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Original Article

Determinants of infant care practices in Minangkabau ethnic

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Abstract

Background Child care practices are important for growth and development, and are influenced by cultural determinants. Indicators of infant care practices have not been determined for the Minangkabau ethnic group.

Objective To determine indicators of infant care among a Minangkabau ethnic community.

Methods A cross-sectional study was done in Solok, West Sumatera, a region populated by largely Minangkabau ethnic groups. Infant feeding care (IFC), infant health care (IHC), infant clean care (ICC), and infant psychosocial stimulation care (IPSC) were the components of infant care used as indicators. Data on these four components were obtained through interviews with parents and direct observation. A score was assigned to each component. We used the confirmatory factors analysis (CFA) method to determine whether the indicators were valid in the studied population.

Results We enrolled 417 infants in the study, with a mean age of 8.7 months, and 51.6% were female. IFC scores were fair in 72.7%, high in 20.4%, and low in 6.7%. IHC scores were poor in 25.7%, fair in 58.8%, and good in 15.5%. ICC scores were poor in 0.7%, fair in 42.2%, and good in 58.1%. IPSC scores were poor in 10.6%, fair in 84.9%, and high in 4.5%. On CFA, ICC contributed least to the indicator model (λ: 0.17). ICC and IPSC had fair contributions to the model (λ: 0.5 and 0.47, respectively). Goodness of fit of the model was good ($P>0.05$). Root mean square error approximation was <0.08 and goodness of fit index was >0.9.

Conclusions Infant clean care was the most significant contributor to the infant care practice indicator in the Minangkabau ethnic community. Similar studies need to be done in other Indonesian ethnic groups. **[Paediatr Indones. 2012;52:280-3]**.

Keywords: *infant, care, indicators*

Infancy is a period most vulnerable to diseases and growth disorders. Infants undergo rapid growth, have an immature immune system, and experience a dietary transition from breastmilk to solid food.[1,2] Experts have given much attention to the role of nurture on infant development, particularly in developing countries. Determinants of infant/child care may affect child growth in three ways: through nutritional intake, through child care practices, and through the role of hormonal as well as other biochemical factors.[2-7]

The four components of infant care are infant feeding care (IFC) in the form of breastfeeding and complementary feeding, infant health care (IHC) in the form of disease prevention, home care of the sick child, and curative efforts at health centers, infant clean care (ICC) in the form of protecting the cleanliness of the individual child, preventing contamination of food and drink, and cleanliness of playrooms and beds.[5,6] Finally, infant psychosocial stimulation care (IPSC) takes the form of giving stimulation to infants from an early age to support their development.[8-11]

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Infant care is a cultural product of a particular ethnic group or community. Child care practices are passed on from previous generations of mothers or other care givers in the family and are influenced by the changing environment. Thus, patterns of infant and child care may differ across families and cultures.[12-14] Understanding community-specific child care patterns is necessary to assess adequacy of care in the particular community. Assessment of such care indicators has rarely been done in Indonesia, and has not been reported in the Minangkabau ethnic group of West Sumatera.This study aims to determine the indicators of infant cares in the Minangkabau ethnic group using a confirmatory factor analysis (CFA) approach.

Methods

A cross-sectional study was conducted in 2003 in three subdistricts in Solok, West Sumatera. Solok is a regency with a homogenous population of Minangkabau ethnicity and relatively high prevalence of nutritional problems in under-five-year-olds.[15] Subjects were 417 infants 6 to 12 month old in the participating subdistricts.

To assess IFC, we recorded feeding patterns which covered breastfeeding and/or provision of complementary foods, the age at which complementary foods were introduced, and the frequency of complementary feeding. We also noted the criteria used for starting complementary feeding, nursing frequency, and the characteristics of breastfeeding mothers. Data were collected during a 12-hour observation period which ran from 6 AM to 6 PM.

We assessed IHC by noting whether the infant was weighed monthly for the last three months, whether he had received age-appropriate immunizations and vitamin A supplementation, and how family-based treatments were given for diarrhea and upper respiratory problems. Data were collected through interviews with parents and caregivers, followed by validation of the data.

Assessment of ICC was done by observing water resources used for drinking, bathing, processing complementary foods, and washing infant equipment, places to store infant food, habits of cleaning infant feeding equipment, level of infant cleanliness, the frequency of infant bathing, the use of soap in when bathing the infant, use of infant cosmetic products, and the frequency of changing the infant's clothes. Data collection on these three care practices were made by an enumerator specifically trained for this purpose. A score was assigned to each indicator.

Infant psychosocial stimulation care assessment was done using the Home Observation for Measurement of the Environment (HOME) instrument developed by Caldwell et al.[16] Two measurements were made with a one-month interval by a team of trained psychologists. The average score of the two measurements was used in the analysis.

Data were analyzed using Epi Info version 6.4 (Centers for Disease Control and Prevention, Atlanta, Georgia). A confirmatory factor analysis using LISREL 8.30 (Scientific Software International, Inc., Skokie, Illinois) software was done to determine indicators of infant care practice.[17-22] A P value of <0.05 was considered statistically significant. This study has been approved by the Medical Ethics Committee of Andalas University Medical School.

Results

A total of 417 infants participated in the study; 51.6% were female. Mean subject age was 8.7 (SD 1.8) months. The distribution of infant care practice scores can be seen in **Table 1**.

Table 1. Infant care practice scores

Infant care practices	%
Infant feeding care (IFC)	
poor (score 0-7)	6.7
fair(score 8-13)	72.7
good (score 14-19)	20.4
Infant health care (IHC)	
poor (score 0-2)	25.7
fair (score 3-4)	58.8
under good (score 5-7)	15.5
Infant clean care (ICC)	
poor (score 0-4)	0.7
fair (score 5-8)	41.2
good (score 9-13)	58.1
Infant psychosocial stimulation care (IPSC)	
poor (score 0-25)	10.6
fair (score 26-36)	84.9
good (score 37-45)	4.5

On CFA, all four indicators of infant care practice were valid and reliable. Infant feeding care has the least contribution compared to other practices, with a lambda of 0.17. Infant clean care and IPSC offered a fairly large contribution, with a lambda of 0.50 and 0.47, respectively. The goodness of fit index (GFI) of this model was 0.96 with a P value of 0.32; root mean square error approximation (RMSEA) 0.017 (**Figure 1**). We used a GFI cut-off point of >0.9 and an RMSEA cut-off point of <0.08.

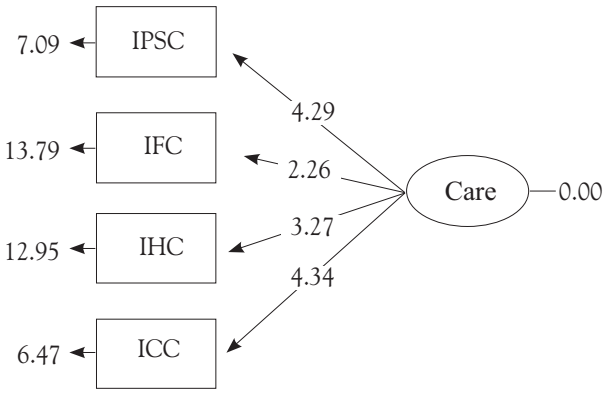

Figure 1. Confirmatory factors analysis of the infant care indicators

Discussion

In 2003, all infant care practice indicators (IFC, IHC, ICC, and IPSC) in the Minangkabau ethnic community showed mostly fair results. Infant health care showed a larger percentage in the poor category than the other three indicators. The low scores were mostly due to infants not being brought to weighing stations at community health centers, failure to give vitamin A supplements, and lack of knowledge among mothers on the home treatment of diarrhea and upper respiratory tract infections. Similar problems were also found in studies done in West Sumatera by Hellen Keller International (1999)[15] and UNICEF (2000).[23]

The CFA analysis indicated that the four practices remained valid as indicators of child care for the study. Our results are in agreement with Engle (1992)[3] and Ramakrishnan (1995),[5] who stated that infant care practice should include the four practices jointly. The four components infant care practice work in synergy for optimal growth and development.[2-5,24]

Although all four infant care practices are included as infant care indicators, IFC gives a smaller contribution (λ: 0.17), compared to other infant care practices. This may be due to the frequency of breastfeeding being the largest score contributor to IFC. In this study, 92.7% of infants were breastfed; 73.4% of which were breastfed on demand. Mother's milk is important for infants 6 to 12 months of age, both from as a source of nutrients and to support the infant's immune system. Whenever possible, breastfeeding should be done on demand.[25,27]

When testing a model using CFA, it is necessary to assess the model's goodness of fit. On CFA analysis, model obtained a P value of 0.32. The RMSEA value of the model was 0.017 (cut-off point <0.08). The GFI value was 0.96. Our model fulfilled requirements for fit.[17,18,20]

We conclude that a valid indicator of infant care practices can be formed using IFC, IHC, ICC, and IPSC as its components.Therefore, these indicators need to be developed for scientific purposes and field practices. Considering that these infant care practices are also cultural products, it is advisable to conduct similar studies in different ethnicities or tribes in Indonesia to develop a national indicator of infant care practices.

References

1. Martorell R, Habicht JP. Growth in early childhood in developing countries. In: Falkner F, Tanner JM, editors. Human growth: a comprehensive treatise. 2nd edition. New York: Plenum Press;1986. p. 241-62.
2. Engle PL, Ricciuti HN. Psychosocial aspects of care and nutrition. Food Nutr Bull. 1995;16:356-77.
3. Rapport R. Endocrine control of growth. In: Waterlow JC, editor. Linear growth retardation in less developed countries. New York: Raven Press; 1988. p. 109-26.
4. Engle PL. Care and child nutrition. Paper for the International Nutrition Conference. New York: UNICEF; 1992. p. 5-79.
5. Ramakrishnan U. UNICEF-Cornell colloqium on care and nutrition of the young child-planning. Food and Nutr Bull. 1995;16:286-92.
6. Jonnson U. Ethics and child nutrition. Food Nutr Bull. 1995;16:4:293-8.

7. Evans J, Shah PM. Child-care programmes for health and family support. World Health Stat Q. 1993;46:214-21.
8. Engle PL, Menon P, Haddad L. Care and nutrition concept and measurement. International Food Policy Research Institute. Washington, DC: International Food Policy Research Institute; 1997. p. 1-39.
9. Jonnson U. Malnutrition in South Asia. In: United Nations Administrative Committee on Coordination/Sub-committee on Nutrition, editor. Papers from the ACC/SCN 24thSession Symposium. Kathmandu 1997 March. Geneva: ACC/SCN; 1997. p. 53-67.
10. Hamzah A. Pola asuh anak etnik Jawa migran dan etnik Mandar (studi budaya lokal). [dissertation]. Surabaya: Airlangga University; 2000.
11. Bashor C. Pola asuh dan pola emosi anak balita yang ditinggalkan ibu bekerja di luar daerah (studi etnografi). [dissertation]. Surabaya: Airlangga University; 2001.
12. HKI Indonesia Crisis Bulletin. Nutrition and health surveillance in rural West Sumatera. Helen Keller International. 2004;5:63-73.
13. Caldwell BM, Bradley RH. Home Observation for Measurement of the Environment (HOME). Eau Claire: Lorraine Coulson Home Inventory LLC; 1984.
14. Byrne BM. Structural equation modelling with LISREL, PRELIS, and SIMPLIS: basic concept, applications, and programming. New Jersey: Lawrence Erlbaum Associates; 1998. p. 3-303.
15. Ferdinand A. Structural equation modeling dalam penelitian manajemen. Semarang: BP UNDIP; 2002. p. 1-64.
16. Solimun. Structural equation modelling (SEM) LISREL dan Amos. Malang: FMIPA Universitas Brawijaya; 2002. p. 28-64.
17. Basuki H. Analisis factor konfirmatori dengan lisrel 8.30 for windows. In: Editors. Makalah dalam pelatihan Structural Equation Modelling Angkatan ke V. Surabaya: Lembaga Penelitian Universitas Airlangga; 2004.
18. Wibowo A. Pengantar analisis persamaan struktural. In: Editors. Materi pelatihan structural equation modelling, angkatan ke V. Surabaya: Lembaga Penelitian Universitas Airlangga; 2004.
19. Knoke D. Structural equation models. Soc 8811 advanced statistics lecture notes. 2004.
20. UNICEF. Result from the Posyandu survey in East Java, South Sulawesi and West Sumatra. Jakarta. 2000.
21. Myers R. The twelve who survive: Strengthening programmes of early childhood development in the third world. London: Routledge; 1992. p. 263-308.
22. Akre J. Infant feeding: The physiological basis. Jakarta: Perinasia; 1990.p. 28-60.
23. Soetjiningsih. ASI petunjuk untuk tenaga kesehatan. Jakarta: EGC; 1997. p. 1-95.
24. Soetjiningsih, Ranuh IGN. Tumbuh-kembang anak. Jakarta: EGC; 1998. p. 1-53.
25. Van-Esterik P. Care, caregiving and caregivers. Food Nutr Bull. 1995;16:378-88.
26. Famida U. Multi-micronutrient supplementation for infant growth and development, and the contributing role of psychosocial care. [dissertation's thesis]. Jakarta: University of Indonesia; 2003.
27. Satoto. Pertumbuhan-perkembangan anak (pengamatan anak umur 0-18 bulan) di kecamatan Mlonggo, Kabupaten Jepara, Jawa Tengah [dissertation]. Semarang: Diponegoro University; 1990.