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COMPLIANCE TO EXCLUSIVE BREASTFEEDING AMONG PROFESSIONAL WORKING MOTHERS OF CHILDREN AGED 0-23 MONTHS IN URBAN UGANDA

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ABSTRACT

Background: In Uganda, only 66% of infants under the age of 6 months are exclusively breastfed. However, little is known about compliance to exclusive breastfeeding in professional working mothers, yet it could be hypothesized that they are less likely to resort to exclusive breastfeeding as they are more often away from their infant. This study therefore investigated the extent of compliance to exclusive breastfeeding for the first 6 months among professional working mothers in Uganda.

Methods: The study used a descriptive cross sectional design with data collected during December, 2017. A total of 185 purposively sampled professional working mothers were interviewed. Pre-tested structured questionnaires were used in data collection through face to face interviews. The questionnaire covered questions on breastfeeding habits and demographic characteristics of the working mothers. Data was analyzed in SPSS statistical software using Chi-square tests and logistic regression.

Results: Of the 185 respondents, 60% complied to early initiation of breastfeeding within the first hour of delivery, and 42% exclusively breastfed their children during the first 6 months of life. At the bivariate level, the prevalence of mothers' compliance to exclusive breastfeeding was higher among senior staff (58.9%) compared to middle and junior level staff, and among mothers that were able to breastfeed children at work (75%) as contrasted with those who breastfed away from work. On controlling for other factors in a logistic regression, breastfeeding habits of working mothers remained significant in that those that breastfed their children at work were most likely to comply to exclusive breastfeeding during their children's first 6 months of life ((AOR 8), 95% CI (1.728-37.102)) than those using other breast feeding strategies.

Conclusion: Compliance to recommended breast feeding practices for infants 0-6 months remains relatively low at 42-60% among working mothers in Uganda. The finding that breastfeeding at work increases the likelihood of compliance could hold promise for the introduction of such good practice in the workplace, based on evidence.

Key words: Exclusive breastfeeding; working mothers; Uganda

INTRODUCTION

Exclusive breastfeeding refers to the practice of feeding an infant on breast milk only, giving no other liquids or solids not even water with the exception of oral rehydration solution, or drops of vitamins, minerals or medicines [1]. According to WHO recommendations, infants should be exclusively breastfed for the first six months of life to support growth and development and as well as general health. This practice is part of recommended Infant Young Child Feeding (IYCF) practices, which are a set of widespread standards of appropriate feeding in the first two years of a child's life necessary for optimal growth and development [2]. IYCF practices include; Early initiation of breastfeeding within the first hour of delivery, exclusive breastfeeding for the first 6 months of the infant's life and thereafter timely introduction of adequate, safe and nutritious complementary foods with continued breastfeeding up to the age of 2 years [3]. Breastfeeding has benefits to both the infant and the mother. Breastmilk is highly energy rich and nutritious essential for growth in the first six months and reduces the risk of childhood overweight and obesity, cognitive dysfunction and infection risk [1, 4-6]. In addition, To the mother, breastfeeding helps to reduce the risk of ovarian and breast cancer and helps to space pregnancies as it has a hormonal effect that induces lack of menstruation, hence can be a good family planning strategy [3].

Despite recommendations from WHO, worldwide, it has been estimated that only 34.8% of infants are exclusively breast fed for the first 6 months of life, the majority receiving some other food or fluid in the early months [5]. In Uganda, the context of the current study, only 66% of infants under age of 6 months are exclusively breastfed for the first 6 months [4].

While it could be hypothesized that working mothers may be less likely to resort to exclusive breastfeeding as they are more often away from their infant, the research findings are inconsistent, with

some studies corroborating this notion [2,7-9] and others suggesting that the practice is more common among working mothers as they engage in breastfeeding during work hours [10]. This could be attributed to the easy access of mothers to their babies or expressing breast milk during the working day [11]. There is thus a need for further investigation in each unique context.

In Uganda, the Ministry of Health has shown support for the optimal IYCF practices through the development of the Uganda Policy Guidelines on Infant and Young Child Feeding, 2012 [12] which stipulates that working women are entitled to a fully paid maternity leave of 60 working days [13]. Furthermore, the government of Uganda has also encouraged employers to establish breastfeeding corners at workplaces to create an enabling environment for mothers to breastfeed their children [12], though there are indications of failure in implementation of the latter [9]. With the growing female work force in Uganda [14] understanding the extent and factors associated with compliance to exclusive breastfeeding could inform occupational policies and interventions to improve such practices in Uganda.

The main objective of this study was therefore to determine the extent of compliance to Exclusive Breast Feeding (EBF) for the first 6 months, and its association with breastfeeding practices and socio-demographic factors among working mothers.

METHODS

Study design, area, study population and inclusion criteria

The study adopted a descriptive cross sectional design. Structured interviews with a sample of professional working mothers in the central division of Kampala city, Uganda were carried out during December 2017. Inclusion criteria were mothers working in the formal sector and with children between ages 0 to 23 months of age.

Sampling technique and sample size

Purposive sampling of offices or organisations were picked if they were located in the formal sector of Central division. Potential respondents were sought in these offices and the snow ball method applied to recruit more respondents until the sample size was achieved. Mothers meeting the inclusion criteria were also sought around the clinics within this area code. Immunisation days at these clinics were targeted to find respondents who were employed in the formal sector.

The sample size was determined based on the prevalence of exclusive breastfeeding in observed in a previous study among urban dwelling working mother [7] the Kish Leslie's formula $n = \frac{Z^2 xPQ}{\partial^2}$, where; n represents the desired sample size, Z is the normal standard deviate, whose value at 95.0 % confidence level is 1.96, P = 0.1 [7], Q = 1-P =0.34, ∂ = the set margin of error; 5% . Thus the minimum sample size was 138. Assuming a non-response rate of up to 25%, a total of 172 participants minimum would be required. In this study, a total of 185 consenting respondents were interviewed, which exceeds slightly the required minimum.

Data collection tools, procedures and measures

A pre-tested structured questionnaire covering breastfeeding habits and demographic characteristics was used. The dependent variable of this study was compliance to EBF for the first 6 months, with response options "yes" or "no". The main risk factor for this study were breastfeeding habits of working mothers. The habits investigated were breastfeeding at the workplace, breastfeeding breaks, expressing breastmilk and breastfeeding after work. Specifically, respondents were asked when they initiated breast milk and the following were the response options;

- Within an hour of delivery
- 1 to 3 hours after delivery

- 3 hours or more after delivery

They were also asked whether gave their child any other food besides breast milk in the first six months of the child's life and options here were either yes or no. respondents were also asked what breastfeeding habit was adopted on returning to work after maternity leave and the options were;

- Breastfeeding breaks
- Breastfeeding at workplace.
- Express breast milk
- Breastfeed after work

Demographic data including age of respondent, religion, level of education, average monthly income and type of job were also gathered.

The data collection was conducted by the first author, together with 5 research assistants through face to face interviews, which were conducted upon written consent from respondents. Confidentiality and anonymity were guaranteed in the consent information and further in practice through the use of non-identifiable numbers instead of their names.

Data analysis

Data was checked for completeness and consistency before being entered in Statistical Package for Social Sciences(SPSS) version 20. Descriptive data of participants was expressed in terms of frequencies and percentages. Chi-square tests were used to study bivariate associations between EBF and each potential risk factor, and logistic regression (with adjusted odds ratios) used to study adjusted associations. A p-value of less than 0.1 was taken as significant at the bivariate level. Variables that qualified at this level were then carried to the multivariate level of analysis. At this level, statistical significance was assumed at a p-value < 0.05.

Ethical considerations

A letter of approval to conduct research from the district authorities was obtained prior to data collection. Respondents were

only interviewed after giving their written informed consent, and confidentiality guaranteed by using non-personal questionnaire identification numbers instead of names. In addition, the results are presented at group level such that no single individual can be identified from them.

RESULTS

STUDY CHARACTERISTICS

A total of 185 were interviewed in this study. As depicted in table 1, the majority of participants were between ages 28-35 years (65.4%), held Bachelor's degree (61.1%) and of Born again or Seventh Day Adventists (29.8%) religious affiliation. The majority earned a monthly salary of between 500,000-1 million Ugandan shillings (26.5%), held middle-level staff positions (57.3%) and had children 6-23 months old (77.3%) .

Compliance to EBF for the first 6 months of life

As indicated in table 2, the majority 97.8% of respondents breastfed their children, and initiated breastfeeding with the first hour of birth (60.3%). Exclusive breastfeeding for 6 months was practiced among 41.8% of studied women. Sixty percent introduced complimentary feeding at 6 months and 37% were currently breastfeeding.

Majority of respondents 96.7% said that they had maternity leave, 78.4% said they continued breastfeeding after they returned to work. Among those who continued to breastfeed after returning to work, the majority 35.9% managed to breastfeed through breastfeeding breaks (Table 3).

Factors associated to EBF for the first 6 months

Bivariate analyses

As exhibited in table 4, the proportion complying with EBF practice increased with increasing seniority along the staff cadre scale, and was highest among mothers breast feeding at work than among mothers adopting other breastfeeding

strategies. There was no significant association between compliance to EBF and demographic characteristics of working mothers.

Multivariate analyses

Only type of job and breastfeeding habits of working mothers were carried to multivariate analysis of compliance to EBF for 6 months, as these were the only significant variables associated with EBF in the bivariate tests. As shown by the odds ratios and their confidence intervals, the likelihood of compliance with EBF was higher among among mothers breastfeeding at work place, and those expressing breast milk than among peers breastfeeding after work. Type of job ceased to be significantly associated to compliance to EBF in the multivariate analysis.

STUDY POPULATION

The 15 included studies constituted a total sample of 2105 participants with a total of 1208 in observational and 897 in RCTs studies. Four of the included studies were conducted in USA [27,30,31,32], 2 in Mexico [33,36], South Korea [23,28], and Italy[24,25].Canada [26], Germany[35], Portugal [22], Brazil [34] and Swede[29] each contributed 1 study. The majority of studies did not report race. Participant age ranged from 25-92 years. The majority of study participants were men with women representing less than 40% of the population included in this review. Five studies examined participants with HFrEF [22,25,26,28,29]. Nine studies included both of HFrEF and HFpEF [23,24,27,31,32,33,34,35,36] and one on patients with HFpEF [30]. Most studies including patients with NYHA functional class I-III. Sample size varied from as small 14 [32] to 348 [27] participants among studies. The largest cohort study was that of Lennie and co-workers [27] (n=348) and the largest RCT was by Paterna and colleagues [24] (n=232). Of the included studies, only 4 addressed power analysis [24, 25, 29, 31].

Table 1. Demographic characteristics

VARIABLE	FREQUENCY	PERCENTAGE
Age of respondent(n=185)		
20-27	43	23.2
28-35	121	65.4
36-44	21	11.4
Education Level(n=181)		
Certificate	21	11.6
Diploma	33	18.2
Bachelor's	113	62.4
Master's	14	7.73
Religion (n=181)		
Catholic	44	24.3
Protestant	54	29.8
Muslim	28	15.4
Others	55	30.4
Average monthly income (n=113)		
Less than 500,000	30	26.5
500,000-1 million	49	43.4
Above 1 million	34	30.1
Type of job (n=180)		
Senior staff	56	30.3
Middle staff	106	58.9
Junior staff	18	10
Age of child		
0-5	42	22.7

6-23	143	77.3
Average monthly income (n=113)		
Less than 500,000	30	26.5
500,000-1 million	49	43.4
Above 1 million	34	30.1
Type of job (n=180)		
Senior staff	56	30.3
Middle staff	106	58.9
Junior staff	18	10
Age of child		
0-5	42	22.7
6-23	143	77.3

Table 2. Compliance to IYCF practices

VARIABLE	FREQUENCY	PERCENTAGE
Child breastfed		
Yes	181	97.8
No	4	2.2
Early initiation of breastfeeding within an hour		
Yes	108	60.3
No	71	39.7
Exclusive breastfeeding for the first 6 months		
Yes	59	41.8
No	82	58.2
Timely introduction of complementary feeds at 6 months		

Yes	50	40
No	75	60
Current breastfeeding status		
No	88	62.4
Yes	53	37.6

Table 3. Breastfeeding habits of working mothers

VARIABLE	FREQUENCY	PERCENTAGE
Maternity leave		
Yes	174	96.7
No	6	3.3
Continued to breastfeed after returning to work		
Yes	131	78.4
No	36	21.6
Breastfeeding habits after returning to work.		
Breastfeeding breaks	46	35.9
Breastfeeding at workplace.	12	9.4
Express breast milk	25	19.5
Breastfeed after work	45	35.2
Satisfaction to breastfeeding conditions at workplace		
Yes	101	58.7
No	71	41.3
Mother's suggestions towards supporting breastfeeding at work		
More maternity leave	19	28.8
Breastfeeding corners	31	47
Breastfeeding breaks	5	7.6
Others	11	16.7

Table 4; Bivariate associations between compliance to EBF and studied risk factors

VARIABLE	Percentage of mothers complied to EBF for the first 6 months	P-value	Chi-square
AGE			
20-27	47.6	0.937	0.130
28-35	45.7		
36-44	42.9		
EDUCATION			
Certificate	47.6	0.245	4.158
Diploma	42.4		
Bachelors'	49.5		
Masters'	21.4		
RELIGION			
Catholic	45.5	0.58	1.959
Protestant	47.2		
Muslim	35.7		
SDA and Born again	51.9		
TYPE OF JOB			
Senior staff	58.9	0.05*	5.873
Middle staff	40.4		
Junior staff	35.3		
AV. MONTHLY INCOME			
Less than 500,000			
500,000-1 million	50	0.89	0.233
Above 1 million	47.9		
	44.1		

BREASTFEEDING HABITS OF WORKING MOTHERS			
Breastfeeding after work	33.3	0.01*	11.26
Breastfeeding at the workplace	75		
Breastfeeding breaks	51.1		
Expressing breast milk	68		

Table 5: Multivariate analysis

VARIABLE	p-value	Odds ratio	Confidence Interval
Type of job			
Senior staff	0.491	1.6	0.406-6.548
Middle staff	0.417	0.57	0.145-2.225
Junior staff	0.065	1	
Breastfeeding Habits			
Breastfeeding breaks	0.05	2.5	0.991-6.551
Breastfeeding at workplace	0.008	8	1.728-37.102
Express breast milk	0.006	4.7	1.552-14.337
Breastfeed after work	0.01	1	

DISCUSSION

Compliance to EBF and breastfeeding habits

From this study, majority of mothers (60%) initiated breastfeeding within the first hour of delivery, with 42% complying with EBF during their child's first six months of life. These findings are comparable with studies among mothers in the general population of Uganda [4] and India [2], but are in stark contrast with findings from other Low/Middle Income Countries such as Ghana, Kenya and Zimbabwe, where higher figures are reported for early initiation (i.e. over 90%) but lower figures for EBF [7,15-17]. These discrepancies could be attributable to differences in sample characteristics or contextual factors which have not been investigated in the current study. Comparative studies using similar methodology and samples are warranted to shed more light on the differences in compliance to EBF between dissimilar societal context and plausible explanations for such differences.

Up to 75% of the studied mothers breastfed at work, in adherence with Uganda Policy on Guidelines on Infant and Young Child Feeding, 2012 [12], and breastfeeding at work increased the likelihood of compliance with EBF when contrasted with breastfeeding after work. Together with other previous works showing that breastfeeding directly during working increases the overall duration of breastfeeding when contrasted with other strategies adopted by working mothers [21], and the likelihood of compliance with EBF [11], findings provide evidence to support the practice of breastfeeding at work to improve adherence to EBF practices in the Ugandan working population. Strategies to increase breastfeeding at work addressed in the Uganda Policy on Guidelines on Infant and Young Child Feeding, 2012 [12] (e.g. provision of breastfeeding corners at work), need to be enforced at every workplace to further improve the breastfeeding statistics.

Demographic factors and compliance to EBF

There were no statistically significant demographic variations in compliance with EBF practices among mothers in this study. While some previous studies have indicated higher compliance among mother over 25 years of age [2], others have shown no significant association between age and EBF [18], [7]. Similarly, some data indicate that compliance may increase with the mothers education level [19] while others find no such association [18], [7], [2] With regard to type of work, some studies have found variations in EBF practices depending on employment category [10] [21] in stark contrast with our results where such variations could not be ascertained. Evidently, further research specifically designed to assess the role of demographic and occupational factors in breastfeeding behavior is warranted.

Study limitations

This study did not incorporate any objective measure (e.g. direct observation) of compliance to EBF during the first 6 months of children's life. Subjective reports by the mothers were used which may be prone to recall bias. Moreover the possibility of wanting to assume a favourable position (i.e. social desirability) cannot be ruled out as mothers may be prone to report good practice. Thus, overestimation of compliance with good breastfeeding practices is plausible.

The sampling techniques used were purposive at the organizational level and snow ball method at the respondent level. With such procedures, generalization of the findings to the entire population of working mothers should be done with caution. Indeed, snow ball sampling may reduce the variation among participants as they may recommend peers similar in characteristics to themselves. Demographic variation in the sample thus may not be similar to those in the general population of working mothers.

Finally, the cross sectional design of the study does not allow for causal

interpretation. For instance, it is difficult to distinguish whether EBF is a consequence of breast feeding at work or vis versa. Observational studies of longitudinal nature are needed to firmly ascertain causal links.

CONCLUSION

Though up to 75% of working mothers' of infants 0-6 months of age breastfed at work, compliance to recommended breast feeding practices remains comparatively low at 42-60% among working mothers in Uganda. The finding that breastfeeding at work increases the likelihood of compliance could hold promise for the large scale implementation of such good practice in the workplace, based on evidence, particularly as policy guidelines are available to guide good practice. Further understanding of plausible demographic variation in compliance with EBF is required in future research.

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