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ORIGINAL RESEARCH

Determinants of Weaning Practices Among Mothers of Infants Aged Below 12 Months in Masvingo, Zimbabwe

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Abstract

BACKGROUND Poor weaning practices have been reported to contribute to high infant mortality and morbidity rates especially in developing countries.

OBJECTIVES This study sought to determine factors related to weaning that predispose, reinforce and enable mothers of infants younger than age 12 months to comply or not to comply with the World Health Organization (WHO) 2009 guidelines on appropriate infant feeding.

METHODS The present study was a descriptive cross-sectional study. An interviewer-administered questionnaire was used to collect data on weaning and infant feeding practices from a sample of 300 mothers of infants aged younger than 12 months, resident in the Rujeko community, and registered and seen at the Rujeko Council Clinic during the study time.

FINDINGS The study results indicated that noncompliance with WHO infant feeding guidelines was high among the study participants. The rate of exclusive breastfeeding in the first 6 months was very low (14.8%), with the mean age of introduction of complementary foods to infants of 5 weeks (range 1-24 weeks). Early supplementation of breast milk was not associated with mother's age, level of education, and religion. Scheduled breastfeeding was more prevalent among the mothers who worked outside the home ($P = .018$). Provision of formal advice and influence from health care workers was found to improve young child feeding and weaning practices among mothers ($P = .011$).

CONCLUSIONS Various weaning methods were used, and mothers identified numerous factors as impeding their efforts to follow proper breastfeeding practices. The findings highlight the need to develop personal skills among mothers to prepare nutritionally balanced diets.

KEY WORDS exclusive breastfeeding, weaning, predisposing, reinforcing, infants, Zimbabwe

INTRODUCTION

The period from birth to 12 months of age includes the period of breastfeeding and the shift from breast milk to other foods (weaning period), during which children are at greater risk of developing malnutrition and becoming underweight. Zimbabwean mothers as a result of economic challenges in the country may resort to improper feeding practices as they may not have the money to buy nutritional foods for the baby. Various myths on exclusive breastfeeding that exist among the

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population may also hamper efforts toward proper infant feeding practices.

The Word Health Organization[1] recommended new feeding guidelines to be followed by all mothers (both HIV positive and HIV negative) in feeding their babies from birth to 59 months of age. These new guidelines promote exclusive breastfeeding for the first 6 months of life (especially in developing countries and low-socioeconomic communities where adequate and hygienic replacement feeding might not always be available to complement breast milk), early initiation of breastfeeding (less than 1 hour after birth), and continued breastfeeding with the gradual introduction of appropriate complementary foods (timely, adequate, safe, and properly fed) thereafter.[1] It was, however, not clear as to what weaning practices were being followed by mothers in Rujeko community and whether these practices were in line with the WHO guidelines because nutritional problems were arising among infants. Growth-monitoring figures from the clinic T5 forms[2] indicate the proportion of children underweight at 12 months of age (6.8%) to be greater than that of children born with low birth weight (0.18%). Clinic-based information indicated that the number of children who became underweight came from the population of children (all sexes) who were born with normal weight.[2]

Nutritional requirements of children older than 6 months cannot be met by breast milk alone, both in quantity and quality, for energy and other micronutrients essential for the growth and well-being of young children, including iron, zinc, and vitamin A.[3] As the child grows, breast milk should be supplemented by complementary foods, starting with liquids and then slowly progressing to solid foods manageable by the infant's digestive system. This is known as the weaning process: "the introduction of foods other than breast milk into an infants' diet while slowly reducing breastfeeding."[4] According to Briend et al,[5] during the complementary feeding period, children require diets with all the required nutrients in their correct proportions for optimum growth. However, previous research findings on weaning practices of caregivers reported that the weaning process is often accompanied by ill health and low weight, especially for infants in low-socioeconomic societies, mainly as a result of weaning foods that are not prepared to meet the infant's needs.[6] According to the National Nutrition Survey,[7] 100% of all the infants surveyed in Masvingo District were already on complementary feeding before the age of 6 months. The prevalence of wasting was found to be 2.9%, underweight 10.2%, and stunting 35.3% in the district. These statistics are higher than in other districts of the same province and are well above the WHO standard thresholds of 2.1%, 9.9%, and 33.8%, respectively.[7,8]

The educational and organizational diagnosis phase of the PRECEDE model,[3] which forms the conceptual basis of this study, focused on the predisposing, reinforcing, and enabling factors of weaning practices of mothers in Rujeko community. The PRECEDE-PROCEED model developed by Green et al[9] "provides a comprehensive structure for assessing health and quality of life needs, and for designing, implementing, and evaluating health promotion and other public health programmes to meet those needs." According to the framework, health behavior is influenced by both individual and environmental factors. The model enables analysis of determinants of weaning behaviors or practices as a function of predisposing, reinforcing and enabling factors.

Predisposing factors are characteristics of a person or a population that motivate behavior before the occurrence of that behavior—for example, age, occupational status, religion, knowledge, and so on.[9] Enabling factors are characteristics of the environment that facilitate action and any skill or resource that facilitates or hinders an individual's ability to execute the expected or recommended weaning practices, which include accessibility and availability of programs, resources and services, skills, money and time, and facilities.[9] For the present study, these include accessibility and availability of programs, resources and services, skills, money and time, and facilities.[9] Reinforcing factors are rewards and punishments after or anticipated as a result of behavior. They serve to strengthen the motivation for behavior.[9] Reinforcing factors include family, peers, health care workers, the media, and others.[9]

Goals of the Study. The goals of the study were to determine the predisposing, reinforcing, and enabling factors related to weaning practices of mothers, contributing to high rate of malnutrition (underweight) among infants younger than 12 months of age, who use services provided at Rujeko Clinic in the Masvingo urban district during the time of study. No district-specific research study has been carried out to assess compliance with WHO recommendations on weaning and child feeding among mothers of infants and to find determinants of weaning practices. Such a research

study targeting the primary causes of the problem (predisposing, reinforcing, and enabling factors related to weaning practices) was vital in coming up with relevant context-specific behavior change programs for reducing nutrition-related problems in Masvingo District.

METHODS

Research Design. The study was a descriptive cross-sectional study involving mothers of infants aged younger than 12 months as respondents. This study design was most suitable for describing characteristics of the study population with respect to breastfeeding and weaning practices at the time of study.

Participants and Setting. Study participants were obtained from all mother-child pairs of infants aged younger than 12 months, registered for and attending postnatal services at Rujeko Council Clinic. Out of a total of 303 mothers with infants aged younger than 12 months, a total of 300 eligible mother-child pairs participated in the study. The mothers were recruited as they came for various postnatal services at the clinic.

Data Collection. Data were obtained by fluent English and Shona (the native language in Rujeko) speakers trained in quantitative methodology. The data were collected using self-administered questionnaires that captured participant characteristics and breastfeeding and weaning behaviors and practices. The questionnaire was pretested and modified based on feedback from the pretest before the actual data collection. Participants for the pretest were excluded from the actual data collection.

Procedures. Permission to proceed with the study was granted by the University of Zimbabwe Department of Community Medicine, Masvingo City Health Management, and Rujeko Council Clinic management. Before the study was conducted, ethical approval was obtained from the Joint Parirenyatwa Hospital and College of Health Sciences Research Ethics Committee based at the University of Zimbabwe (reference number 49/13). Data were collected only from participants who had given written informed consent.

Data Analysis. Each questionnaire was checked for completeness and appropriateness of responses at the end of each completion process and before storage. Analysis of quantitative data involved the production and interpretation of frequencies, tables, and graphs that described the data. Data entry was performed using the EPI Info computer software package (Centers for Disease Control and Prevention, Atlanta, GA). Chi-square (χ^2) tests and cross-tabulations were used to analyze categorical data on breastfeeding practices of the index child and the socioeconomic and demographic characteristics of the mothers and infants. Binary logistic regression was performed in the analysis of factors associated with early introduction of complementary foods $\leq$6 months.

RESULTS

We performed binary logistic regression analysis of factors associated with early weaning (<6 months) among study participants. The findings are presented in Table 1.

Predisposing Factors. ***Breastfeeding practices.*** Eighty-one percent of the 300 mothers who participated in the study had already started supplementing breast milk with other foods. The distribution of the age of infant at introduction of complementary foods was before 6 months in 207 of 243 infants (85.2%) (early), at 6 months (correct weaning) in 36 of 243 (14.8%), and none after 6 months (delayed weaning). The mean age of infant at initiation of the weaning process was 5 weeks (range 1-24 weeks) from birth. Thirty-six mothers reported to have practiced exclusive breastfeeding for 6 months from birth (the correct duration of exclusive breastfeeding). Bottle feeding, wet nursing, and expressing breast milk were never reported in this study.

Knowledge and beliefs of mothers related to infant feeding. The majority (97.0%) of the mothers were aware of the general advantage that breast milk has (available at anytime and anywhere; is always clean, nutritious, and at the right temperature). However, most mothers believed that newborn babies should be given cooking oil and water to drink (92.0% and 55.0%, respectively). The majority of the mothers (70.0%) did not know that breast milk production increases with consumption (suckling). A large proportion of respondents (69.0%) did not believe that egg and meat should be part of the child's complementary diet after the age of 6 months. Knowledge that breast milk contains enough water for the child's body requirements was shared by only 53.0%.

Age of infant at introduction of complementary foods. From the findings, 243 (81.0%) of the children involved in the study had started the weaning process, because they had already been introduced to foods other than their mothers' milk. A large proportion of the children (207 of 243 [85.2%]) had been introduced to complementary foods too early,

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Table 1. Characteristics of Mothers in the <6 Months and 6 Months Weaning Groups, and the Binary Logistic Regression Analyses of Factors Associated with Early Weaning (<6 Months)

Characteristics	Weaning Age* (mo)									
	Total (n = 243)		<6 mo (early)		6 mo (Normal)		*P*	Adjusted†		
	n	%	n	%	n	%		OR	95% CI	*P*
Maternal age										
<20	12	5	7	3	5	14		1.0		
20-24	41	17	34	16	7	19	.011	1.23	0.70, 5.13	
25-29	88	36	78	38	10	28	.023	1.30	0.63, 7.02	
≥30	102	42	88	43	14	39	.031	1.12	0.23, 5.02	.034
Maternal occupation										
Unemployed	118	48.6	90	43	28	78		1.0		
Self-employed	43	17.7	35	17	8	22	.001	2.31	1.13, 9.14	.005
Formally employed	82	33.7	82	40	0	-	.004	2.26	2.11, 15.02	.002
Maternal educational level										
Primary	42	17.3	34	16	8	22		1.0		
Secondary	151	62.1	131	63	20	56		1.0		
College/university	50	20.6	42	21	8	22	.011	1.63	0.23, 6.20	.023
Mother's reported source of advice on infant feeding										
Health care worker/ nurse	102	42.0	72	35	30	83		1.0		
Family/friends	6	2.5	4	2	2	6	.001	3.34	2.31, 6.45	.000
Previous experience	135	55.5	131	63	4	11	.001	4.30	3.10, 7.62	.000
Maternal knowledge about proper child feeding and weaning practices										
Inadequate	146	60.1	144	70	2	6	.001	5.20	1.67, 9.23	.002
Adequate	97	39.9	63	30	34	94		1.0		

CI, confidence interval; OR, odds ratio.
* Cross tabulations and χ^2 tests were used in univariate analyses to compare the differences between mothers and infants in the <6 months and 6 months weaning groups.
† The odds ratio values were obtained from the final binary logistic regression model, which was adjusted for maternal age, occupation and level of education, parity, and infant birth weight.

before the age of 1 month. The rate of exclusive breastfeeding up to 6 months of age was found to be higher among the unemployed compared with the formally employed mothers or self-employed. Mother's formal employment was associated with early introduction of complementary foods to the infant ($P = .002$).

Correct age at introduction of complementary foods (at 6 months) was noted in 36 of 243 (14.8%) of the mothers who had already started supplementing breast milk with other foods. Among the major reasons for not exclusively breastfeeding for 6 months was the perception or belief that breast milk alone was not enough for the infant or that the infant was hungry and that the infant was too big or heavy to be fed on breast milk alone. Two hundred seven of the respondents reported that they were breastfeeding on demand, and 93 (31.0%) were practicing scheduled breastfeeding of their infants.

The total number of children younger than age 5 a mother had influenced the type of breastfeeding the mother usually practiced ($P = .003$). The rate of breastfeeding on demand was found to be higher among the mothers with 2 or fewer children younger than age 5 compared with those mothers with 3 or more children younger than 5 years.

Birth spacing of less than 4 years from youngest child to next-youngest child was noted among 123 of the mothers. The number of children younger than 5 years a mother had had a negative correlation with birth weight ($R^2 = 0.5$). Seven out of 11 (63.6%) of the children born underweight were born to mothers with 3 or more children younger than 5 years.

Reinforcing Factors. Influence from health care workers was found to improve exclusive breastfeeding for the first 6 months of the infant's life ($P = .011$). Out of the 36 mothers who introduced complementary foods at 6 months (recommended time),

21 (58.3%) reported that they got much of the influence from health care workers. However, among the factors with the greatest influence on mothers' decision on weaning, advice from the health care worker or clinic was not the main influence reported. In this study, previous experience was found to influence the mothers' weaning practices that were observed during the study time ($P = .001$). Out of the 147 mothers who had previously introduced complementary foods early (before 6 months) to their next-youngest children, 135 (91.8%) repeated the same practice of early initiation of the weaning process. Similarly, of the 30 mothers who had previously introduced complementary foods at the correct time, 12 (40.0%) repeated the same correct weaning practice.

Twenty-four out of the 36 (66.7%) who exclusively breastfed their infants had received formal information on weaning. Receiving formal information was associated with recommended age of weaning, at 6 months ($P = .012$). Ninety (90.0%) of the mothers who participated in the present study reported having had access to information or advice on weaning (timing, duration, food types). Of the 90.0% respondents who reported having been advised about weaning children, 147 (48.9%) reported having obtained most of the advice from the clinic or health care worker, 143 (47.8%) from relatives or peers, and 10 (3.3%) from media or Information, Education and Communication materials.

Enabling Factors. Ten percent of respondents believed they did not have all the food they needed to feed their infants, and the remaining 90.0% believed they had enough complementary food for their infants.

Usual Weaning Diet Assessment Using the Diet History Method. Among those mothers already introducing complementary foods, common foods given to children were maize meal/corn porridge (95%), *sadza*[*] (65%), mashed potatoes (45%), banana (35%), *mazoe*/concentrated syrup juice[†] (55%), and avocado (36%). Other common foods given to infants are listed in Figure 1.

Almost all porridges (90%) were given to infants in their unfermented state. Mothers reported adding various ingredients to make porridges more nutritious. Seventy-five percent of the mothers reported adding sugar, whereas the addition of peanut butter to porridge was reported by 3.5% of the mothers. Addition of cow's milk was done by 2.5%, and none of the mothers reported adding eggs. The percentage of the mothers who added oil or fat was 19.1%. The use of commercially produced foods in feeding infants and young children was also found to be high. Among the common foods given to children, mothers reported giving ice cream (15.0%), sweets (35.0%), snack foods/zap-nax (20.0%), and *freezits*[‡] (30.0%), which are known to have no nutrient content. The use of commercial cow's milk as supplementary food was reported by 13 (13.0%) of the mothers. Type of food usually given to infant/child had no association with any of mothers' demographic variables.

Usual infant diet assessment using the 24-hour food recall. Respondents who had already begun supplementing breast milk were asked to name the types of foods they had given to their children in the previous 24 hours before the survey. The most commonly used foods for child feeding were porridge or gruel followed by the adult diet. The widely used adult diet was *sadza* (with soup), bread, and rice. Only 15.3% of the children had been fed fruits and 17.4% vegetables.

Common foods given to children as supplementary food within the previous 24 hours prior to the survey, are presented in Table 2.

Concerning precautions in preparing complementary foods, all the respondents reported washing their hands and utensils before preparing food, and they all knew the reason why normal nutrition was necessary for children. The common practice among most mothers (81.7%) was that of preparing food once to be given to the baby in portions, throughout the day. The majority of the mothers, 225 (75.0%), indicated that they were in need of information/advice related to breastfeeding.

DISCUSSION

Introduction of inappropriate and unsafe food supplementation before the age of 6 months was a common practice among the study participants. WHO[1,10] states that although initiation of breastfeeding is high in African countries, duration of exclusive breastfeeding is typically low. In the present study, the average age at which supplementary diet was given to the index child was 5 weeks

[*]Cooked cornmeal, a staple food in Zimbabwe.

[†]A fruit-flavored drink made from fruit juice, water, and sugar or a sugar substitute.

[‡]Sweet ice-block made from water, sugar, and colorings.

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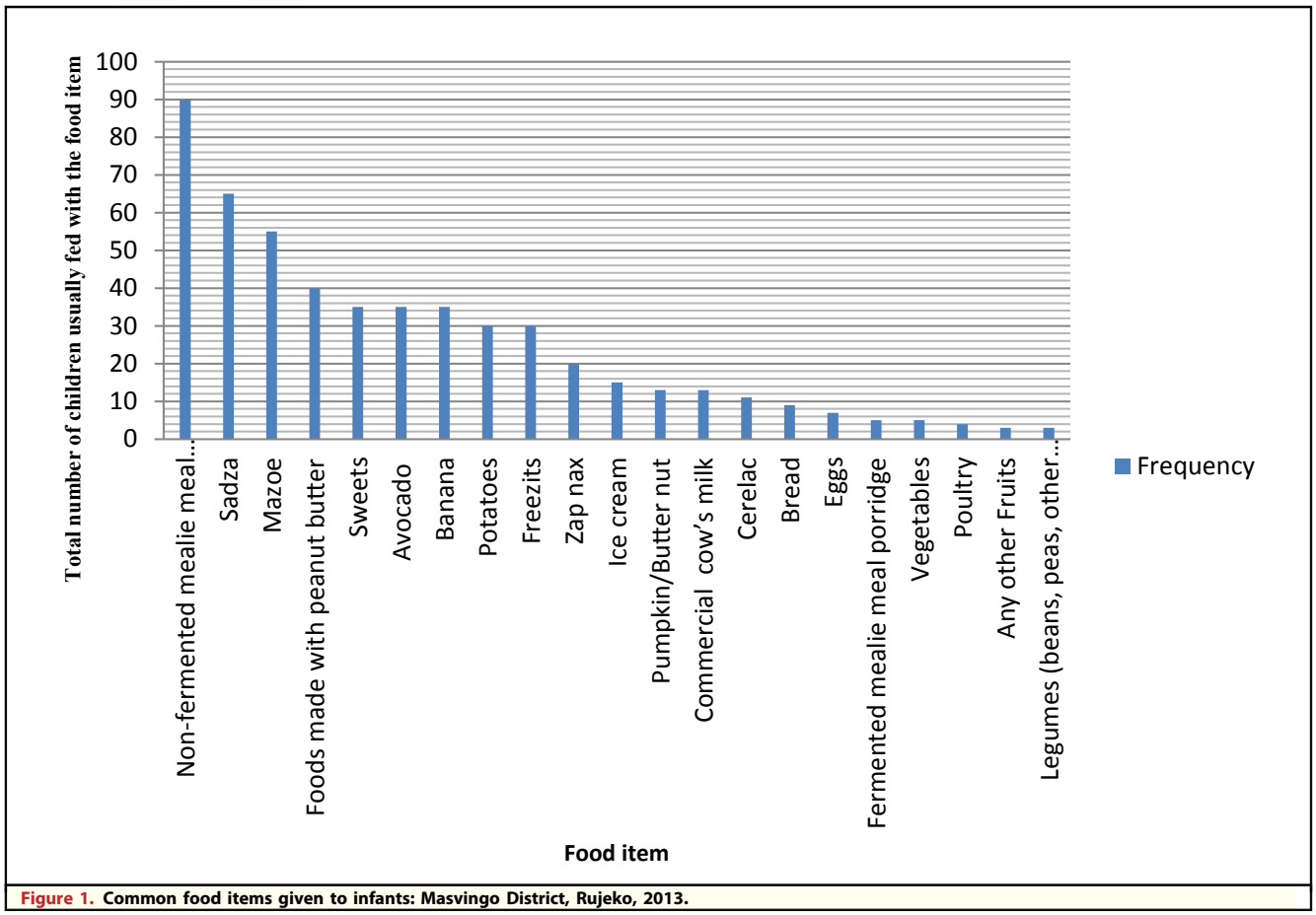

Figure 1. **Common food items given to infants: Masvingo District, Rujeko, 2013.**

(range 1-24 weeks). More than three-quarters of the sample mothers introduced complementary foods to their children before the age of 6 months. This was found to be too early for weaning, because most of the infant's digestive processing is not yet prepared to process the adult diet given to infants by most mothers in developing countries.[1,10-13]

Age of introduction of complementary foods was found to be generally earlier in the present study compared with other study findings.[12] A similar study conducted by Sibeko et al[12] in periurban South Africa reported 33.3% commencement of weaning before the age of 6 months, which is lower than the findings of the present study (87.7%). This difference could partly be explained by the strict operational definition used to define complementary foods, which considers water and cooking oil as food in this study. Time difference can also explain the inconsistencies between the findings of the 2 studies, because the South Africa study was conducted in 2005. Gebriel[13] pointed out that beliefs and practices change as people migrate and gain access to information via different sources and channels. Above all, the present study was conducted in an urban area where early commencement of weaning is expected to be higher for various socioeconomic reasons compared with periurban communities. Introduction of complementary foods before the age of 6 months has often been discouraged by the WHO,[1,10,14] especially among mothers living in developing countries and low-socioeconomic communities, because the inadequacy of enough replacement feeding can lead to weight loss, increased risks of infection, malnutrition, and death among infants. According to the WHO,[14] early weaning is hazardous and should be avoided.

Most mothers gave the reason that they introduced complementary foods early (before 6 months) as the perception that the baby was too big or heavy for breast milk alone. Previous studies[12,13,15] have reported similar findings that infant's body size influences timing of weaning, independent of other factors. Promotion of exclusive breastfeeding should

Table 2. Common Foods Usually Given to Children

Food Item	Frequency	Percentage
Cereal-based porridge (semisolid)	79	94.0%
Foods made with oil, fat, or butter	70	85.4%
Peanut butter or other foods from nuts	60	74.1%
Sadza, bread, rice (adult diet)	57	71.3%
White potatoes or foods from roots	32	40.0%
Commercially produced infant formula	28	34.6%
Foods from peas, cow peas, beans, other peas, or lentils	22	27.5%
Pumpkin, carrots, or any vegetable with yellow/orange inside	20	25.0%
Egg	20	25.0%
Dark green leafy vegetables	17	21.3%
Poultry	15	18.8%
Any other fruit	15	18.8%
Any beef, pork, lamb, goat, rabbit, or any game meat	13	16.3%
Any edible insects, fresh or dried fish	2	2.5%
Ripe mango or paw-paw	1	1.3%

thus seek to correct misconceptions about breastfeeding together with supplying messages on the benefits that exclusive breastfeeding brings to both the infant and mother, so as to motivate mothers to change their breastfeeding behaviors.

The timing of breastfeeding had a significant association with the employment status of the mother ($P = .018$). Breastfeeding on demand was found to be more common among the unemployed mothers and among mothers with 2 or fewer children aged younger than 5 years. The WHO[14] points out that the mother's employment reduces time available for childcare. Timing of breastfeeding was also significantly associated with the total number of children younger than age 5 years a mother had ($P = .003$). A study conducted by the Food Agricultural Organization[16] found similar results that support that scheduled breastfeeding is more common among mothers who work outside the homes and among mothers with more than 2 children younger than 5 years because of increased amount of care needed by the many young children. The scientific implication of scheduled breastfeeding is that it subsequently reduces milk production in the mother (the more breast milk the baby sucks, the more milk the mother makes, and vice versa), which consequently results in the infant getting little or insufficient breast milk, leading to early introduction of complementary foods.[1,17–21]

Findings also indicated that most employed mothers supplemented breast milk because they had no time to feed the baby as they had to return to work, yet none of them reported expressing breast milk. The implication of this finding is that children will be fed on schedules leading to the infant consuming less milk during the day than he or she ought. In such a circumstance, the chief source of satisfying hunger in the absence of the mother then becomes foods other than breast milk, where the choice of the food, preparation, and hygiene issues may expose the child to sickness, retarded growth, and risk of death. Moreover, the biological mother might have the necessary information and skills to provide appropriate care, yet in her absence, someone without such skills might be left with the role of feeding the baby.[22] In many cases, according to the Zimbabwean experience, the caregiver left with the child might be a housemaid, whose practices may not be hygienic enough to promote the infant's health.

Provision of formal information or advice on weaning was seen to improve knowledge on timing of weaning and compliance with WHO[1] weaning guidelines among the study participants, with those who had obtained formal advice from a health care worker tending to comply more with the WHO guidelines on weaning than those who had not obtained formal advice. Lankester[23] pointed out that though women might have access to information about the needs of infants, they do not control essential resources that are needed for effective action. Multiple factors come into play, which determine whether mothers should take action and comply with the formal advice they get. In the African setting, the final decision on what foods to give the child and the time of their introduction are based on the customs of a given family.[19-21,24] The context in which mothers live and the implication of their position and roles at family level should be well considered when planning any behavioral change strategy. Millar and Maclean[25] pointed out that men have little information about actions to be taken when raising children and that they often have little understanding of the direct consequences of some of their decisions to their wives and children. They further pointed out that although women receive information, they are not empowered to take action, whereas men can take action but have little information.[25]

There were indications of the existence of competing beliefs in relation to understanding childhood illness and treatment methods between the health care workers and mothers or caregivers.

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Mothers stated that they introduced cooking oil and water to the children before the age of 5 months as a method to treat the fontanel, known as *nhova* in the local language, among their children. Symptoms believed by most people in Masvingo province to be a result of fontanel problems are usually believed by health care workers in the same province to be caused by mere dehydration. In Masvingo province as a whole, *nhova* is a common but deadly condition common among all infants and should be treated soon after birth through introduction of water, cooking oil, and other culturally accepted traditional herbs.[26] Future research should aim at finding more about the culture-bound syndromes, beliefs, and attitudes of communities as a way of understanding how different cultures define illnesses and their causation and treatment. Such a step will go further to increase community participation and involvement in health behavioral change programs, which lead to trust, program sustainability, community involvement, and capacity building among the community members in question.

Findings from the present study indicate that the most common types of weaning foods given to children were an adult diet, which included carbohydrate staples and highly starchy foods in the form of maize meal porridge, potatoes and *sadza*, and other commercially produced foods of low nutrient content, with no significant association to economic status, age, employment status, or level of education of the mother. A similar study conducted by Kruger and Gericke[24] found almost similarly that the weaning diets of the mothers were compromised by poor food choices and food preparation skills. Okolo et al[11] pointed out that foods given to young children as weaning foods are mainly a small modification of the adult diet, which are just smashed or prechewed to ease digestion, then mixed with water. In such types of food choices, protein sources, vegetables, and fruits are missing from the infant diet, raising the chances of the infant becoming malnourished. Fruits, vegetables, and foods rich in proteins were rarely given to children in the present study. However, such food types are essential for the well-being and growth of the children. Dewey[17] noted that poor nutritional intake during this critical period of development can increase the risk of infant morbidity and mortality and can result in compromised growth and cognitive function in the later years. However, Madhu et al[20] noted that awareness of nutritional needs during weaning, ability to provide food, and preparation skills have helped to remove the dangers of the weaning period. This was supported by Gebriel,[13] who pointed out that improving knowledge and skills at the village or community level for the production of appropriate weaning foods is of great importance.

CONCLUSIONS

The present study concludes that mothers and caregivers in the Rujeko community are generally aware of the correct timing of weaning children from breast milk. However, the major problems identified were incorrect weaning practices and lack of nutritionally balanced diet during the first year of an infant's life. Early introduction of complementary foods to infants (before 6 months) was found to be widespread in the Rujeko community, with common foods given to children being mainly high-carbohydrate and starchy staples. Noncompliance with the WHO recommendations on weaning was common among mothers, with no significant association to age of the mothers, religion, educational level attained, or marital status.

Breastfeeding exclusively for 6 months and feeding on demand does not imply good nutrition of the child. Even a baby who is exclusively breastfed on demand may get malnourished if the home environment is not supportive enough to offer good hygiene and sanitation for child care. Moreover, exclusive breastfeeding after birth may maintain the health of the infant up to 6 months. After 6 months, other factors come into play that may again compromise the child's nutritional status, such as complementary food choices, food preparation skills, mother's beliefs and practices, household economic status, hygiene and sanitation issues, and other diseases. Hence following 1 guideline is not effective in ensuring good nutrition of children. All the guidelines need to be followed from birth up to age 5.

Provision of formal or professional information was found to increase compliance with the WHO guidelines ($P = .011$). However, information on weaning and breastfeeding should be made more accessible to men and other influential members of the family and community because men do not participate in day-to-day activities of caring for children but influence most of the decisions related to child feeding and treatment options. Future programs must have a clear plan where attention is not only paid to primary caregivers but to all those who influence the successful attainment of program goals.

The factors linked to child malnutrition were poor choice of complementary foods, early initiation of the weaning foods, shorter birth spacing, and hindrances to healthy infant feeding as a result of culture, previous experience, and beliefs among mothers.

Implications of the Study. Health promotion can be seen as a set of values that include community empowerment, community participation, equity, and intersectoral collaboration. Women themselves need to be empowered through developing personal skills, strengthening community action, creating supportive environments, reorienting health services, and building a health public policy (the Ottawa Charter's 5 action areas) all in favor of infant and maternal nutrition so that mothers will find correct and good weaning practices the easier choice to make. An understanding of this ecological framework will help to identify and plan effective ways to design behavioral change programs related to weaning practices among mothers in Masvingo District. The observed weaning practices of mothers can also be greatly influenced by several factors, including the day-to-day interactions of the mothers, the number of places or settings where interaction occurs (churches, workplaces, shopping places, conferences, hospitals), the structure and influence or power of these settings on behavior (the orientation in terms of environment, lifestyles, activities, culture, and nature or type of information), and finally the policy of the social sector and the society as a whole.

Recommendations. The researchers recommend that the Ministry of Health and Child Care and its implementing partners introduce nutrition education programs for the improvement of weaning practices to prevent malnutrition and improve nutritional situation in early life. These programs should also teach mothers food choices—for example, information on the hazards of giving unsuitable food items to infants, such as sweetened ice-blocks *(freezits)*, snacks, and sweets, during weaning and the importance of spending money on healthy food varieties.

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