdom approach based on specific findings from the 11 domains of the CA-LW psychometric scale.

Limitations of the Study

The domains of the CA-LW psychometric scale were developed from a previous study by Susanto et al. (7). First, the domain of family health care had slightly low consistency, this reflects a significant difference in answers due to the varied perceptions between the rural community that uses traditional medicine and urban society. Therefore, further investigation is needed to re-test and modify measurements in this domain. Second, the generalizability of the study was reduced by the limitation of the participants to only those who had a minimum of high school education background. This is related to the limited ability and knowledge of parents in identifying demands for optimal adolescent development. The cross-sectional nature of this study in which observations were carried out for only a short period might also influence specific ratings. Additionally, the parents' responses might not be based on the reality experienced but reflect social desire. Therefore, a re-test is needed for controlling sociodemographic characteristics of parents and their children not examined in this study.

Conclusion

In general, the CA-LW psychometric scale can be used to measure family care styles in adolescents in the context of Indonesian local wisdom based on the validity and reliability test. In this study, 11

domains of parenting roles were identified, including family faith and beliefs, communication, values and norms, roles, decision making, affective, socialization, economy, reproduction, health care, and developmental task, which are unique and different from previous types of psychometric tools. This measurement tool is very appropriate in the context of Indonesian local wisdom. Although the family health care domain has slightly low consistency, it requires further investigation to re-study or modify the domain with cultural contexts.

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