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Exclusive breastfeeding knowledge, attitudes, practices and factors influencing its adoption among caregivers in common market places in Morogoro, Tanzania

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Abstract

This study aimed to evaluate the exclusive breastfeeding practices among women working in common market places in Morogoro Municipality. A sample of 90 women was selected through random and convenience sampling methods and interviewed using a structured questionnaire. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS). The results revealed that only 51.1% of the interviewed women adhered to exclusive breastfeeding (EBF) guidelines during the first six months of their infants' lives. Subjective norms were found to be a significant factor for adoption of exclusive breastfeeding. Additionally, nearly two-thirds of the respondents (62.2%) demonstrated good knowledge of exclusive breastfeeding practices. Guided by the Theory of Planned Behavior (TPB), the analysis indicated that approximately 70% of the respondents expressed an intention to exclusively breastfeed their babies. Based on these findings, the study recommends the implementation of targeted nutrition education programs by the government and development partners to support this vulnerable group, which is often overlooked in standard interventions. Furthermore, special initiatives should be established to provide baby care facilities within market places, facilitating better breastfeeding practices among working mothers. These measures could enhance exclusive breastfeeding rates and improve infant health outcomes in the community. By addressing the specific challenges women face in market environments, we can promote healthier practices and provide essential support for mothers and their children.

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Introduction

Malnutrition in developing countries is a critical public health issue that predominantly affects children between the ages of 6 months and 24 months. This vulnerable age group is particularly susceptible to the adverse effects of poor feeding practices and recurrent infections, which can significantly impact their growth and development (Rodríguez *et al.*, 2011). Alarmingly, approximately two-thirds of childhood deaths are linked to inappropriate feeding practices, with the majority occurring during the first year of life (Gandhi, 2014). Breastfeeding is recognized globally as one of the most effective interventions to promote child health and survival; however, according to The World Health Organization, WHO (2018), nearly two out of three infants are not provided with exclusively breastfeeding (EBF) for the recommended six months. The World Health Organization (WHO) has advocated for exclusive breastfeeding (EBF) since 2001, defining it as the practice of feeding infants solely with breast milk, whether directly or expressed, while excluding water, breast milk substitutes, and other liquids and solid foods (WHO, 2014). It is estimated that around 4,000 infants and young children die each day worldwide due to inadequate breastfeeding practices (Kandeel *et al.*, 2018).

Given the significant impact of breastfeeding on child survival, there is an urgent need to assess EBF exclusive breastfeeding practices in developing countries, particularly in settings like Tanzania. A study conducted by Matare *et al.* (2019) identified key barriers to EBF, including lack of family support, cultural beliefs, and insufficient maternity leave, underscoring the necessity for supportive policies and community engagement. Recent findings by Mkono *et al.* (2024) revealed that only 38.5% of working women in Dar es Salaam, a business city in Tanzania, adhered to EBF for the recommended six months, a situation attributed to the lack of flexible work schedules and supportive workplace breastfeeding regulations. Additionally, varying methodologies in assessing EBF rates have yielded different results: one study using a recall method reported a rate of 24.2% at six months, while a 24-hour recall approach indicated a higher EBF rate of 38.8% in Tanzania's Northern region (Hussein *et al.*, 2019).

While existing research has provided valuable insights into exclusive breastfeeding practices, there remains a significant gap in understanding the experiences of women working in common marketplaces in Tanzania. This study seeks to explore the unique challenges and practices surrounding breastfeeding within this demographic, ultimately contributing to the development of targeted interventions aimed at enhancing exclusive breastfeeding (EBF) rates and reducing child mortality. By conducting a thorough assessment of these women's knowledge, attitudes, and behaviors related to exclusive breastfeeding in Morogoro Municipality, we have identified specific factors influencing their choices in this context. Utilizing the Theory of Planned Behavior as a guiding framework, this research offers critical insights that can inform the creation of tailored nutrition education programs and support initiatives. These efforts are essential for improving breastfeeding practices among this vulnerable population and, consequently, enhancing maternal and child health outcomes. Through this investigation, we aim to empower women with the knowledge and resources necessary to make informed breastfeeding decisions, thereby fostering a healthier future for their families and communities.

Materials and methods

Study design

A cross-sectional study was conducted in Morogoro Municipality among women working in common market places to collect demographic information, use or practice of exclusive breastfeeding and their knowledge towards exclusive breastfeeding.

Study area

This community-based study was conducted in nine strategically selected common markets in the Morogoro region, specifically: Mawenzi, Manzese, Sabasaba, Kikundi, Chamwino, Kichangani, Bigwa Kilakala, and Mazimbu. These markets were chosen

based on their characteristics, size, and location within the municipality. For instance, Kikundi and Sabasaba are weekly markets, while Mawenzi and Chamwino are well-known formal markets specializing in the sale of fresh vegetables and fruits. The survey took place over a four-month period, from May to August 2019.

Morogoro Municipality was purposefully selected for this study due to its reported prevalence of inappropriate infant feeding practices, which significantly affect a considerable proportion of children (Safari *et al*., 2013; Muhimbula *et al*., 2019). The extent of malnutrition in Morogoro is notably high, with the stunting prevalence rate among children under five exceeding the national average of 33.4% (URT, 2016). Furthermore, Morogoro Municipality exhibits typical urban characteristics, making it an ideal setting for examining the study population (Fig. 1).

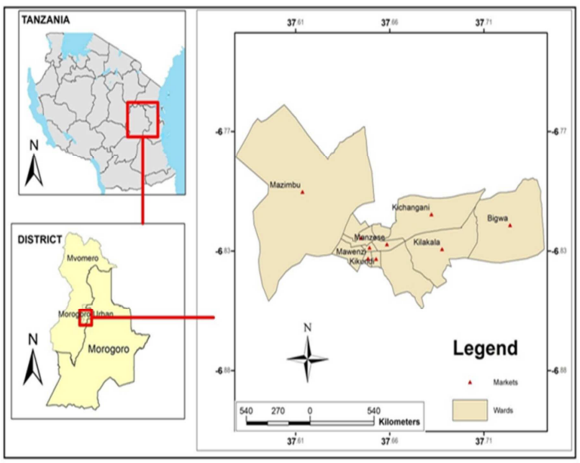

Fig. 1. Map showing study area and markets in Morogoro municipality

Participant's inclusion and exclusion criteria

Participants for this study were mothers or caregivers with children aged (0-24 months), "who agreed to participate in the study, and who are working in common market places around Morogoro Municipality"

Inclusion criteria

The study focused on mothers (biological parents) and caregivers (individuals responsible for child care) who sustain their livelihoods through small-scale businesses in public marketplaces within Morogoro Municipality. The target group included these caregivers along with their children aged two years and younger.

Exclusion criteria

The study also excluded women who were new to the business, as well as those with children older than two years of age. Additionally, only one child per mother and one child per caregiver were included in the assessment.

Sample size and sampling methodology

According to Furahisha (2013), a sample size of 80 to 120 respondents is generally considered sufficient for most socio-economic studies in Sub-Saharan Africa. In this study, we recruited a total of 90 mothers or caregivers and their babies who met the specified criteria.

To achieve the desired sample size, we employed a combination of probability sampling (random sampling) and non-probability sampling techniques (purposive and snowball sampling). The initial participants were selected from nine purposively chosen common markets across various locations in Morogoro Municipality. Given the challenges of identifying and reaching potential respondents, we utilized the snowball sampling method to further expand our participant pool. After interviewing each respondent, we asked them to refer us to another individual engaged in similar activities within the market who also met the required characteristics. This approach facilitated the identification of additional participants and ensured a comprehensive representation of the target population.

Data collection

Data were collected through structured interviews using a comprehensive questionnaire divided into three main sections. The first section gathered socio-demographic information, including education level, age, marital status, age of the child, and the caregiver's relationship with the child. The second section focused on the practices of exclusive

breastfeeding (EBF), assessing both the extent of EBF practices among mothers/caregivers and their knowledge regarding EBF. The third section applied the Theory of Planned Behavior (TPB) framework, measuring key constructs using a five-point Likert scale ranging from "strongly agree" to "strongly disagree." This section included variables such as: (i) Attitudes, which capture an individual's evaluation of EBF; (ii) Subjective Norms, reflecting the perceived social pressure to engage in or abstain from EBF; and (iii) Perceived Behavioral Control, indicating the individual's perceived ability to successfully perform EBF. Additionally, this section evaluated participants' intentions to undertake EBF, including their willingness to exert effort in this regard. Each interview lasted approximately twenty-five minutes, allowing for in-depth responses and insights from each participant.

The Theory of Planned Behavior (TPB) serves as a foundational framework for understanding the factors that influence individuals' intentions to adopt recommended exclusive breastfeeding (EBF) practices (Fig. 2). According to Ajzen (2011), the TPB posits that an individual's behavioral intentions and subsequent actions are shaped by three interconnected constructs: attitude toward the behavior, subjective norms, and perceived behavioral control. Each of these constructs can significantly influence the intention to practice EBF.

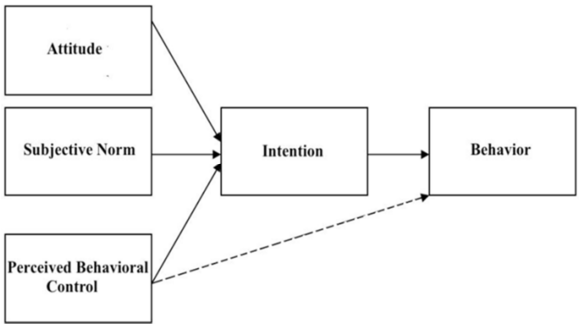

Fig. 2. How the theory of planned behavior change (TPB) work

(i) Attitude toward behavior: An individual's attitude toward EBF is shaped by their beliefs about the outcomes of this practice. If a person perceives that EBF leads to positive results—such as improved health for the infant and reduced risk of illnesses, they are more likely to develop a favorable attitude towards adopting this feeding practice. Conversely, if they associate EBF with negative outcomes or inconveniences, their attitude may be less positive, which could hinder their intention to practice EBF.

(ii) Subjective norms: This construct reflects the perceived social pressure to engage in EBF, as influenced by significant others such as parents, spouses, and healthcare providers. If individuals believe that their family and social circles support and encourage EBF, they are more likely to feel compelled to adopt this practice. Conversely, if they perceive disapproval or lack of support from their social environment, their intention to practice EBF may diminish.

(iii) Perceived behavioral control: This refers to the individual's perception of their ability to perform EBF. Factors such as access to resources, knowledge about breastfeeding techniques, and support systems can enhance or impede perceived behavioral control. For instance, if a mother believes she has the necessary support and resources to practice EBF easily, her perceived behavioral control increases, thereby strengthening her intention to adopt EBF. On the other hand, if she feels overwhelmed or lacks support, her perceived control may be low, negatively impacting her intention.

However, it is important to note that the TPB has certain limitations. For instance, it tends to focus on specific timeframes for performing behaviors, which can limit its applicability in understanding the broader context of breastfeeding practices. Additionally, the model may not fully account for emotional factors or spontaneous behaviors that could influence feeding practices. Hence, while the TPB provides a valuable framework for examining the intention to adopt EBF, it may benefit from integration with other theories and contextual factors to capture the complexity of breastfeeding behaviors more comprehensively.

Statistical data analysis

Statistical Product and Service Solutions (IBM SPSS) version 20 was utilized to analyze the survey data. Descriptive statistics, including frequencies, percentages, and means, were computed to evaluate the extent to which mothers practice (EBF). Additionally, descriptive statistics were applied to assess mothers' knowledge of EBF, their attitudes, perceived behavioral control, subjective norms, and intentions regarding EBF. To investigate the associations between the intention to practice EBF and the factors of attitude, subjective norms, and perceived behavioral control, multiple regression analysis was conducted, with a significance level set at $P \leq 0.05$.

The regression model used was:

$Y = \beta 0 + \beta x1 + \beta x2 \quad \beta xq$

Where:

Y= dependent variable (intention)

x= independent or explanatory variables (i.e attitude, subjective norm, perceived behavioral control)

β = coefficients associated with each explanatory variable x1, x,, xq

Ethical approval and informed consent

The study did not require ethical approval from an ethical review board, as it did not involve blood collection, invasive procedures, or anthropometric measurements. The permission was obtained from the Morogoro Municipality office prior to conducting the research. Participants were thoroughly informed about the study, and written informed consent was collected from all individuals who agreed to participate. For participants, consent was provided by their caregivers, while older children were asked to assent to their participation. Key ethical considerations such as confidentiality, privacy, anonymity, and voluntary participation—were clearly communicated to all participants, who understood their right to withdraw from the study at any time without facing any repercussions. After securing informed consent, data collection was conducted in a manner that minimized disruption to the activities in the marketplace.

Results

Demographic information

This study included 90 mothers/caregivers-child pair whose infants and children were 0 to 24 months, and who are working in common market places of Morogoro Municipality. The average age of the respondents was 43.3 years. Notably, 43.3% of the mothers fell within the 31-35 age range, while both very young caregivers (aged 15-20 years) and older mothers (aged 46 years and above) constituted a small portion of the sample, representing just 2.2%. In terms of marital status, 43.3% of the caregivers were married, while a smaller percentage identified as widows (7.8%) or divorced (6.7%). Regarding educational background, 2.2% of the respondents reported no formal education or training. Additionally, 12.2% had only a few years of primary education, and 35.6% successfully completed their primary education (Table 1).

Table 1. Distribution of the sampled caregivers according to their demographic information (n = 90)

Respondent's characteristics	N	%
Age of caregivers (in years)		
15 – 20	2	2.2
21 – 25	16	17.9
26 – 30	31	34.4
31 – 35	39	43.3
>36	2	2.2
Marital status		
Single	14	15.6
Married	39	43.3
Divorce	6	6.7
Widow	7	7.8
Cohabiting	24	26.6
Education level		
Informal education	2	2.2
Not completed primary school	11	12.2
Completed primary school	32	35.6
Not completed secondary education	6	6.7
Completed secondary school	24	26.6
High school (Form six)	8	8.9
Diploma/University	7	7.8
Relationship with the index child		
Biological mother	76	84.4
Stepmother	5	5.6
Grandmother	5	5.6
Aunt	4	4.4
Whom do you live with		
Children only	17	18.9
With husband/spouse only	47	52.2
With parents	9	10
With other children and husband	14	15.6
With other relatives	3	3.3
EBF practice		
No	44	48.9
Yes	46	51.1

According to the data, approximately 52.2% of caregivers reported living with their husbands or spouses, while 18.9% resided solely with their children. A smaller portion, 10%, lived with their parents, and 15.6% shared their household with both a husband/spouse and children. Only a limited number of caregivers, 3.3%, reported living with other relatives (refer, Table 1). Additionally, the age distribution of the children in these households reveals that 33.3% were between 7 to 12 months old, followed by 25.6% in the 0 to 6 months category, and 24.4% aged 13 to 18 months. Those aged 19 to 24 months constituted the smallest group at 16.7% (refer Table 1). Moreover, more than half of the caregivers interviewed (51.1%) reported practicing exclusive breastfeeding during the first six months of their baby's life, while 49% did not engage in this practice (refer, Table 1).

Table 2. Distribution of sampled respondents showing their knowledge scores about exclusive breastfeeding (EBF) (N = 90)

Scores (points)	Knowledge category	N	%
0-5	Low	18	20
6-8	Medium	16	17.8
9-10	High	56	62.2
Total		90	100

Knowledge about exclusive breastfeeding

Knowledge scores, which were measured on a scale from 0 to 10, were classified into three distinct categories: low (0-5), medium (6-8), and high (9-10). As illustrated in Table 2, the distribution of knowledge levels revealed a clear hierarchy among the categories. Notably, the high knowledge category outperformed the other two, with 62.2% of respondents achieving scores in this range. In contrast, the medium knowledge category had a smaller representation, followed by the low knowledge category, which was the least populated. This indicates that the majority of respondents demonstrated a strong understanding of the subject matter, while only a minority fell into the medium and low knowledge categories.

Performance on individual questions of exclusive breastfeeding

The results of the assessment of EBF, highlighting the performance of each aspect evaluated was presented in Table 3. The aspect with the lowest awareness among respondents was the "recommended time for initiating breastfeeding after birth," with only about 50% of participants demonstrating knowledge in this area. In contrast, five aspects of EBF were well recognized, with over 80% of respondents being familiar with them. They included “source of information regarding EBF”, “first milk that come out after delivering called colostrum”, “the use of first milk or colostrum”, “right time to start giving complementary food” and “whether pre-lacteal is needed for infant before start breast milk”.

Table 3. Respondents with correct answers about exclusive breastfeeding

Sl	Breast feeding aspect	N	%
i.	Understanding of exclusive breastfeeding	69	76.7
ii.	Health institution as source of information regarding EBF	73	81.1
iii.	Recommended time for breast milk after birth	46	51.1
iv.	First milk come after delivering called colostrum’s	78	86.7
v.	The use of first milk colostrum’s	76	84.4
Vi	Right time to start giving complementary food	79	87.8
Vii	Food recommended for child below 6 months	69	76.7
Viii	Pre-lacteal needed for infant before start breast milk	73	81.1
Ix	Is breast milk alone enough for child below 6 months	70	77.8
X	If EBF can prevent diseases to a child	66	73.3

Table 4. Percentage distribution of respondents showing their different intentions towards EBF and RF

Test aspect	Definitely do not	I do not	Neutral	I do	Definitely do	Total
Intention towards EBF	8.9	4.4	13.3	52.2	21.2	100

Intention towards adopting recommended feeding practices

The results on intention towards adopting recommended feeding practices and factors influencing them were presented in Table 4. The results reveal that over seventy percent of respondents either agreed or strongly agreed with their intention to exclusively breastfeed their babies.

Comparable trends were observed across various aspects of responsive feeding that were assessed.

Table 5. Multiple regression analysis results of factors influencing the intention to adopt EBF

Tested factor	Standardized coefficient β	Standard error	p-value
Attitude	0.099	0.207	0.086
Subjective norms SN)	0.004	0.161	0.043
Perceived behavior control (PCB)	-0.225	0.298	0.218

Factors influencing the intention to adopt exclusive breastfeeding practices

Multiple regression analysis, as presented in methodology section, was employed to examine the association between the intention to practice exclusive breastfeeding (EBF) and responsive feeding (RF) and the constructs of attitude, subjective norms (SN), and perceived behavioral control (PBC), as framed by the Theory of Planned Behavior (TPB) and summarized in Table 5. The regression model utilized follows: $Y = \beta_o + \beta x_1 + \beta x_2 \ldots\ldots \beta x_q$, where Y is the dependent variable (intention) and X' s are the independent variables (attitude, SN and PCB) while β's are the coefficients associated with each explanatory variables.

Discussion

This research investigated the exclusive breastfeeding (EBF) practices, knowledges and attitude and the factors influencing the adoption of EBF among women working in common market places in Morogoro Municipality. The findings reveal a concerning prevalence of EBF, with only 55.1% of respondents practicing EBF for the recommended six months. This figure is notably lower than the national average in Tanzania, reported at 57.8% (URT, 2018), and significantly below the World Health Organization's (WHO, 2018) recommended universal coverage of 90%. The low prevalence can be attributed to several factors, including the demanding schedules of these women who often spend about 10 hours a day at the market. The time constraints they face lead to early introduction of complementary foods, as many caregivers feel compelled to supplement breast milk to manage their infants' needs while they work. This aligns with findings from Webb-Girard *et al.* (2012), who noted similar behaviors among working mothers.

The study further identified that many women working in market places possess good knowledge about exclusive breastfeeding, including its definition, the importance of colostrum, and the appropriate timing for introducing complementary foods. The high levels of knowledge may be attributed to educational initiatives by the examples, reproductive and child health units in hospitals after Tanzania government and various NGOs, which have focused on reproductive health and breastfeeding practices. The establishment of reproductive and child health (RCH) units in health facilities has also facilitated better access to information, as health institutions emerged as the primary source of information for the majority of respondents. Research has consistently shown that knowledge of exclusive breastfeeding is relatively high across Tanzania, reinforcing the effectiveness of these educational efforts (Hashim *et al.*, 2016; Nkala and Msuya, 2011).

Despite the high intention among these women to practice exclusive breastfeeding, approximately three-quarters expressed a positive intention—actual practices remain low. This discrepancy highlights a critical gap between intention and behavior. According to the Theory of Planned Behavior (TPB) model, intention is a significant predictor of behavior (Ajzen, 1991). However, the women's intentions are undermined by various constraints, including a lack of social support and prevailing cultural beliefs about infant feeding. These findings resonate with previous studies that have identified social support as a crucial factor impacting breastfeeding practices, particularly among low-income women (WHO, 2001). Similarly, research conducted in Moshi, Tanzania, revealed that while many women intended to practice exclusive breastfeeding, various barriers hindered their ability to do so (Hashim *et al.*, 2016).

The study also found a significant relationship between subjective norms and the adoption of exclusive breastfeeding. In the context of Tanzanian society, the influence of extended family and community norms plays a pivotal role in shaping individual behaviors (McClenahan *et al.*, 2007). The analysis indicated that

perceived social barriers, such as lack of knowledge and exposure, moderated the relationship between knowledge and beliefs regarding breastfeeding. This finding is supported by Bartle and Harvey (2017), who emphasized the importance of subjective norms in influencing breastfeeding practices among urban women. Interestingly, the study revealed that attitude and perceived behavioral control did not have a significant association with exclusive breastfeeding practices. This contradicts previous research by McMillan *et al.* (2008), which established a significant relationship between these constructs and breastfeeding practices, suggesting that further investigation is needed to understand the complexities influencing breastfeeding behaviors in this population.

Conclusion

In conclusion, while the knowledge and intention to practice exclusive breastfeeding (EBF) among women in Morogoro Municipality are commendable, significant barriers hinder the actual implementation of these practices. The observed discrepancy between the respondents' awareness of EBF and their rates of practice, 51% compared to the national average of 57% is likely attributed to the demands of their market activities, which necessitate the introduction of supplemental foods. Subjective norms were found to be a significant factor for adoption of exclusive breastfeeding. To bridge the gap between intention and practice, it is essential to address these challenges through enhanced social support, increased community engagement, and targeted interventions. By fostering an environment that facilitates exclusive breastfeeding, we can significantly improve breastfeeding outcomes for infants in this region, ultimately promoting better health for both mothers and their children.

Recommendations

1. Nutrition education programs should be put in place by various stakeholders targeting such special vulnerable groups in the communities, who are very often left out in the normal interventions implemented.
2. Need for special initiatives by the government of non-governmental organizations to provide support to women working in the informal sector, including market places, to have time to spend with their infants since this group of women does not have maternity leaves like the ones in the formal sector. Such initiatives can include provision of baby care facilities in those work places.

Limitations of the study

1. The sample size of respondents may not be large enough to generalize findings to all women in Morogoro Municipality or other regions.
2. The reliance on self-reported data may introduce bias, as participants might provide socially desirable answers rather than accurate practices.
3. The cross-sectional nature of the study limits the ability to establish causal relationship between variables.

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