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Intention of Exclusive Breast Feeding among Pregnant Women Using Theory of Planed Behavior in Medebay Zana District, Tigray Region, North Ethiopia

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Abstract It is recommended that all mothers breastfeed their children exclusively at least for the first 6 months, however, in Ethiopia only one in three children aged 4-5 months were breastfed exclusively. To this end study on individual and contextual factors that may affect the intention of pregnant women to exclusive breast-feeding is scarce in Ethiopia and study area in particular. It is timely and appropriate to study pregnant women's behavioral intention to exclusive breast-feeding for the smooth implementation. The Objective the study was to assess intention of exclusive breast feeding among pregnant women in Medebay Zana District, North West of Tigray, North Ethiopia. Community based cross sectional study was conducted among sampled (n=709) pregnant women from January 25_ Februaray15, 2012.The behavioral intention question contained six domains on exclusive breast feeding: knowledge, future intention, attitude, behavioral beliefs, subjective norm, normative beliefs, perceived behavioral control, and control beliefs and power of control. Data was entered and analyzed using SPSS version 20.0 software. Relationships among the major variables were described by correlation coefficients. Multiple linear regressions were used to identify variables, which independently contributed for intention to exclusive breast feed. Pregnant women's attitude was found to be the most significant ($P< 0.05$) predictor of intention to exclusive breast feeding (22.2%). Subjective norms (4.5%) and perceived behavioral control (2.5%) explained the independent variables respectively. Previous breastfeeding experience and being a housewife were found to be an external factor, made a significant ($P < 0.05$) contribution to theory of planed behavior. so Information education communication and Behavioral change Communication should focus on addressing the attitude, perceived behavioral control and Subjective norm.

Keywords Intention, Exclusive Breast Feed, Attitude, Subjective Norms, Perceived Behavioral Control

1. Introduction

Breastfeeding provides essential nutrients for a infants in first 6 months of life. It plays an important role in ensuring food security for a large proportion of babies in the world, where food security is defined as having enough food to maintain a healthy and productive life today and in the future [1-3]. Breast milk contains the long chain polyunsaturated fatty acids which are especially important for the development of the brain and the nervous system. It is also associated with a decreased risk for many early-life diseases [4-7].

Breast-feeding is critical for sustaining the health and well-being of new born and infants. Infants who are properly breast-fed grow better and experience less sickness and fewer deaths than do infants who are not breast-fed[8, 9]. It saves infants' lives, provides the best nutrition for infants and young children, and also it benefits mothers' health. Breastfeeding provides health benefits when started immediately after birth, continued exclusively for the first six months of life, and then continued along with suitable complementary feeding through age two or longer[10]. The introduction of complimentary foods before the age of 4 months increase the risk of child obesity, cardiovascular diseases, food allergies, and insulin-dependent diabetes [11-14].

Breastfeeding is an ancient process and is universally recommended way of providing infant nourishment. Mother's milk has been the mainstay of the infant's diet in every culture from beginning of life. Despite its numerous benefits, a declining trend in the prevalence of breastfeeding was documented since 1970's, in almost every country of the world[14-15].

Feeding practices for infant and young children worldwide are not optimal in which only 39% of all infants are exclusively breastfed. The prevalence of exclusive breastfeeding rarely exceeded 30% in most developing countries. Globally, more than 10 million children under the age of five die each year, 41% of the deaths occurring in

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sub-Saharan Africa and 34% in south Asia. It was also indicated that inadequate breastfeeding practice is a condition which is super imposed by communicable diseases as a major cause of infant deaths[15].

In Ethiopia malnutrition is the major cause of child mortality (58.0%). Almost seventy percent of infants were reported to sub-optimally breastfed and 24% of deaths among infants were attributed to poor and inappropriate breastfeeding practice[16]. According to 2011 EDHS, at six months of age 49.0% of infants were exclusively breastfeed. 29.0% of new borns received pre-lacteal feed and 69.1% of them were put to breast within one hour. The duration of exclusive breast-feeding was also found to have statistical association with cognitive and motor development, intelligence scores in preschoolers and academic achievement in late childhood and adolescence[17].

Breastfeeding provides significant health, social and economic benefits to the nation as a whole. Such benefits include reduced health care costs and reduced employee absenteeism for care attributable to child illness, increased time available to the parent for the child's siblings and other family responsibilities because the infant will be healthy, and money saved by not having to buy formula milk for the child[18, 19].

World Health Organization and United Nations Children's Fund recommend that all mothers should breastfeed their children exclusively for the first 6 months and thereafter they should continue to breastfeed for as long as the mother and child wishes, and both appropriate and sufficient weaning food be added after six months of life[8, 10, and 14].

Some literatures indicated that worldwide about 35% of children between birth and their fifth month are breastfed exclusively. Yet infant breastfeeding has been identified as one of the major intervention areas in order to achieve the Millennium Development Goal of reduction of child mortality globally[20-22].

In Africa decline in breastfeeding have occurred in areas where food-distribution programs are most extensive. Introduction of breast milk substitutes and child spacing has also been negatively affected by exclusive breast feeding[23 – 26]. In this respect very few studies has been done in Ethiopia to understand individual and contextual factors that may affect the intention of pregnant women to exclusive breast feeding. Therefore, it will be timely and appropriate to study pregnant women's behavioral intention to exclusive breast feeding for the smooth implementation of MDG Goals.

2. Methods and Participants

A community based cross-sectional study using quantitative method of data collection was carried out in Medebay Zana Disstrict, North of Ethiopia from January 25 – February 15/2012. In Medebay Zana Disstrict there were twenty three kebeles (lowest administrative unit), 20 rural and 3 urban kebele. The population for the survey included all pregnant married women residing in the district for at least six months prior to the survey. sample size was determined using a formula for estimating a single population proportion with the Assumptions of prevalence of 50%, confidence level 95%, 5% margin of error, Design effect 2 and 5% allowance for non- response as well correction formula was used since the source population was < 10,000. (N=709).

A Pre-tested questionnaire, guided by interviewer was used to collect the information. Information collected for the study included a questionnaire on demographic factors such as: maternal age; number of children; previous history of exclusive breastfeeding; socio-economic and cultural factors such as education and ethnicity; The behavioral intention question contained six domains adapted to local context from manual developed for constructing questionnaire using the TPB (theory of planned behavior)[27]. Data was entered and analyzed using SPSS version 20.0. To assess the relationship among TPB component and other selected variables Pearson's correlation was used. Cronbach's alpha above 0.7 was used to examine internal consistency.

Assessment of the applicability of TPB model in predicting intention of EBF was done using multiple liner regressions. Ethical approval was secured from ethical review committee of Jimma University. Written consent was obtained from Medebay Zana Disstrict health office. Verbal informed consent was obtained from each respondent and confidentiality was assured before conducting the data collection.

Operational definitions

Intention for exclusive breast feeding: mother's judgment/thought, regarding their breast feeding It was measured by asking three items on a scale containing five options ranging from strongly agree (5) to strongly Disagree (1). For convenience of analysis the mothers' intention was divided in to two levels: no behavioral intention if the score is below mean and intended to breast feed her child for six months if intention scores are above mean.

Behavioral beliefs or Beliefs about the outcome of exclusive breast feeding: belief about potential outcomes of excusive breastfeeding for infant and mother. 8 questions were asked to indicate their belief about exclusive breast feeding on five point scale with responses "strongly agree" (=5), "agree" (=4), "not sure" (=3), "disagree" (=2) and "strongly disagree" (= 1).

Subjective norms: mother's perception of the degree to which influential persons in her life endorse/support exclusive breastfeeding (47). and was measured on 5 point scales, with end points ranging "strongly agree" (= 5), "agree" (= 4), "not sure" (=3), "disagree" (=2) and "strongly disagree" (1) on significant other's infant feeding expectations.(father of the baby, respondents mother or mother in law, close friends and health care provider). Another set of 5 point scale evaluated motivation to comply with significance others' expectations and contains end points disagree" (1) to "strongly agree" (= 5). The subjective norm score was

derived by multiplying each expectation by the corresponding compliance items and summing the four products (possible range 1 to 5) and the higher score (above mean score) indicate greater perceived social pressure to breast-feed.

Normative beliefs: Perception of whether specific significant other people think pregnant women should exclusively breastfeed or not and was measured by 5 items which contains endpoints strongly disagree" (1) to "strongly agree" (= 5).

Exclusive breast-feeding*:* giving only breast milk for the first six months without additional foods, water, except vitamins, minerals and medications.

Attitude towards breast-feeding: Affective/cognitive evaluation about the idea and act of exclusive breast-feeding. Attitude towards the behavior was measured by eight items derived by combining/multiplying/ each behavioral beliefs items with respective evaluation of the outcome and then summing the results. Finally mean score was calculated and those women above mean score were labeled as having positive attitude for breast feeding and those below were labeled as having negative attitude towards breast feeding.

Breast feeding knowledge*:* Breast feeding knowledge refers to knowledge (advantage or disadvantage) of about exclusive breast feeding for the baby and mother. Fourteen item questionnaires were used to assess the knowledge with possible answers of true, false and not sure. After scoring the true items correctly and was summarized then those who scored above 10 was leveled as having higher knowledge, between 7 - 9 was relabeled as having moderate knowledge and those below 7 score was labeled as having low level of knowledge.

3. Results

3.1. Socio-demographic and Economic Characteristics of the Study Participants

Out of the sampled (N=709), pregnant women 701 participants completed the questionnaire making a response rate of 98.8%. Their mean age was 25.4 years with SD±4.93. Six hundred forty three (91.7%) were married. Tigre ethnic group comprises the largest proportion 662(94.4%). 672 (95.9) were orthodox Christian, 546(77.3%) were farmers and 41(5.8%) were Government employees. Two hundred six (29.4%) could read and write; only forty five (6.1%) attended college and university (Table 1).

Table 1. Socio demographic characteristics of the studied pregnant women, Medebay Zana, Tigry, Ethiopia 2012

Socio – demographic (n=701)	Frequency	Present
Age (years)		
15-19	54	7.7
20-24	275	39.2
25-29	218	31
30-34	105	15
35-39	49	6.9
Ethnicity		
Tigre	662	94.4
Amhara	39	5.6
Occupation		
Farmer	546	77.8
housewife	53	7.6
Governmental employee	41	5.8
Merchant	38	5.4
Student	23	3.2
Educational status		
Illiterate	89	12.7
Read and write only	206	29.4
Primary school (1-6)	126	17.9
Secondary school (7&8)	205	29.2
Grade 9 and above	75	10.7

3.2. Knowledge Level on Intention to Exclusive Breastfeeding

Six hundred eleven (87.2%) of the respondents rated as false for the statement which says breast milk and bottle milks are the same. However, 590 (84.2%) thought that small breasts do not produce enough milk for the baby (fig1).

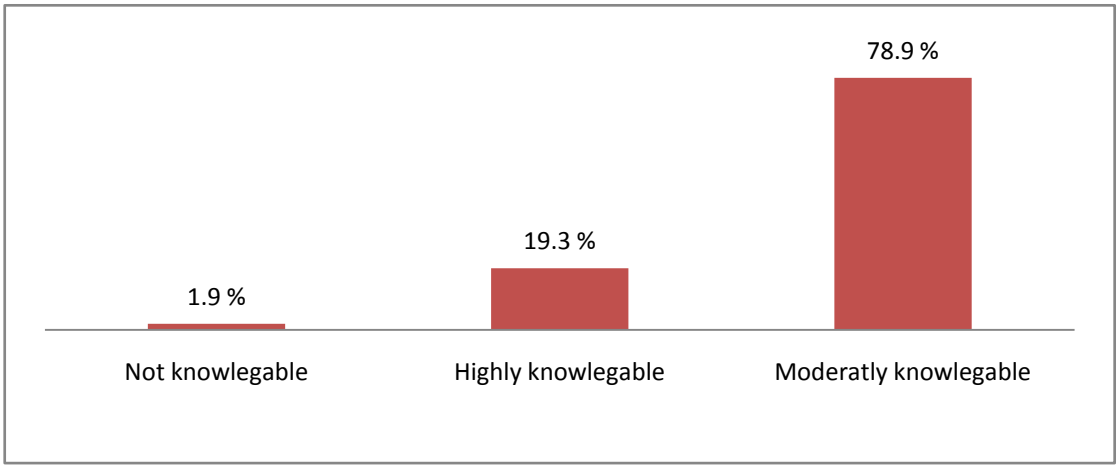

Figure 1. knowledge level on intention to exclusive breastfeeding in Medebay Zana, Tigry, Ethiopia, 2012

3.3. Direct Pregnant Women Attitude and Belief of Intention to Exclusive Breast-feeding

The studied subjects showed positive attitudes[409 (58.3%)] towards exclusive breast-feeding with mean score of 3.43 (SD±0.44) ranging from 1.86 to 4.43. 292 (41.7%) have negative attitude towards exclusive breast feeding. Believe based attitude score ranged from 2.38 to 22.5 with average score of 10.52 (SD± 3.2).The correlation coefficient between direct measure and belief based of attitude was 0.28, which was statistically significant (P< 0.001), The beliefs that "exclusive Breast feeding has Health benefit to my child, take time and increase bonding between mother and the child" had significant positive correlation with attitude towards exclusive breast feeding (Table 2).

3.4. Correlation Coefficient between Intention and TPB Constructs

The mean score of perceived social pressure were 3.4 (SD±0.86) and for the ease of analysis those respondents above mean score were categorized as having high perceived social pressure to exclusive Breast feeding 65.62% and those below the mean score 34.4% were labeled as having lower perceived pressure towards exclusive breast feeding.

The mean score of exclusive breast feeding was 12.5, SD=3.7. Four hundred thirty four (61.9%) of the respondents were intended and 260 (37.09%) not intended to exclusively breast feed during the first six months after birth (Table 3).

3.5. Multiple Linear Regressions Showing Intention on TPB Predictor Variables

Intention and belief based attitude construct have strong positive association with EBF (p<0.05). Positive correlation was also observed between all TPB constructs and intention for exclusive breast feeding. However belief based PBC and belief based SN has negative correlation. Only Belief based PBC positivity correlated with belief based attitude construct (Table 4).

Table 2. Correlation coefficient between direct pregnant women attitude and belief of intention to exclusive breast feeding in Medebay zana, Tigray, Ethiopia, 2012

variables	S/N	1	2	3	4	5	6	7	8	9
Direct attitude	1	1								
Health benefit	2	.37*	1							
Limit social activities	3	- .13*	- .35	1						
Convenient	4	.07	.21	.15	1					
Take time	5	.13*	.001	.015	.074	1				
Increase bonding	6	.28*	.25	.133	.264	.176	1			
Embrace when BF in public place	7	.09	.058	.14*	.14*	.28*	.13*	1		
Save money	8	.067	.22*	-.10*	.10*	.087	.13*	.004	1	
Prevent breast cancer	9	.084	.33*	-.19*	.016	.12*	.11*	.078	.4*	1

Table 3. Correlation coefficient between intention and TPB constructs of pregnant women in Medebay zana Woreda, Tigry, Ethiopia, 2012

variables	**s/n**	**1**	**2**	**3**	**4**	**5**	**6**
SN	1	1					
Att	2	.32**	1				
B.Att	3	.36**	.28**	.21**	1		
B.SN	4	.48**	.35**	.097	.33**	1	
PBC	5	.003	.10	.10	.22**	-.47**	1
Int	6	.45**	.38**	.21**	.82**	.64**	.48**

** Significant at p<0.05

Table 4. Multiple linear regressions showing intention on TPB predictor variables: Medebay zana, Tigry, Ethiopia, 2012

variables	beta	Standard error	95% CI	Standa. beta	t	P
intercept	1.95	0.244	1.46 ,2.42			
Perceived control	-0.01	.003	-.016,.005	-.167	-3.75	0.00
Breastfeeding attitude	0.014	.002	.009,.019	.277	5.93	0.00
Subjective norm	0.019	.002	.014,.024	.354	7.69	0.00
R=.287 ; F =14.1 ;df =1,401; p=.000						

3.6. Intention on TPB Predictor Variables and Past Feeding Experience Final Model

Table 5. Multiple Linear regression of intention on TPB predictor variables, house wife and past feeding experience final model, in Medebay zana District, Tigry, Ethiopia, 2012

variables	beta	Standard error	95% CI	Stand.beta	t	P
intercept	2.5	0.507	1.5 ,3.5			
Perceived control	-0.01	.003	0.013,.023	-.332	7.15	0.000
Breast feed attitude	0.014	.002	.009,.019	.276	5.82	0.000
Subjective norm	0.019	.002	-.02,-.005	.170	-3.79	0.000
House wife	0.42	.204	.816,-.01	0.087	-2.036	0.042
Past breast feeding	.241	.121	0.05,.481	-0.086	2.00	0.045
R=.316 ; F =115 ;df =1,403; p=.000						

Step wise linear regression was performed; first attitude was introduced in to the model and 22.2% of the variance was explained by attitude. Subsequently subjective norm and perceived behavioral control were interred in the model where R. square change was 4.5% and 2.5% for subjective norm and perceived behavioral control respectively. The overall prediction of intention from attitude, perceived behavioral control, and subjective norm was 28.7% of the total variability of intention. When other significantly associated variables (past breast feeding experience and house wives were interred in to the model the predictive power of the model become 31.6% (Table 5).

4. Discussion

The rate of exclusive breast-feeding is low in developing countries as Ethiopia[17] and study area in particular despite its advantages to infants. According to the theory of planed behavior model, this healthy behavior is determined by mother's decision/intention of how long they would breast feed their child and this decision/intention/in turn is affected by women's attitude towards the behavior, positive or negative social support from relevant others/social groups/ and the perceived ease/difficulty of breast feed[28].

Even though some misconceptions as breast and bottle milk are the same, and that small breasts could not produce enough milk for the baby, in this study the knowledge of the studied subjects about exclusive breastfeeding was substantially good as compared to other findings[17, 29]. This could be due to awareness creation by health extension program professionals and possibly could be attributed to cultural construct and adapted wrong beliefs.

The attitude of the participants was positive in favor of breast feeding and this is consistent with a study done in Glasgow[30]. This could be that these women's had access to information on the benefit of exclusive breast feeding from health extension workers, which might foster to develop beliefs that are in favor of breast feeding. majority of them believed that their child would have health benefit from exclusive breast feeding but around one third of the respondents' belief that it would be inconvenient for them to exclusively breast feed their child as it take much of their time. There was weak positive association between direct and composed attitude measure, which was similarly reported in Jordan[31], which indicated that direct measure of attitude might not indicate the actual breast feed attitude since it is not based on underlying believes that make up attitude. The attitude of the participants showed a significant association with beliefs towards exclusive breast these beliefs were showed to have positive association with exclusive breast-feeding; this could be because they were common beliefs, which indicate the "natural" of behavior as reported in Glasgow[30]. More than half of the pregnant women felt high social pressure to exclusively breast feed their child and some women thought that their mother's and partner's approval to exclusively beast feed their child were important but close friends expectation had strong correlation with subjective norm which is consistent with study conducted in Syrian[32]. This could be attributed to the fact that most women's do have high attitude towards breast feeding and there was high social support to breast feeding which in turn help them decide to exclusively breast feed despite perceived difficulties.

Exclusive breastfeeding intention was statistically associated with occupation of the mothers. Where those house wifes had more intention for exclusively breast feeding, and this finding was found to be consistent with study conducted in Jordan[31]. This could be due to the fact that breast feeding behavior by nature takes time making women wife to perceive possible to exclusively breast feed their child. Statistically significant difference was also observed in behavioral intention in respect to the past breast-feeding, which could be explained by having experience on decision-making process easy for the mothers since they knew the benefits and perceived behavioral difficulties.

Studied subjects with high-perceived behavioral control had low intention for exclusive breast feeding than those with low perceive behavioral control. This finding indicates that having high perceived behavioral control might not necessary show behavioral intention for breast feeding so that efforts to increase pregnant women's perceived behavioral control over may not improving their intention to breast feed their child. All the theory of planned behavior

constructs showed significant association with intention to breast feed, but attitudes exerted a larger effect on intention than did perceived behavioral control and subjective norm. This finding is inconsistent with a study conducted in Syrian[32]. Attitude explained 22.2% of the variance where as subjective norm and perceived behavioral control increased the variance in intention by 4.5% and 2.5% respectively when entered following subjective norm subsequently. As in prior research, the findings indicated that maternal attitudes were a dominant predictor of infant feeding intentions however, unlike the previous results; subjective norm was proved to predict breast feeding intention. This could be explained theoretically by assuming that relative importance of attitude towards behavior and subjective norm depends partially on the intention in question. Some intentions variables depended more heavily on attitudinal factors, others on social pressure as reported elsewhere in Scotland[28]. In this test the influence of the personal factors, attitudes and perceived behavioral control appeared to outweigh social influences. The women of this sample showed positive attitudes towards exclusive breastfeeding, and had high levels of perceived control and relatively low subjective norm scores. The overall prediction of intention by attitude, perceived behavioral control, and subjective norm was 28.7% of the total variability of intention. Other significant variables would only explain 2.9% of variability when added on the model constructs. Only attitude and perceived behavioral control predicted the number of variables in the final model would influence intention in the final model as the predictive power of the model.

5. Conclusions

In conclusion, the Majority of the respondents' were intended to exclusively breast feeding their child. Over all the knowledge towards intention of exclusive breast-feeding was high there are still some miss conceptions such as breast milk and bottle are the same and small breasts could not produce enough milk. More than half showed high social pressure to exclusive breast-feeding as they thought mothers and partners' approval were important. House wife's should more intention towards exclusively breast-feeding. Those women with past breast-feeding experience showed lower intention towards exclusive breast-feeding. Among the theory of planned behavior constructs attitude showed larger effect on intention than did perceived behavioral control and subjective norm.

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