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BREASTFEEDING STATUS AND ITS DUAL INFLUENCE ON INFANT ANTHROPOMETRIC DEVELOPMENT AND MATERNAL MENTAL HEALTH IN AFIKPO NORTH, EBONYI STATE

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ABSTRACT: The mental and psychological well-being of mother-infant relationships under six months of age indicates good anthropometric outcomes and serves as a measure against growth-related comorbidities, demanding continuous, sustained attention. Researching on that would advance the promotion of sustainable policies towards optimal breastfeeding practices among mothers across states, thereby making Nigeria a global player. This study evaluated the relationship between the breastfeeding status of children under six months of age and their anthropometry outcome considering the psychological well-being of their mothers. Using MUAC (Mid-Upper Arm Circumference) and weight measuring instruments, data was collected and correlated with the mothers' psychological well-being score. Pearson *r* correlation statistics was used for data analysis. The result showed that MUAC outcome and body weight did not differ between exBF (Exclusive breastfeeding) and non-exBF (non-exclusive breastfeeding) infants throughout the first six months of life. However, exBF mothers reported higher psychological well-being ($r = p<.05 = .21$) than their counterparts ($r = p<.05 = .03$) on MUAC outcome measurement, and it was significant. The result also evidenced that exBF mothers reported higher psychological well-being ($r = p<.01 = .13$) than their counterparts ($r = p<.01 = .01$) on the outcome of their child's body weight and was also significant. It was concluded that infants in the early stage of life may display similar growth patterns despite the breastfeeding status, but mothers who practice exBF tend to experience greater postpartum maternal psychological well-being. Implications of the study and recommendations were made.

Keywords: Breastfeeding Status, Anthropometry Outcome, Psychological Well-Being, Mothers, Infants

INTRODUCTION

Often, the issue of postpartum maternal psychological wellbeing may not be fully defined without duly assessing the level of healthy growth and development of their babies in the early stage of life. The psychological well-being of postpartum mothers is often disrupted by stressful situations originating from growth-related comorbidities of their newborn babies. The need to optimize the infants' nutrition using either breastmilk only as prescribed by the World Health Organization WHO (2014) or adding water and other food content at the early stage of life of an infant often pose challenges among mothers during the postpartum period. The psychological well-being of postpartum mothers is viewed as a positive construct that serves as safe immunity against stress,

and it can seriously minimize the need for negative coping strategies (Ukeh & Hassan, 2018). Psychological well-being consists of positive emotions and moods, such as contentment and happiness; the absence of negative emotions, such as depression and anxiety; satisfaction with life, fulfilment and positive functioning (Oniyangi et al., 2019). Growth-related comorbidities of newly born babies often lead to depression, anxiety and stress among postpartum mothers, which may come as a result of the breastfeeding status adopted and its outcome on the infants' anthropometry outcome. These challenges always interfere severely with the psychological wellbeing of the mother-infant relationship under six months of birth age, which is viewed as unhealthy for a normal postpartum mother.

Considering the effectiveness of exclusive breastfeeding, as recommended by WHO, it has been identified as one of the most efficient, natural, and cost-effective means of optimising nutrition in early life (Jayasinghe et al., 2021). Exclusive breastfeeding (exBF) was defined as the infant receiving only breast milk from his/her mother or expressed breast milk and no other substantial amount of liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines since birth (Iorkosu et al., 2023). It is an important public health strategy for improving children's and mothers' health by reducing child morbidity and mortality and helping to reduce healthcare costs (Iorkosu et al., 2023). ExBF provides additional emotional benefits to the mother. In addition, evidence shows that exBF mothers are less likely to develop depressive symptoms (Stuebe et al., 2013). A substantial body of literature supports the preventative capacity of breastfeeding during infancy on later life incidence of related comorbidities (Jayasinghe et al., 2021). The benefit to infants from prolonged breast milk consumption is not limited to cognitive, immune, and healthy digestive system development (Jayasinghe et al., 2021).

Exclusive breastfeeding provides a wide array of physical and psychological short-term and long-term health benefits for mothers, infants, and young children. According to the American Academy of Paediatrics (AAP, 2005) and the World Health Organization (WHO, 2011), there is strong evidence that infants receiving only breast milk with no other liquids or solids, known as exclusive breastfeeding (exBF), have many health benefits to mothers, babies, the environment, and society. ExBF is recommended for the first six months of life as the best way of feeding an infant (AAP, 2005; WHO, 2003). ExBF in the first six months of life and continued breastfeeding from 6-11 months has shown to be the single most effective preventive intervention for reducing child mortality, with the potential of saving 1.3 million lives worldwide each year (Bai et al., 2011). Exclusive breastfeeding can also have a profound impact on maternal health as Jayasinghe et al. (2021) indicate that breastfeeding can reduce the incidence of numerous metabolic and physiological complications in mothers, including type 2 diabetes, metabolic syndrome, and cardiovascular disease.

For the fact that breast milk has been identified as one of the most efficient, natural, and cost-effective means of optimising nutrition in early life (Jayasinghe et al., 2021); early postnatal nutrition may play a significant role in reducing the risk of psychological distress among postpartum mothers. Thus, this present study sought to ask the following research questions;

1. Would there be differences between exBF and non-exBF on the anthropometry outcome of infants under six months of age?
2. Would there be differences in the psychological well-being of postpartum mothers practising exBF and non-exBF?

Research Objectives

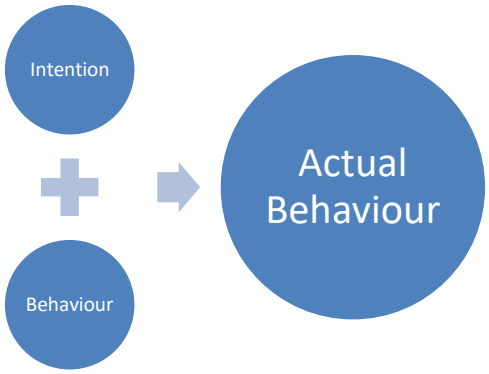
This present study specifically evaluated the relationship between the breastfeeding status of children under six months of age and their anthropometry outcome with the psychological well-being of their mother. Hence, it aimed to:

1. Determine if there would be differences between exBF and non_exBF on the anthropometry outcome of infants under six months of age.
2. Identify if there would be differences in the psychological well-being score of postpartum mothers practising exBF and those practising non-exBF.

Conceptual Framework

The theoretical approach that has been widely used by health psychologists to help understand health behaviours and to develop appropriate interventions is Ajzen's (1991) theory of Planned Behaviour (TPB). The principal determinant of behaviour in TPB is intentions, and intentions are determined by three main constructs: (a) attitudes, (b) subjective norms, and (c) perceived behavioural control.

Theory of Planned Behaviour: Figure 1.



TPB in this context may be influenced by three focal categories of beliefs: (a) beliefs about the outcomes of a particular breastfeeding status, (b) beliefs about the expectations of others, and (c) beliefs about the presence of factors that might encourage or prevent a particular breastfeeding status (Giles, et al., 2010). According to Ajzen (1991), attitude toward behaviour in this context is determined by the individual's beliefs about outcomes or attributes about choosing a particular breastfeeding status (behavioural beliefs). Subjective norm is determined by normative beliefs, and normative belief is determined by the attitude of a society in valuing and appreciating a particular breastfeeding. Perceived behavioural control (PBC) is influenced by specific situational

factors and is based on the factors that determine a mother's ability to choose or not choose a particular breastfeeding status. Perceived behavioural control is affected by both intentions and behaviours. The intention to choose a desired breastfeeding status is based on varying perceptions of mothers in adhering to the desired one (Ajzen, 1991). Women who have the perception that exBF is difficult to perform are less likely to breastfeed with breast milk only and may encourage the use of formula feeding among other postpartum women.

Literature has it that two-thirds of the women had heard of exclusive breastfeeding (64.6%), and (71%) of them knew that exclusive breastfeeding should be practised for at least six months, Cascone et al. (2019). Nearly all mothers had breastfed their child (93.2%), but only (33.3%) of them had practised exclusive breastfeeding for at least six months, Cascone et al. (2019). Women who agreed that breastfeeding creates a positive relationship between the mother and the child, who practised exclusive breastfeeding during the hospital stay, and who had received breastfeeding advice at hospital discharge were more likely to practice exclusive breastfeeding for at least six months (Cascone et al., 2019; Iorkosu et al., 2023; Thomas, 2016). Mundagowa et al. (2019) found that the majority of mothers (n = 193; 89%) had knowledge about exBF, and 189 (84%) expressed a positive attitude towards the practice. However, only 81 (36%) practiced exclusive breastfeeding. The most common complementary food/fluid given to the infants was plain water (n = 85; 59%) Mundagowa, et al. (2019). Some studies have shown that ex-breastfeeding mothers are less likely to develop depressive symptoms (Thomas, 2016; Stuebe et al., 2013), indicating their potential to experience higher psychological well-being. The literature strongly supports the safeguarding impact of breastfeeding during infancy on the later-life prevalence of related illnesses (Thomas, 2016). While infants with different feeding patterns may exhibit varying developmental characteristics in early life, sustained breastfeeding may contribute to greater postpartum maternal psychological wellbeing and prevent weight loss (Jayasinghe et al., 2021). As the literature reviewed has supported exBF as a means of boosting infants' healthy growth and development, it may also lead to the higher psychological well-being of postpartum mothers practising it. Thus, the following hypotheses were postulated;

Research Hypotheses

1. There would be differences between exBF and non-exBF on the anthropometry outcome of infants under six months of age
2. There would be differences in the level of psychological well-being of postpartum mothers practising exBF and non-exBF

The present study

This study evaluated the relationship between the breastfeeding status of children under six months of age and their anthropometry outcome with the psychological wellbeing of their mothers. The mental and psychological wellbeing of the mother-infant relationship under six months of birth age is depicted as a good anthropometric outcome. However, it continued to stand as a measure against growth-related comorbidities and demands continuous, sustained attention from both mothers and all stakeholders. Researching on that could unveil the levels of psychological well-

being experienced by these group of mothers and its beneficial measure to infants' growth and development in the family and the society at large.

METHODS

This study adopted a cross-sectional design, and correlational analysis was used. A cross-sectional study was carried out between June 7th and June 11th 2024 during the Maternal and Health Child Week (MCHW) Training/Program that was held on 5th day of June 2024 against six (6) days "Give your child vitamin A Supplementation (VAS) program" conducted by UNICEF under the cooperation of Hellen Keller International Agency which started from 6th of June, 2024 and ended on the 11th day of June, 2024. In this program, the researcher was able to carry out the investigation in Afikpo North L. G. A., of Ebonyi State. Using MUAC (mid-upper arm circumference) and weight measuring instruments, she evaluated the relationship between the breastfeeding status of children under six months of age and their anthropometry outcome with the psychological well-being of their mother. The data was collected and correlated with the mothers' psychological wellbeing score. The unit post was selected for this research as a stable place to duly carry out this investigation, and availability sampling was used. Therefore, the selected mothers with their children within six months of age were considered a representative sample. In addition, mothers were given a self-report measure of psychological well-being inventory to assess the level of their psychological well-being during this post-partum period. The researcher was able to sample 59 mothers with babies under six months of age.

RESULT

The result is presented in two tables below

Table 1: Relationship between breastfeeding status (exBF/non-exBF) on MUAC outcome and psychological well-being of the mother

Descriptive Statistics

	Mean	Std. Deviation	N
ex_BF	15.4593	1.03925	59
Not_ex_BF	14.2864	1.00952	59
Psy_wellbeing	52.0508	4.09972	59

The above table shows the mean and standard deviation of breastfeeding status on MUAC outcome and psychological well-being score. This output indicates that the mean score of people practicing exBF (15.46) is slightly higher than that of those practicing non-exBF (14.29) on the MUAC outcome of the child and the level of psychological well-being of the mother.

Table 2: Correlations

		ex_BF	Not_ex_BF	Psy_wellbeing
ex_BF	Pearson Correlation	1	.201	.165
	Sig. (2-tailed)		.126	.212
	N	59	59	59
Not_ex_BF	Pearson Correlation	.201	1	-.288*
	Sig. (2-tailed)	.126		.027
	N	59	59	59
Psy_wellbeing	Pearson Correlation	.165	-.288*	1
	Sig. (2-tailed)	.212	.027	
	N	59	59	59

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation table above indicates that non-exBF is negatively correlated with the psychological well-being score of the postpartum mother. This explained more of the relationship between the MUAC outcome of the child and the psychological well-being score of their mother. It shows that there is a slight push down of their satisfaction on the outcome measurement of their child's growth, which slightly depicts the negative significant relationship to their psychological well-being score (r = -.29, p = 0.05).

Table 3: Relationship between breastfeeding status (exBF/non-exBF) on Weight outcome of the child and psychological well-being of the mother.

Descriptive Statistics

	Mean	Std. Deviation	N
ex_BF	10.2983	.44817	59
Not_ex_BF	9.0814	.71595	59
Psy_wellbeing	52.0508	4.09972	59

The above table shows the mean and standard deviation of the breastfeeding status on Weight outcome and psychological well-being score. This output indicates that the mean score of people practicing ex_BF (10.28) is slightly higher than that of those practicing non-exBF (9.08) on Weight outcome of the child and the level of psychological well-being of the mother.

Table 4: Correlations

		ex_BF	Not_ex_BF	Psy_wellbeing
ex_BF	Pearson Correlation	1	-.175	.201
	Sig. (2-tailed)		.184	.127
	N	59	59	59
Not_ex_BF	Pearson Correlation	-.175	1	-.428**
	Sig. (2-tailed)	.184		.001
	N	59	59	59
Psy_wellbeing	Pearson Correlation	.201	-.428**	1
	Sig. (2-tailed)	.127	.001	
	N	59	59	59

**. Correlation is significant at the 0.01 level (2-tailed).

The correlation table above indicates that non-exBF is negatively correlated with the psychological well-being score of the postpartum mother. This explained more of the relationship between the Weight outcome of the child and the psychological wellbeing score. It shows that there is a slight push down of their satisfaction on the outcome measurement of their child's growth, which slightly depicts the negative significant relationship to their psychological well-being score (r = -.43, p = 0.01).

DISCUSSION OF THE FINDINGS

This study has actually evaluated the relationship between the breastfeeding status of children under six months of age and their anthropometry outcome with the psychological well-being of their mother. As it aimed to determine if there would be differences between exBF and non_exBF on the anthropometry outcome of infants under six months of age. The slight mean difference of ex_BF (15.46) against non-exBF of (14.28) in MUAC outcome and the mean difference of ex_BF (10.28) as slightly higher than those practising non-exBF (9.08) on Weight outcome of the child has actually determined. This is not consistent with the findings of Jayasinghe (2021), who found weak evidence for different fat mass index trajectories for eBF and neBF infants in the first 6 months of life (ANOVA, F = 2.42, df = 1.9, P = 0.09) months. This has also accepted the hypothesis, which stated that there would be differences between exBF and non-exBF on the anthropometry outcome of infants under six months of age.

Secondly, the study aimed to identify if there would be differences in the psychological wellbeing score of postpartum mothers practising exBF and those practising non-exBF . The correlation table of the MUAC outcome (r = -.29, p = 0.05) and that of the Weight outcome (r = -.43, p = 0.01) has actually identified this significant difference, respectively. This has also accepted the second hypothesis, which stated that there would be differences in the level of psychological well-being of postpartum mothers practising exBF and of those practising non_exBF. This specifically has not been determined in any breastfeeding research literature and, thus, has actually closed the existing gap, especially in recent literature.

Implication of the study

According to the literature, the majority of mothers do not exclusively breastfeed their infants in the early postpartum period, despite World Health Organization recommendations. However, this study has discovered significant differences in anthropometry outcomes among different breastfeeding statuses in children under six months of age. According to the TPB, intention has been demonstrated to be directly associated to behaviour, and identifying predictors of intention is a crucial step in developing breastfeeding promotion (Bai et al., 2011). In support of Sencan et al. (2013), exclusive breastfeeding education and assistance from healthcare providers should be encouraged to enhance the length and rate of exclusive breastfeeding.

Moreover, there is a dire need for a collaborative effort among all major stakeholders in mother and infant health to promote optimum breastfeeding practices across all populations. As demonstrated by the findings of this study, infants with diverse feeding patterns may have distinct development trends in early life. To gain a more thorough picture of baby growth, education and

support for exBF at the population level should be complemented with the simultaneous evaluation of anthropometry outcomes. Accurate quantification of anthropometry outcomes can provide important insights regarding qualitative and quantitative differences in specific tissue types. Logical extensions of the current research include the utilization of subjective measurement approaches (e.g., self-report measure of psychological wellbeing) and a comprehensive evaluation of the role of good anthropometry outcome in increasing the psychological wellbeing the postpartum mothers, including infants' growth and wellness.

Conclusion

Exclusive breastfeeding is an important public health strategy for improving children's and mother's health and wellbeing, and beyond it reduces child morbidity and mortality as well helping to reduce healthcare costs. ExBF provides many emotional benefits to the mother, especially its increase in maternal psychological well-being, as found in this present study. In addition, evidence shows that exBF mothers are less likely to develop depressive symptoms. Using the Theory of Planned Behaviour, attitude toward breastfeeding behaviour is determined by the individual's beliefs about outcomes or attributes about choosing a particular breastfeeding status (behavioural beliefs). Subjective norm therefore, is determined by normative beliefs, and normative belief is determined by the attitude of a society in valuing and appreciating a particular breastfeeding. The literature revealed that most women had heard of exclusive breastfeeding (64.6%), and 71% of them knew that exclusive breastfeeding should be practised for at least six months. However, all mothers had breastfed their child (93.2%), but only 33.3% of them had practiced exclusive breastfeeding for at least six months. The study found that while most women were aware of the benefits of exBF and got support from hospital staff, only half of them commenced and maintained exBF until discharged. Hence, there is a dire need to develop sustainable policies towards optimal breastfeeding practices among mothers across states.

Recommendations

This study evaluated the relationship between the breastfeeding status of children under six months of age and their anthropometry outcome with the psychological well-being of their mothers. Based on its findings, the below recommendations were made;

1. Since this study found differences in anthropometry outcomes between breastfeeding statuses, early postpartum interventions are likely to be an important factor in improving exclusive breastfeeding.
2. Breastfeeding education and the support of healthcare providers should be encouraged by child health practitioners to increase the duration of breastfeeding among postpartum mothers.
3. This study found that higher psychological well-being is one of the immune boosters for postpartum mothers after childbirth among those practicing exBF. Therefore, it should also be one of the social psychological interventions towards creating awareness of the social well-being of postpartum mothers.

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