



Published in final edited form as:

*J Adolesc Health*. 2008 September ; 43(3): 253–259. doi:10.1016/j.jadohealth.2007.01.015.

## Ethiopia Adolescents' Attitudes and Expectations Deviate from Current Infant and Young Child Feeding Recommendations<sup>4</sup>

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### Abstract

**Purpose**—Sub-optimal infant and child feeding practices are highly prevalent in many developing countries for reasons that are not entirely understood. Taking an anthropological perspective, we assess whether nulliparous youth have formulated attitudes and expectations in the domain of infant and child feeding behaviors, the extent to which these varied by location and gender, and the extent to which they deviated from current international recommendations.

**Methods**—A population-based sample of 2077 adolescent girls and boys (13–17 years) in southwest Ethiopia answered a questionnaire on infant and young child feeding behaviors.

**Results**—Results indicate high levels of agreement among adolescents on items relating to infant and young child feeding behaviors. Attitudes and intentions deviated widely from current international recommendations. Youth overwhelmingly endorsed items related to early introduction of non-breast milk liquids and foods. For girls, fewer than 11% agreed that a 5 month infant should be exclusively breastfed and only 26% agreed that a 6 month infant should be consuming some animal source foods. Few sex differences emerged and youth responses matched larger community patterns.

**Conclusions**—The results indicate that attitudes and expectations deviate widely from current international child feeding guidelines among soon to be parents. To the extent that youth models are directive, these findings suggest that youth enter into parenthood with suboptimal information about infant and child feeding. Such information will reproduce poor health across generations as the largest cohort of adolescents ever become parents. These results suggest specific points of entry for adolescent nutrition education interventions.

### Keywords

youth; cultural determinants of nutrition; care; parenting; East Africa

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<sup>4</sup>Funding for this study comes from the Packard Foundation, Compton Foundation, and NIH. The authors also thank the Jimma Longitudinal Family Survey of Youth team members, interviewers, and study participants.

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## Introduction

Despite what are often reported as clear, unambiguous benefits to exclusive breastfeeding in the first six months of life, the timely introduction of high quality complementary foods, and continued breastfeeding until at least two years [1,2], very few of the world's infants are actually fed according to these guidelines. Globally, less than half of infants are exclusively breastfed up to four months, and many do not receive appropriate complementary foods starting at 6 months [3,4]. A majority of mothers self-express the first milk (colostrum) and provide prelacteal liquids such as water, milk, and butter [5,6]. The early introduction of liquids and semi-solids is of concern because of the potential for these foods to displace breast milk, lower the overall quality of an infant's diet [7], and act as vehicles for transmission of contaminants, which are a significant source of diarrheal morbidity among infants [8,9]. While supplementation with liquids or semi-solids often occurs early throughout much of sub-Saharan Africa (SSA), in many contexts complementation with solids often occurs later than recommended [10]. Moreover, in many SSA settings once children do begin to consume complementary foods the composition of the diet is often of poor quality and lacking in diversity [10]. The poor quality and lack of diversity in foods adversely affect children's growth and nutritional status [11,12]. These patterns generally hold true for Ethiopia, where less than half of infants are exclusively breastfed at 6 months, but only half of children are being fed appropriate complementary foods at 6 to 9 months [6]. Non-recommended child feeding behaviors such as non-exclusive breastfeeding and sub-optimal complementary feeding practices are responsible for a tremendous burden of disease. Improvements in infant and young child feeding could lower the number of under-5 year child deaths by nearly 18% [13].

Cultural attitudes and norms are recognized as important factors in the World Health Organization's model of the determinants of infant and child feeding behavior [14,15]. The WHO recognizes that beliefs and attitudes influence infant and child feeding practices, as evidenced by the statement that "in every culture, specific beliefs that impede optimal breastfeeding need to be identified" in order to design effective intervention strategies [14]. Yet few studies explicitly focus on this level of analysis. Anthropologists and other social scientists recognize that many cultural norms are internalized early in life. In many societies children learn their culture by imitation, participation, and observation [16]. In many non-Western societies children readily engage in childcare themselves and directly observe others doing so, especially in communities where breastfeeding is openly carried out in public [17, 18]. Because children learn through observation and participation [16,19,20] this experience and observation is a major vehicle for transmission and internalization of locally-specific norms. In many of communities children will have spent literally thousands of hours directly participating in or observing child feeding behaviors. Norms regarding child feeding behaviors are therefore likely to be internalized quite early in life, and adolescents living in subsistence communities in many sub-Saharan African settings are likely to have internalized norms and models of child feeding behaviors before they have had a child or perhaps even thought about having a child.

These norms provide the models or schemas that mothers refer to when making child care decisions. What gives these cultural models directive force is that they are widely agreed upon by other members of the community as the "right" way to do things [21]. Thus, even seemingly arbitrary sets of elements can take on coherence because everyone explicitly or implicitly agrees that these elements belong together (e.g., peanut butter and jelly). This model of norm internalization predicts that in communities where children engage in substantial amounts of childcare themselves and child feeding behaviors are readily observable, norms regarding child feeding behaviors should also be internalized early in the life course. As young girls age into motherhood they likely draw upon these models as they make decisions about how to feed their infants and young children. These cultural models "are skeletal outlines of the elements of the

domain” [22] but particular contexts can influence the specific expression (i.e., the proximate determinants, in the language of the WHO Infant and Young Child Feeding Behavior model). For instance, heavy workloads, marketing of human milk substitutes and other social factors, such as paternal support, obviously influence feeding and care decisions. Deviations are kept in check, however, because “tradition [norms] provides the parameters within which acceptable decisions can be made, and these parameters may widen or contract depending on the extent to which other constraints or opportunities gain priority” [23]. If this model accurately reflects the process of norm internalization, then this would suggest that the basic “skeleton” of infant and young child feeding behaviors is set quite early, and that adolescence may be an effective period of the life course to intervene in an attempt to improve future child feeding practices.

With this theoretical framework in mind, the objectives of this study were to (1) examine the degree to which adolescent girls and boys agreed on items regarding attitudes and expectations in the cultural domain of infant and young child feeding behaviors (IYCFB); (2) determine whether these attitudes and expectations varied with age, location, and gender; and (3) assess the extent to which these attitudes and expectations deviated from current international nutrition guidelines. We hypothesized that responses to the IYCFB items asked of youth would be invariant with age, as our model specifies that these norms should be internalized early in the life course.

Additionally, we hypothesized that, because so few children in Ethiopia are fed according to international recommendations [6,10,24,25], attitudes and expectations would also deviate from “best practices.” We also tested for possible differences in attitudes and expectations across area of residence and by gender. In particular, area of residence appears to be an important determinant of feeding behavior in Ethiopia and elsewhere. In Ethiopia, rates of initiation of breastfeeding are high for rural and urban children but rural children are breastfed slightly longer and are more likely to receive butter (by hand or spoon) in the first few days of life. Rural children, however, are less likely to consume high quality complementary foods that are rich in vitamin A, protein, and iron [4,6,10]. The focus of our investigation was primarily on adolescent girls’ attitudes although we also compare adolescent girls’ responses against boys’ responses, as some evidence suggests men’s support of infant and young child feeding practices may be an important determinant of actual practices [26,27].

We examined attitudes and intentions in three domains: exclusive breastfeeding to 6 months of age, timely introduction of high quality complementary foods, and continued breastfeeding until at least two years of age [1,2]. Although there are no specific recommended complementary foods, diversity is encouraged and it is recommended that fruits and vegetables and “meat, poultry, fish or eggs should be eaten daily, or as often as possible.” [2] Because evidence also suggests that the benefits to adhering to WHO child feeding recommendations are largest and most likely to be realized in unhygienic and high poverty settings [28,29], the current study focuses on Ethiopia, one of Africa’s largest yet poorest countries.

## STUDY AREA AND METHODS

The data for the present study were collected in southwestern Ethiopia in an area about 350 km southwest of the capital, Addis Ababa. Respondents were participants in the Jimma Longitudinal Family Survey of Youth (JLFSY), an ongoing study of adolescent life in urban and rural Ethiopia. The JLFSY began in 2005 and is a longitudinal study of adolescents designed to examine the social and economic determinants of adolescent health and well-being. The study area encompasses rural, semi-urban and urban communities purposively selected to represent a range of ecological and development contexts. In all, three small towns, nine rural communities adjacent to the towns, and six neighborhoods (*kebeles*) in the city of Jimma were sampled. Households were randomly selected from updated lists of existing households. A first

stage survey questionnaire was completed with 3,700 household heads. A second stage adolescent survey questionnaire was separately applied to up to one randomly selected adolescent boy and one randomly selected adolescent girl ages 13–17 y from each household. A total of 2,106 adolescents was interviewed. All household heads and adolescent respondents provided their consent, and study procedures were approved by Institutional Research Boards at Jimma University, Brown University, Emory University, and the University of Michigan.

The adolescent respondents were interviewed by interviewers of the same sex to minimize respondent discomfort with sensitive questions. The JLFSY employed 12 full-time, highly trained interviewers who worked in all sites. Standard socio-demographic information was collected through a private face-to-face interview. Variables relevant to the analysis here included respondent's age, place of residence, and gender. Age was measured in full years, and place of residence was coded into a three-level variable: rural, small town, or urban site. In the analyses we excluded a small number of girls who had given birth or for whom there was missing parity information (n=12). This resulted in the final sample of 1018 girls. Similar data were available for 1059 boys (17 boys excluded because of missing information).

To assess attitudes toward infant and child feeding behaviors, respondents were asked whether they agreed or disagreed with a series of statements about child feeding behaviors. Specifically, attitudes toward exclusive breastfeeding, prelacteal feeds, and early child feeding behaviors were measured by asking respondents about: (1) the provision of water to infants prior to initiating breastfeeding following birth, (2) whether infants should consume butter immediately following birth, (3) the timing of breastfeeding initiation, (4) the provision of water at one month, and (5) whether an infant could survive on breast milk alone at 3 and 5 months of age. Attitudes towards the timely introduction of appropriate complementary foods were assessed by asking respondents whether at 6 months infants should be consuming: (6) animal source foods and (7) vegetable items. To assess attitudes and plans towards breastfeeding duration, adolescent girls were asked for how long they planned to feed their own child, when they had one. Boys were asked how long they expected their future spouses would breastfeed. Responses to the planned breastfeeding duration item were recoded into categories representing 0–11 months, 12–23 months, and 24+ months. For all items, “don't know” was presented to the respondents as a valid response.

## STATISTICAL METHODS

Bivariate analyses (chi-square tests, Spearman correlation) were used to test the statistical significance of differences respondents' attitudes by age, place, and gender. The criterion for statistical significance was set at 0.05 and all analysis was carried out in SAS 9.1.

## RESULTS

The final sample included 1018 girls with a mean age of 14.1 y (SD 1.3) and a median age of 15 years. A large majority of respondents were still in school (91%). The sample was divided between the urban town of Jimma (38%), the smaller semi-urban sites (28%), and the outlying rural sites (34%).

### Girls' attitudes toward exclusive breastfeeding and prelacteal feeds

Adolescents' attitudes towards early child feeding behaviors deviated substantially from the current international recommendation that infants be exclusively breastfed for the first six months (Table 1). Approximately a third of adolescent girls agreed that water should be given to infants immediately following birth, and nearly 7% reported that they did not know whether the giving water immediately following birth was a good idea or not. One in five respondents agreed that infants should receive butter immediately following birth, and 6% of respondents

reported not knowing whether this was a good idea. Almost 80% of girls agreed that infants should be breastfed within one hour of birth. However, a large majority (75%) also believed that infants should be consuming some water by 1 month. Only 40% of respondents agreed that a 3 month old infant could survive on breast milk alone, and only 11% agreed that breast milk alone was sufficient for a child at 5 months of age.

In bivariate analyses, few significant differences in attitudes emerged across age and place. The provision of butter, which is often regarded by international health experts as a harmful traditional practice, varied significantly across study place, with 11%, 24%, and 37% of urban, small-town, and rural adolescents, respectively, agreeing that it was best to provide butter immediately after birth (all pair wise comparisons,  $P<0.001$ ).

### **Girls' attitudes toward complementary feeding**

Attitudes regarding complementary feeding also deviated from current international recommendations and 'best practices'(Table 2). While the WHO recommends that children begin consuming varied diets, and if possible some animal source foods, at 6 months, adolescents' responses showed very different attitudes. For fruits and vegetables, 38% of adolescents agreed that a 6 month old infant should be consuming these items. Fewer (27%) agreed that children should be consuming animal source foods at 6 mo. Very few girls responded "don't know."

In bivariate analyses conducted to examine associations between child feeding attitudes and adolescent age and place of residence few associations were statistically significant. Respondents in Jimma town were far more likely to agree that infants should be consuming animal source foods at 6 months (37%) relative to those living in small towns (26%) or rural areas (18%;  $P<0.0001$ ).

### **Girls' planned duration of breastfeeding**

The WHO guidelines also encourage continuation of breastfeeding until at least 24 months of age, but only 37% of adolescent girls interviewed planned to breastfeed their first infant for at least 24 months (Table 3). More than 30% planned to feed their infant for less than one year, and 30% planned to breastfeed their infant for 12–23 mo. Less than 5% of adolescents reported that they did not know how long they would breastfeed their infant or that they did not plan to breastfeed.

In bivariate analyses of planned duration of breastfeeding, again few differences were statistically significant. Respondents living in the urban site (37%) and in small towns (38%) were more likely than those in rural areas (22%) to report planned breastfeeding durations of less than one year ( $P<0.0001$ ). Respondents in their late teens were more likely to report their planned duration of breastfeeding as less than one year ( $P<0.001$ ).

### **Comparison of attitudes and expectations by gender**

Boys were more likely than girls to report not knowing whether an infant should receive water (10.5% vs. 7%;  $P=0.005$ ) or butter (10% vs. 6.1%,  $P=0.002$ ) immediately after birth. Boys were also more likely to report not knowing whether a 1 month old infant should consume water (3.8 vs. 1.2%,  $P<0.0001$ ). There were no differences in "don't know" responses across the other outcomes. Excluding those individuals who responded "don't know", girls were significantly more likely than boys to agree that it is best to give infants water at birth (35.8% vs. 18.0%,  $P<0.0001$ ) but there were no other significant differences in the early child feeding variables. Boys' attitudes differed significantly from girls on the complementary feeding variables. Boys were more likely than girls to agree that at 6 month old infant should be consuming some fruits and vegetables (52.8% vs. 37.5,  $P<0.0001$ ) and animal source foods

(52.8% vs. 26.8,  $P < 0.0001$ ). There were no sex differences in intended duration of breastfeeding.

## DISCUSSION

This study shows that (1) adolescent attitudes towards exclusive breastfeeding and appropriate complementary feeding in Ethiopia deviate substantially from current international nutrition guidelines and best practices, that (2) these attitudes appear to be widely shared as evidence by the small percentage of “don’t know” responses, and that (3) the variation in attitudes across age, place and sex is fairly limited. These results have implications for population health and for the content and target audiences of programmatic messages. A limitation of the study lies in the wording of the questions and the use of an agree/disagree response format. We felt that because many current recommendations are dichotomous, the agree/disagree format was most suitable in this population however we recognize that respondents may have appreciated the ability to provide more nuanced answers.

These findings are of public health importance for at least two reasons. First, the norms and models children learn through observation and participation are directive [21]. That is, how people believe the world works and the frameworks with which they interpret the world are powerful engines driving behavior. The notion that attitudes and expectations held *before giving birth* are directive is powerfully illustrated in a number of observational studies showing that women’s prenatal intentions are highly predictive of their postnatal infant feeding behavior [30]. For example, Donath et al. [31] followed a cohort of 10,548 women in the UK and showed that prenatal intentions were strongly predictive of both initiation of breastfeeding and duration of breastfeeding. Women who planned to breastfeed for at least 4 months had an average duration of breastfeeding of 4.4 mo, whereas those who reported a planned duration of 1–4 wk had an actual duration of 1.5 mo. Chezem et al. [32] found that among 74 US women, women who planned to supplement breastfeeding also planned a shorter breastfeeding duration and reported shorter actual duration and earlier introduction of breast milk supplements than women who planned to exclusively breastfeed their infants. In that study, women who planned to exclusively breastfeed had a mean duration of actual breastfeeding that was more than 2 months longer than women who planned to supplement breast milk with non-human milks. The influence of attitudes on feeding decisions is found in studies of teenage mothers as well, at least in developed countries. A review of studies of adolescent mothers concluded that “as with adult mothers, attitudinal factors are important to teen mothers’ infant feeding decisions.” [33] Nutrition-education intervention studies also demonstrate that prenatal intentions and knowledge are modifiable, and therefore that interventions can be effective at improving child feeding practices [14,30,34,35]. There are also indications that targeting nulliparous women is most effective [36]. These studies suggest that in addition to the proximate and intermediate determinants of feeding behavior, an understanding of the underlying norms that girls and women bring with them into pregnancy may provide insight into why specific child feeding behaviors become actualized.

The second reason that these findings are of public health importance owes to the extraordinarily large population of adolescents living in the world. Roughly one-third of the six billion people living today are under the age of 25 years, and nearly a third of these are between the ages of 13–17 years; this is the largest population of adolescents in the history of the world [37]. This unusually large cohort of future parents provides public health practitioners with a unique opportunity to positively influence the health and well-being of future generations. The opportunity afforded by this demographic window has not been lost on public health practitioners, and consequently adolescent reproductive health programs abound, frequently focused on the prevention of HIV/AIDS [38]. Far less attention has been paid to providing adolescents with the skills and information they will need when they become parents

[39]. This lack of attention to infant and young child feeding practices is significant because child care practices such as non-exclusive breastfeeding and sub-optimal complementary feeding practices together were responsible for approximately 18% of all under-5 deaths in 2000 [13]. Adhering to current international child feeding guidelines benefits the infant, mother, and society; thus, if youth today raise their children following current guidelines future generations will be healthier. Nevertheless, exclusive breastfeeding up to 6 months of age is not widely practiced. Without significant changes in infant feeding knowledge and practices, the absolute number of infants in the next generation who are exposed to unhealthy feeding practices may be exceptionally large as today's generation of youth transition into parenthood.

Results from this study are also useful in guiding social marketing and education interventions. The results presented here show high expected rates of breastfeeding initiation among the next generation of parents in Jimma Zone. Programs need not focus on reducing stigma and embarrassment that are associated with breastfeeding in some cultural contexts. While more than 95% of adolescent girls interviewed expected to breastfeed and had some idea about their intended duration of breastfeeding, studies from other countries show considerably lower levels of breastfeeding intention and greater levels of ambivalence. In the USA and UK, rates of intention to breastfeed among non-pregnant adolescents vary from a low of 33% to around 66% [40–42] with fairly high levels of ambivalence [43]. These relatively low levels of planned breastfeeding may be due to a negative ethos that surrounds breastfeeding, including stigma and high levels of embarrassment [40,41]. Despite high levels of breastfeeding initiation in Jimma Zone, the expected duration of breastfeeding among youth in the JLFSY study area was generally less than international recommendations, particularly in urban settings; this matches larger population patterns in Ethiopia.

The results indicate that exclusive breastfeeding to 6 months of age is not the dominant cultural model of infant and child feeding behaviors among soon-to-be-mothers. Rather, our results indicate that there are several cultural or informational barriers to the practice of exclusive breastfeeding to 6 months. In targeting adolescent women in Ethiopia, educational programs should first attempt to understand why adolescent women view the early introduction of non-breast milk liquids as good practice. In the JLFSY interviews, adolescent respondents widely supported providing infants water and introducing at an early age foods that by international standards are likely to be of low energy and nutritional value. The results suggest that programs designed to increase the duration of exclusive breastfeeding might yield greater results if they are focused on reducing the practice of prelacteal feeds rather than on the promoting the duration of exclusive breastfeeding per se. Reducing prelacteal feeds would likely have benefits for reducing infant mortality [44]. Programs should also focus on the timely introduction of appropriate complementary foods. Our results, which are consistent with the delayed introduction of timely complementary foods noted in Ethiopia, showed that only a fraction of adolescents endorsed the items on timely introduction of foods. Interestingly, youth in the rural areas were least likely to endorse the animal source food item, which is consistent with broader population behaviors in that urban infants generally consume higher quality complementary foods. These results are entirely consistent with the cultural learning hypothesis introduced above.

There are now more adolescents living today than at any other time in history. We have argued on the basis of anthropological theory, along with observational and experimental studies carried out in other locations, that adolescents internalize child feeding norms before they actually become parents. Our results bear this out. We have also shown that in the Ethiopian context, adolescents' attitudes towards child feeding deviate widely from established international recommendations. Although there are many limitations to the current study, the theory and evidence suggest existing adolescent reproductive health programs and schools might offer an additional option for deploying infant and child feeding interventions.

## Abbreviations

<b>IYCFB</b>	infant and young child feeding behaviors
<b>JLFSY</b>	Jimma Longitudinal Family Survey of Youth
<b>SSA</b>	Sub-Saharan Africa
<b>WHO</b>	World Health Organization

## LITERATURE CITED

1. WHO/UNICEF. Global strategy for infant and young child feeding. Geneva: World Health Organization; 2001.
2. PAHO/WHO. Guiding principles for complementary feeding of the breastfed child. Washington, DC: Pan American Health Organization/World Health Organization; 2003.
3. Lauer JA, Betran AP, Victora CG, de Onis M, Barros AJ. Breastfeeding patterns and exposure to suboptimal breastfeeding among children in developing countries: review and analysis of nationally representative surveys. *BMC medicine* 2004 Jul 1;2:26. [PubMed: 15230974]
4. Gibson RS, Ferguson EL, Lehrfeld J. Complementary foods for infant feeding in developing countries: their nutrient adequacy and improvement. *Eur J Clin Nutr* 1998;50(10):764–10. [PubMed: 9805226]
5. Lozoff B. Birth and 'bonding' in non-industrial societies. *Dev Med Child Neurol* 1983 Oct;25(5):595–600. [PubMed: 6354797]
6. Macro. Ethiopia Demographic and Health Survey 2005. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Authority and ORC Macro; 2006.
7. Dewey KG, Brown KH. Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. *Food Nutr Bull* 2003 Mar;24(1):5–28. [PubMed: 12664525]
8. Motarjemi Y, Kaferstein F, Moy G, Quevedo F. Contaminated weaning food: a major risk factor for diarrhea and associated malnutrition. *Bull World Health Organ* 1993;71(1):79–92. [PubMed: 8440042]
9. WHO. Complementary feeding of young children in developing countries: A review of current scientific knowledge. Geneva: WHO; 1998.
10. Ruel, M. Progress in developing an infant and child feeding index: An example using the Ethiopia Demographic and Health Survey 2000. Washington, D.C: IFRPI; 2002 December 2002.
11. Onyango A, Koski KG, Tucker KL. Food diversity versus breastfeeding choice in determining anthropometric status in rural Kenyan toddlers. *Int J Epidemiol* 1998 Jun;27(3):484–9. [PubMed: 9698140]
12. Uauy R, Mize CE, Castillo-Duran C. Fat intake during childhood: metabolic responses and effects on growth. *Am J Clin Nutr* 2000 Nov;72(5 Suppl):1354S–60S. [PubMed: 11063477]
13. Jones G, Steketee R, Black R, Bhutta ZA, Morris SS, Group BCSS. How many child death can we prevent this year? *Lancet* 2003;362:65–71. [PubMed: 12853204]
14. WHO. Community-based strategies for breastfeeding promotion and support in developing countries. Geneva: World Health Organization; 2003.
15. Lutter, C. Breastfeeding Promotion: Is its effectiveness supported by scientific evidence and global changes in breastfeeding behavior?. In: Koletzko, BHO.; Michaelsen, K., editors. Short and long term effects of breastfeeding on infant health. Germany: Plenum Publishers; 2000.
16. Fiske, A. Meeting of the American Anthropological Association. Wasington D.C: 1997. Learning a culture the way that informants do: Observation, imitation and participation.



17. Weisner T, Gallimore R. My Brother's Keeper: Child and sibling caretaking. *Curr Anthropol* 1977;18(2):169.
18. LeVine, RA. Child care and culture: Lessons from Africa. Cambridge England; New York, NY: Cambridge University Press; 1994.
19. Henrich J, Boyd R. The evolution of conformist transmission and the emergence of between-group differences. *Evolution and Human Behavior* 1998;19(4):215–41.
20. Henrich J, McElreath R. The evolution of cultural evolution. *Evol Anthropol* 2003;12(3):123–35.
21. D'Andrade, RG.; Strauss, C. Human motives and cultural models. Cambridge [England]; New York: Cambridge University Press; 1992.
22. Dressler W, Borges C, Balieiro MC, Dos Santos JE. Measuring cultural consonance: examples with special reference to measurement theory in anthropology. *Field Methods* 2005;17(4):331–55.
23. Wiley A. Adaptation and the biocultural paradigm in medical anthropology: A critical review. *Med Anthropol Q* 1992;6(3):216–36.
24. Asefa M, Hewison J, Drewett R. Traditional nutritional and surgical practices and their effects on the growth of infants in south-west Ethiopia. *Paediatr Perinat Epidemiology* 1998 Apr;12(2):182–98.
25. Getahun Z, Scherbaum V, Taffese Y, Teshome B, Biesalski HK. Breastfeeding in Tigray and Gonder, Ethiopia, with special reference to exclusive/almost exclusive breastfeeding beyond six months. *Breastfeed Rev* 2004 Nov;12(3):8–16. [PubMed: 17891858]
26. Scott JA, Landers MC, Hughes RM, Binns CW. Factors associated with breastfeeding at discharge and duration of breastfeeding. *J Paediatr Child Health* 2001 Jun;37(3):254–61. [PubMed: 11468040]
27. Arora S, McJunkin C, Wehrer J, Kuhn P. Major factors influencing breastfeeding rates: Mother's perception of father's attitude and milk supply. *Pediatrics* 2000 Nov;106(5):E67. [PubMed: 11061804]
28. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombardi C, Teixeira AM, et al. Evidence for protection by breast-feeding against infant deaths from infectious diseases in Brazil. *Lancet* 1987 Aug 8;2(8554):319–22. [PubMed: 2886775]
29. Habicht J, DaVanzo J, Butz W. Mother's milk and sewage: their interactive effects on infant mortality. *Pediatrics* 1988 March 1 1988;81(3):456–61. [PubMed: 3344191]
30. Vogel AM. Intended plans for breastfeeding duration: a simple tool to predict breastfeeding outcome. *Acta Paediatr* 2003;92(3):270–1. [PubMed: 12725537]
31. Donath SM, Amir LH. Relationship between prenatal infant feeding intention and initiation and duration of breastfeeding: a cohort study. *Acta Paediatr* 2003;92(3):352–6. [PubMed: 12725552]
32. Chezem J, Friesen C, Boettcher J. Breastfeeding knowledge, breastfeeding confidence, and infant feeding plans: effects on actual feeding practices. *J Obstet Gynecol Neonatal Nurs* 2003 Jan–Feb;32(1):40–7.
33. Wambach K, Cole C. Adolescent Breastfeeding: A Review of the Literature. *J Obstet Gynecol Neonatal Nur* 2000;29:282–94.
34. Kramer MS, Chalmers B, Hodnett ED, Sevkovskaya Z, Dzikovich I, Shapiro S, et al. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the Republic of Belarus. *JAMA* 2001 Jan 24–31;285(4):413–20. [PubMed: 11242425]
35. Bhandari N, Bahl R, Mazumdar S, Martinez J, Black RE, Bhan MK. Effect of community-based promotion of exclusive breastfeeding on diarrhoeal illness and growth: a cluster randomised controlled trial. *Lancet* 2003 Apr 26;361(9367):1418–23. [PubMed: 12727395]
36. Perez-Escamilla R, Segura-Millan S, Pollitt E, Dewey KG. Effect of the maternity ward system on the lactation success of low-income urban Mexican women. *Early Hum Dev* 1992 Nov;31(1):25–40. [PubMed: 1486816]
37. UNFPA. State of world population 2003: Making one billion count: investing in adolescents' health and rights. United Nations Population Fund; 2003.
38. Govindasamy, P.; Kidanu, A.; Banteyerga, H. Youth Reproductive Health in Ethiopia. Calverton, Maryland: ORC Macro; 2002.
39. WHO. Nutrition in adolescence: Issues and challenges for the health sector. Geneva: World Health Organization; 2005.

40. Forrester IT, Wheelock G, Warren AP. Assessment of students' attitudes toward breastfeeding. *J Hum Lact* 1997 Mar;13(1):33–7. [PubMed: 9233183]
41. Pascoe JM, Berger A. Attitudes of high school girls in Israel and the United States toward breast feeding. *J Adolesc Health Care* 1985 Jan;6(1):28–30. [PubMed: 3965416]
42. Yeo S, Mulholland PM, Hirayama M, Breck S. Cultural views of breastfeeding among high-school female students in Japan and the United States: a survey. *J Hum Lact* 1994 Mar;10(1):25–30. [PubMed: 7619243]
43. Leffler D. U.S. high school age girls may be receptive to breastfeeding promotion. *J Hum Lact* 2000 Feb;16(1):36–40. [PubMed: 11138222]
44. Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. Delayed breastfeeding initiation increases risk of neonatal mortality. *Pediatrics* 2006 Mar;117(3):e380–6. [PubMed: 16510618]

**Table 1**

Attitudes regarding exclusive breastfeeding among adolescent girls aged 13–17 years (n=1018).

	Agree (%)	Disagree (%)	Don't know (%)
It is best to give an infant water immediately after birth	33.0	60	7.0
It is best to give an infant butter immediately after birth	22.1	71.8	6.1
It is best to initiate breastfeeding within one hour of birth	79.5	17.3	3.2
It is healthy for infants to drink water at 1 month	75.5	23.3	1.2
A 3 mo infant can survive on breastmilk alone	40.7	58.5	0.8
A 5 mo infant can survive on breastmilk alone	10.9	88.1	1.0

**Table 2**

Attitudes regarding complementary feeding among adolescent girls aged 13–17 years (n=1018)

	Agree (%)	Disagree (%)	Don't know (%)
At 6 mo an infant should be eating some animal source foods	26.8	71.7	1.5
At 6 mo an infant should be eating some fruits and vegetables	37.5	60.8	1.7

**Table 3**

Expected duration of breastfeeding among adolescent girls aged 13–17 y (n=1018).

	%
<12 mo	31.7
12–23 mo	30.1
24 + mo	37.6
Don't know	0.6