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Intimate partner violence and breastfeeding practices in South Africa

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Intimate Partner Violence and Breastfeeding Practices in South Africa

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A RESEARCH REPORT SUBMITTED TO THE FACULTY OF HUMANITIES, SCHOOL
OF PUBLIC HEALTH AND SOCIAL SCIENCES, UNIVERSITY OF
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DECLARATION

I, **Moipone Lema**, declare that this research report is my original work. It is being submitted to the Faculty of Humanities, Schools of Public Health and Social Sciences, University of the Witwatersrand, Johannesburg in partial fulfilment of the requirements for the Master of Arts Degree in the field of Demography and Population Studies. This work has not been submitted for any degree in any university.

A handwritten signature in black ink, appearing to read 'Lema' with a stylized flourish.

17th August 2020

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
DHS	Demographic and Health Survey
HIV	Human Immunodeficiency Syndrome
IPV	Intimate Partner Violence
MDGs	Millennium Development Goals
NGO	Non-Governmental Organisation
SADHS	South Africa Demographic and Health Survey
SDGs	Sustainable Development Goal
SSA	sub-Saharan Africa
UN	United Nations
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

ABSTRACT

Background: Breastfeeding is the best source of food for infants because it is uncontaminated and contains all nutrients necessary for them in the first months of life. As such, World Health Organisation recommends that infants should receive breast milk exclusively for the first six months of life. As of 2016, the exclusive breastfeeding rates were 32%, while the proportion of bottle-feeding was 45% in South Africa. Despite all efforts to promote and support breastfeeding in South Africa, women still encounter challenges that prevent them from exclusively breastfeeding. Further, women with a history of Intimate Partner Violence are at high risk of known reproductive and other health problems and it could also be one of the reasons for low rates of exclusive breastfeeding. While the impact of IPV on breastfeeding has been acknowledged in the literatures, there is noticeable lack of empirical information on the relationship between physical IPV and breastfeeding, especially in South Africa. The purpose of the study is to examine the relationship between IPV and breastfeeding practices in South Africa.

Methods: The study used the South African Demographic and Health Survey dataset of 2016. The study population was women of reproductive ages (15-49) who had a child in the last six months before the survey, and who participated in the domestic violence module. Percentage and frequency distributions and cross-tabulations were used to describe breastfeeding practices and the independent variables in the study. The association between breastfeeding practices and the independent variables were determined using multinomial logistic regression.

Results: Findings from this study indicated that the larger proportion of women were not breastfeeding while only 10% were exclusively breastfeeding. In crude multinomial logistic regression analysis, women who experienced physical IPV were more likely to exclusively breastfeed compared to their counterparts. The study also revealed that physical IPV was associated with lower odds of no breastfeeding (RRR 0.394, $p = 0.025$). In analysis adjusted for socio-economic, contextual and partner variables, physical IPV was associated with higher odds of exclusive breastfeeding. However, rates of no breastfeeding were not statistically different between women who experienced physical IPV and those who did not experience physical IPV (aRRR 0.44, $p = 0.103$).

Conclusions: The study found that physical IPV was positively associated with exclusive breastfeeding. Thus, more efforts are needed to scale-up rates of exclusive breastfeeding among all women and fight against physical IPV as it can have long term consequences on the health

of the mother and the child and affect human rights.

Key words: Exclusive breastfeeding, bottle-feeding, physical IPV, South Africa

CHAPTER 1: INTRODUCTION

1.1 Background

Breastfeeding is the healthiest method of feeding infants and contains all the nutrients necessary for an infant's growth and development (United Nations Children's Fund [UNICEF], 2010). Furthermore, breastfeeding reduces the risk of mortality and morbidity among children (World Health Organisation [WHO], 2018). In sub-Saharan Africa (SSA), discontinued and non-exclusive breastfeeding was one of the leading causes of diarrhoea, lower respiratory infections and neonatal disorders in 2010 (Lim et al., 2012). Optimal breastfeeding reduces the likelihood of pneumonia and diarrhoea among children under the age of five (Gedefaw & Berhe, 2015; Walker et al., 2013). Furthermore, breastfeeding reduces the risk of obesity and type 2 diabetes in adulthood (Horta et al., 2015). According to Victora et al (2016), adequate breastfeeding is crucial because it prevents approximately 823 000 deaths of children under the age of five years annually. Further, children who were breastfed for longer periods have increased intelligence quotient and improved school attainment and higher income in adult life (Victora et al., 2015).

Moreover, exclusive breastfeeding improves the health and wellbeing of mothers (Dieterich et al., 2013) by reducing the risk of ovarian and breast cancer and could help prevent up to 20 000 maternal deaths in a year (Victora et al., 2016). Also, skin to skin contact during breastfeeding form a closer bond between mother and child (Liu et al., 2013). Finally, lactation amenorrhoea prevents further pregnancy during the post-partum period hence increased intervals between births that have been shown to improve neonatal, infant and maternal health outcomes (Sridhar & Salcedo, 2017).

The World Health Organisation (WHO) recommends that the child should be put to the breast within the first hour of life. The WHO further recommends that infants receive breast milk exclusively for at least the first six months of life, and thereafter, the breastfeeding should be supplemented by other foods until the child is 2 years old (WHO,2018). However, breastfeeding rates generally remain low globally. Only 43% of new-born are put to the breast within one hour of birth and 40% of infants aged six months or less are exclusively breastfed worldwide (WHO, 2018).

South Africa declared to protect, promote and support exclusive breastfeeding as an infant feeding option of choice for all children (NDoH, 2016). Consequently, the South African Department of Health proclaimed the 2011 Tshwane Declaration for the promotion of

exclusive breastfeeding for all women and to phase out the free formula program. In South Africa, both breastfeeding initiation and exclusive breastfeeding rates at six months have improved. In 2003, the national prevalence of breastfeeding initiation within the first hour of birth was 61% and the prevalence of exclusive breastfeeding at less than six months was 8% (NDoH et al., 2007). Moreover, the prevalence of breastfeeding initiation within one hour of birth increased to 67% and the prevalence of exclusive breastfeeding increased to 32% in 2016 (NDoH et al., 2019). Though exclusive breastfeeding rates have improved, the rate is still considered to be low because only 27.3% of infants between four and five months are exclusively breastfed (NDoH et al., 2019). Thus, it is vital to investigate any possible factors that may influence breastfeeding practices.

A woman can initiate and decide to continue breastfeeding if she has support from family, friends and the partner (Chezem et al., 2003; Handayani et al., 2010; Kornides & Kitsantas, 2013). Knowing the benefits of breastfeeding is highly associated with breastfeeding initiation and continuation (Kornides & Kitsantas, 2013). Self-efficacy and positive breastfeeding attitudes increase the chances of breastfeeding initiation and continuation (Mizrak et al., 2017). Despite the benefits of breastfeeding, some factors can influence a woman to stop or avoid breastfeeding. The reasons why a woman may decide to stop or avoid breastfeeding can be medical, cultural, psychological, physical discomfort and inconvenience (Rollins et al., 2016).

Literature also shows that Intimate Partner Violence could influence woman's decision to breastfeed (Misch & Yount, 2014; Moraes et al., 2011). The WHO defines Intimate Partner Violence (IPV) as "the behaviour by the intimate partner or ex-partner that causes physical, sexual or psychological harm including physical aggression, sexual coercion, psychological abuse and controlling behaviours" (WHO, 2017). IPV can negatively impact women's physical, mental, sexual and reproductive health (Campbell, 2002). The study focuses on physical IPV which is defined as "being slapped, being pushed or shoved, being hit with a fist or something that could hurt, being kicked, dragged or beaten up, being choked or burnt on purpose and being threatened with a gun, knife or other weapon" (García-Moreno et al., 2013). Risk factors of physical IPV in adults include the age of the victim, gender, socio-economic status of a victim and perpetrator, poverty, childhood history of witnessing IPV and experience of child abuse (Breckenridge et al., 2019).

Physical and/ sexual IPV affects nearly one in three women in their lifetime worldwide (WHO, 2017). In a study conducted by Gordon (2016), women in South Africa remain in abusive

relationships because they financially depend on their partners and in most cases, victims are made to believe that they deserve to be abused. Physical IPV can lead to injuries, depression, suicidality and posttraumatic stress disorder (Gibbs et al., 2018). As of 2016, one in five (21%) of South African women older than 18 years experienced IPV in their lifetime (NDoH et al., 2019).

Although the consequences of IPV on women's health are well identified, the relationship between IPV and breastfeeding is still not clear. Several studies have found associations between IPV and breastfeeding outcomes, postulating that women who experienced IPV were more likely to stop or avoid breastfeeding (Kjerulff Madsen et al., 2019; Mezzavilla et al., 2018; Misch & Yount, 2014; Silverman et al., 2006b). Nevertheless, breastfeeding practices were not statistically different between women who experienced IPV and women who did not experience IPV (James et al., 2014; Silverman et al., 2006b).

Breastfeeding is essential in improving maternal and child health, however, women in abusive relationships may face additional barriers to breastfeeding (Shah & Shah, 2010). Victora et al (2016) stated that in violent environments, the ability to care for the child's feeding is affected because the quality of mothering and the ability of both parents to cope with the child's needs are weakened. Women who experience IPV are likely to have low self-esteem hence reduced ability to care for an infant and a failure to sustain exclusive breastfeeding (Brown et al., 2014). According to Joyner et al (2015), IPV is associated with poor physical and mental health and it is likely to influence breastfeeding negatively.

Therefore, this study will provide an understanding of the relationship between IPV and breastfeeding practices. Findings from this study will draw attention to factors that are not well explored that might have been contributing to low breastfeeding rates in South Africa.

1.2 Problem Statement

Exclusive breastfeeding rates continue to be low worldwide (WHO, 2018). According to Issaka et al., (2017), the exclusive breastfeeding rates are extremely low in Southern Africa with approximately 13.45% of infants being exclusively breastfed. In South Africa, exclusive breastfeeding rates has gradually increased between 2003 and 2016, suggesting a response to government measures to promote exclusive breastfeeding (NDoH et al., 2019). However, the exclusive breastfeeding rate is still not good as it is evident that the majority of women are still not practicing exclusive breastfeeding. Although women are discouraged to bottle feed their children, 45% of infants feed from a bottle with a nipple (NDoH et al., 2019). On the other

hand, the rate of children who were not breastfeeding also increased from 16% to 25% in 2016 (NDoH et al., 2019).

Infant and under-five mortality rates remain high in South Africa (NDoH et al., 2019). According to the 2016 South Africa Demographic and Health Survey (SADHS) data, the infant mortality rate was 35 deaths per 1000 live births and the under-five mortality rate was 42 deaths per 1000 live births. According to WHO (2017), it is estimated that 13% of under-five deaths can be prevented through exclusive breastfeeding. If adequate breastfeeding is not achieved, the child can suffer from irreversible growth faltering or die from diarrhoea and pneumonia (Kapwata et al., 2018).

In South Africa, lack of exclusive breastfeeding was found to be associated with childhood mortality and morbidity especially in low-income communities where children are vulnerable to malnutrition and infectious diseases like HIV (Chola et al., 2015). According to Nor et al (2011), women are not likely to practice breastfeeding based on health care education only because there are also external factors such as beliefs and norms that have strong influence on breastfeeding practices. Therefore, it is essential to review the progress made so far in improving breastfeeding patterns and practices and be able to assist in a way forward.

Factors that influence practices have been well documented in South Africa. Although the effects of IPV on breastfeeding have been investigated in South Africa, there is still a gap between infant feeding practices and physical IPV. Intimate Partner Violence is a public health problem that negatively affects the health and wellbeing of children and women (Chai et al., 2016). In South Africa, women who are abused are twice more likely to have physical and mental health problems than women who do not experience abuse (Joyner et al., 2015). The study provides the pathway through which physical IPV may influence breastfeeding practices. It compliments studies that addressed IPV influence on breastfeeding practices.

1.3 Justification

Children are still dying from diarrhoea and pneumonia in South Africa while exclusive breastfeeding rates continue to be low (NDoH et al., 2019) despite the declaration and commitment to protect, promote and support exclusive breastfeeding as the infant feeding option of choice for all children (NDoH, 2016). In addition to numerous campaigns and recommendations for breastfeeding for the good health and wellbeing of both mother and child, there are life circumstances that could threaten continuous or optimal breastfeeding (Cerulli et

al., 2010; Martin-de-las-Heras et al., 2019). While studies have examined the various barriers to breastfeeding, the role of physical intimate partner violence in breastfeeding practices has not been extensively investigated especially as it relates to South Africa.

One of the six major global targets set by the United Nations (UN) Decade of Nutrition is to increase the rate of exclusive breastfeeding to 50% by 2025 (United Nations, 2016). This policy ensures that medical staff have sufficient knowledge and skills that will support breastfeeding from birth. However, the policy fail to address complex breastfeeding challenges that operate at social, structural and individual level. Increasing breastfeeding rates is important for achieving Sustainable Development Goals (SDGs) to eliminate hunger and end malnutrition by 2030 (Edmond, 2016).

It is important to have more insight and understanding of the role of physical IPV on child and health outcomes to improve breastfeeding practices with a view of reducing child morbidity and mortality in South Africa. The findings from this study are expected to contribute to the knowledge on the topic of IPV and breastfeeding practices. Moreover, the findings will shed more light on the role of physical IPV in mothers' observance of exclusive breastfeeding practices. It would also assist policy makers as well as stakeholder organisation in designing appropriate programmes and/or strengthening the existing ones that target reduction in infant morbidity and mortality as well as mothers' wellbeing.

1.4 Research Questions

Is there an association between IPV and breastfeeding practices in South Africa?

1.4.1 Sub questions

1. What are the levels of breastfeeding practices according to physical IPV, socio-economic and demographic characteristics in South Africa?
2. What is the association between physical IPV and breastfeeding practices in South Africa?

1.5 Research Objectives

The main objective of the study will be to examine the association between physical IPV and breastfeeding practices in South Africa.

1.5.1 Sub objectives

1. To determine rates and levels of breastfeeding practices according to physical IPV, socio-economic and demographic characteristics in South Africa.
2. To examine the association between physical IPV and breastfeeding practices in South Africa.

CHAPTER 2: LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Introduction

This chapter presents critical review of literature on breastfeeding and its relationship with physical IPV, demographic and socio-economic characteristics. This chapter also comprises of theoretical and conceptual framework and concludes with the study hypothesis.

2.2 Literature Review

2.2.1 IPV and Breastfeeding

There are divergent opinions on the interrelationship between intimate partner violence and breastfeeding practices worldwide. While certain studies have given credence to significant association between the two variables, several others have supported the interrelationship. Research shows that IPV has a negative impact on women's physical, mental and reproductive health (García-Moreno et al., 2013). The study that was conducted in the USA showed that after adjusting for relevant covariates, IPV was not statistically associated with cessation and avoidance of breastfeeding (Silverman et al., 2006a). The findings are also supported by a study in Australia where breastfeeding rates were not statistically different between women who experienced IPV and those who did not experience IPV (James et al., 2014).

In another study that was conducted in the USA, IPV was significantly associated with breastfeeding practices (Wallenborn et al., 2018). Their findings suggest that women who experienced IPV were less likely to initiate breastfeeding (Wallenborn et al., 2018). Zureick-Brown, Lavilla, & Yount (2015) proved that IPV was statistically associated with complementary breastfeeding and exclusive breastfeeding but IPV was not associated with breastfeeding initiation and bottle-feeding. In Africa, women who experienced IPV were less likely to initiate breastfeeding and exclusively breastfeed (Misch & Yount, 2014).

In the study by Zureick-Brown et al (2015), exposure to physical IPV was found not to be statistically associated with exclusive breastfeeding and bottle-feeding. However, several studies (Boyce et al., 2017; Metheny & Stephenson, 2019; Moraes et al., 2011) suggested that women who experienced physical IPV were more likely to terminate exclusive breastfeeding compared to women who did not experience breastfeeding. The results are also supported by Madsen et al (2019) that women who experienced physical IPV were less likely to exclusively breastfeed their children. On the other hand, in Tanzania, women who were exposed to physical IPV had increased odds of breastfeeding initiation while in Zimbabwe women who experienced physical IPV were less likely to initiate breastfeeding (Misch & Yount, 2014).

Several factors have been identified as underlying determinants of breastfeeding practices and this includes but not limited to mothers education, mothers employment status, the place of delivery, breastfeeding counselling and partners characteristics.

2.2.2 Time of Breastfeeding

According to Primo & Brandão (2017), time was considered to be the proximate determinant of breastfeeding. Time of breastfeeding is measured by the duration of breastfeeding practice and the time between breastfeeding initiation and cessation (Primo & Brandão, 2017). In Tanzania, the prevalence of exclusive breastfeeding was more than 80% during the first month which declined to less than 20% at six months (Victor et al., 2013). Sipsma et al (2013) also revealed that among women who initiated breastfeeding, more than three-thirds ceased breastfeeding before six months.

2.2.3 Maternal Education and Breastfeeding

Maternal education was found to be associated with women's breastfeeding choices (James et al., 2014; Raheel & Tharkar, 2018; Wallenborn et al., 2018). Their results revealed that women with higher education were more likely to breastfeed than women with lower or no education (James et al., 2014; Wallenborn et al., 2018). However, Raheel & Tharkar (2018) showed that women with postgraduate education were less likely to breastfeed compared to women with lower education. The study that was conducted in Al-Hassa showed that maternal education did not have an impact on breastfeeding practices (Al-Ruzaihan et al., 2017).

2.2.4 Employment Status

Women's employment status can be a barrier to optimal breastfeeding (Brand et al., 2011; James et al., 2014). In Morocco, employment status was found to be significantly associated with breastfeeding practices (Habibi et al., 2018). The study showed that women who were not working were more likely to breastfeed than women who were currently employed (Habibi et al., 2018). Similarly, the same evidence suggests that women who were employed were less likely to breastfeed because of short maternity leaves (Tadesse et al., 2019). Sipsma et al (2013) revealed that women who were employed were more likely to exclusively breastfeed than women who were not working.

2.2.5 Place of Residence

Place of residence or the surroundings, as well as the community, can affect women's decision to either breastfeeding or not breastfeed. (Primo & Brandão, 2017). In the study conducted in

the Economic Community of West Africa States countries, women from rural areas were more likely to report exclusive breastfeeding compared to women from urban areas (Agho & Ezech, 2019). However, in a study that was conducted by Horwood et al (2018), women's place of residence was found not to be statistically associated with breastfeeding outcomes in South Africa. Further, it was found that cultural beliefs and norms that are prevalent in rural areas have a negative impact on exclusive breastfeeding (Goosen et al., 2014).

2.2.6 Place of Delivery

Place of delivery can influence a woman decision to either exclusively breastfeed or not (Jama et al., 2017). In Congo, women who delivered at medical institutions were found to be eight times more likely to exclusively breastfeed than women who delivered at home (Dhakal et al., 2017). Metheny & Stephenson (2019), also found that women who delivered at medical institutions had increased odds of exclusive breastfeeding compared to women who delivered at home. Conversely, Agho & Ezech (2019) argued that there was no statistical association between breastfeeding outcome and place of delivery.

2.2.7 Breastfeeding Counselling

The study that was conducted in the Kingdom of Saudi Arabia revealed that due to lack of education during antenatal visits, women who did not initiate breastfeeding had increased odds of not breastfeeding and bottle feeding (Raheel & Tharkar, 2018). According to Agho and Ezech (2019), women who received breastfeeding counselling were more likely to exclusively breastfeed as compared to women who did not receive breastfeeding counselling. In a study that was conducted in Vhembe district, South Africa, only about 5% of women did not receive counselling in breastfeeding while the rest were provided with breastfeeding counselling (Mandiwana, 2017). Among 90% of women who received breastfeeding counselling in Limpopo South Africa, 40% reported that they were exclusively breastfeeding and 10% reported that they were bottle-feeding (Frans et al., 2015). Furthermore, the majority of women in the study pointed out that, their choice of feeding method is their personal preference (Frans et al., 2015). Nevertheless, the study that was conducted in Congo revealed that exclusive breastfeeding was not statistically associated with breastfeeding counselling (Dhakal et al., 2017).

2.2.8 Partners Characteristics (Highest educational level and Alcohol Consumption)

The presence of partners' support is very influential in women's decision on breastfeeding practices (Handayani et al., 2010). Similarly, Sipsma and others (2013) established that social support results in a high chance of women failing to breastfeed. According to Metheny & Stephenson (2019), women whom their partners had secondary or higher education were more likely to exclusively breastfeed than women who their partners had no education. However, partners' education was found not to be statistically associated with women's method of feeding (Sipsma et al., 2013).

Given that exclusive breastfeeding improves health and wellbeing of mother and child, this study examines the relationship between physical IPV, demographic and socio-economic characteristics and breastfeeding practices in South Africa. Several studies have shown an association between these factors and breastfeeding practices. Findings from are expected to lead to the formulation of appropriate policy interventions towards addressing the underlying factors that may influence breastfeeding practices in South Africa.

2.3 Theoretical Framework

The study uses the Interactive Theory of Breastfeeding. The theory was adapted from King's Conceptual System by Primo and Brando in 2017. The Interactive Theory of Breastfeeding explains and describes factors that influence breastfeeding (Primo & Brandão, 2017). According to Primo & Brandão (2017), this theory was developed to help nurses and other healthcare professionals to promote, protect and support breastfeeding. The theory is composed of the following concepts: "mother-child dynamic interaction; woman's biological conditions; child's biological conditions; woman's perception; child's perception; woman's body image; space for breastfeeding; mother's role; organisational systems for protection, promotion and support of breastfeeding; family and social authority; woman's decision making; stress and time for breastfeeding" (Primo & Brandão, 2017, p. 1193).

Mother-child dynamic interaction describes the communication between mother and child during breastfeeding and this includes how they both act and react at the time of breastfeeding (Primo & Brandão, 2017). Stress involves stressful events that can disrupt the process of breastfeeding. The time for breastfeeding is defined as the length a woman takes breastfeeding the child and/or the length between breastfeeding initiation and cessation of breastfeeding (Primo & Brandão, 2017). The child's and woman's biological conditions are described as biological characteristics and how such characteristics work together to enable

breastfeeding. Further, a woman's perception of breastfeeding includes knowledge of how breastfeeding benefits the child, social and economic conditions, skills, cultural beliefs and goals. The concept of a woman's decision making is defined as a woman's choice to breastfeed (Primo & Brandão, 2017).

In interactive theory, a woman's body image is described as how a woman views her body during breastfeeding and the reaction of others to her body (Primo & Brandão, 2017). Space for breastfeeding is described as the allocation of enough and suitable environments for breastfeeding. The mother's role is how a woman is expected to behave as a mother which includes her breastfeeding relationship with her child (Primo & Brandão, 2017). Family and social authority include values, backgrounds and perceptions of people who are involved in the breastfeeding process that can change a woman's breastfeeding practices. Organisational systems for the protection involve family, community and resources that may influence the goal of protection, promotion and supporting of breastfeeding (Primo & Brandão, 2017).

According to Primo & Brandão (2017), time and stress proximately affect mother and child ability to successfully breastfeed. The woman and child's ability to breastfeed is also proximately affected by a woman's and child's biological conditions, woman's and child's perception and woman's decision making. On the other hand, the mother's role, space for breastfeeding, woman's body image, family and social authority and organisational systems for protection, promotion and support are distant concepts of breastfeeding (Primo & Brandão, 2017).

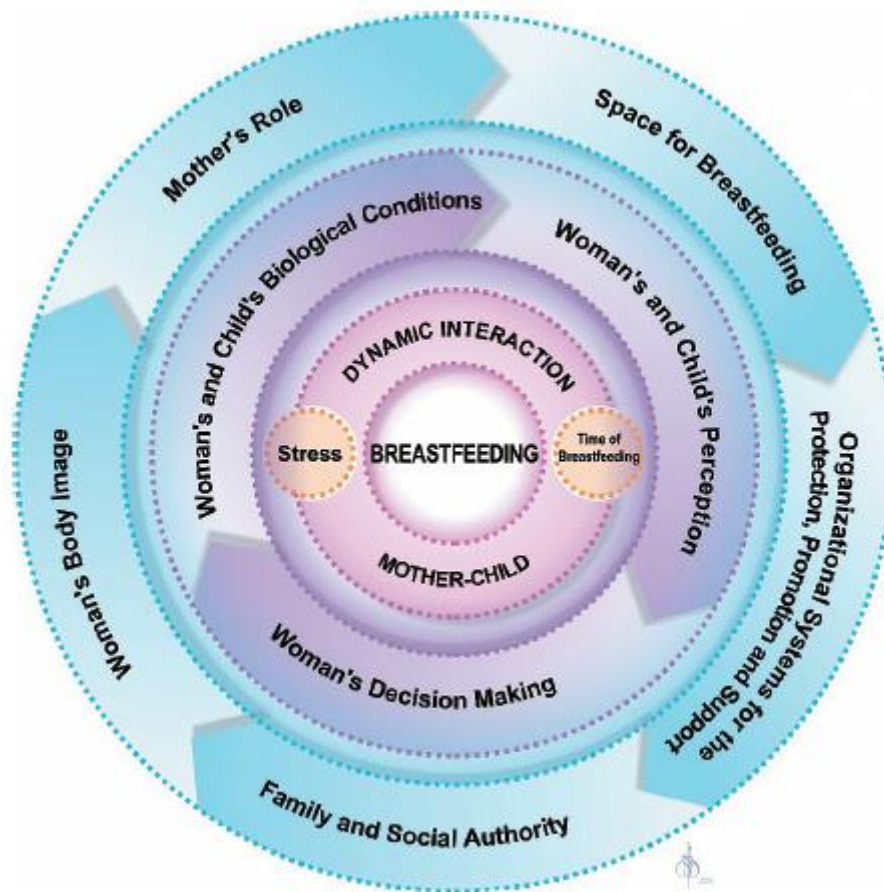


Figure 1: The Interactive Theory of Breastfeeding (Primo & Brandão, 2017)

2.4 Conceptual Framework

This study adapted Primo and Brandão's 2017 Interactive Theory of Breastfeeding to examine the association between IPV and breastfeeding practices in South Africa. As explained earlier, the interaction theory shows factors that affect the breastfeeding process. The conceptual framework presented in figure 2 shows the factors that affect breastfeeding practices in South Africa. The study used family and social authority, woman's perception and time of breastfeeding from the interactive theory of breastfeeding. The family and social authority include partner's characteristics (alcohol consumption, educational attainment), woman's/ individual characteristics (educational attainment, employment status, wealth status, place of residence, breastfeeding counselling and place of delivery) and time of breastfeeding and physical IPV.

As shown in figure 2 below, the arrows show how independent variables influence breastfeeding practices. The partners' characteristics can work through physical IPV to

influence breastfeeding practices. Breastfeeding practices include bottle-feeding, exclusive breastfeeding and no breastfeeding.

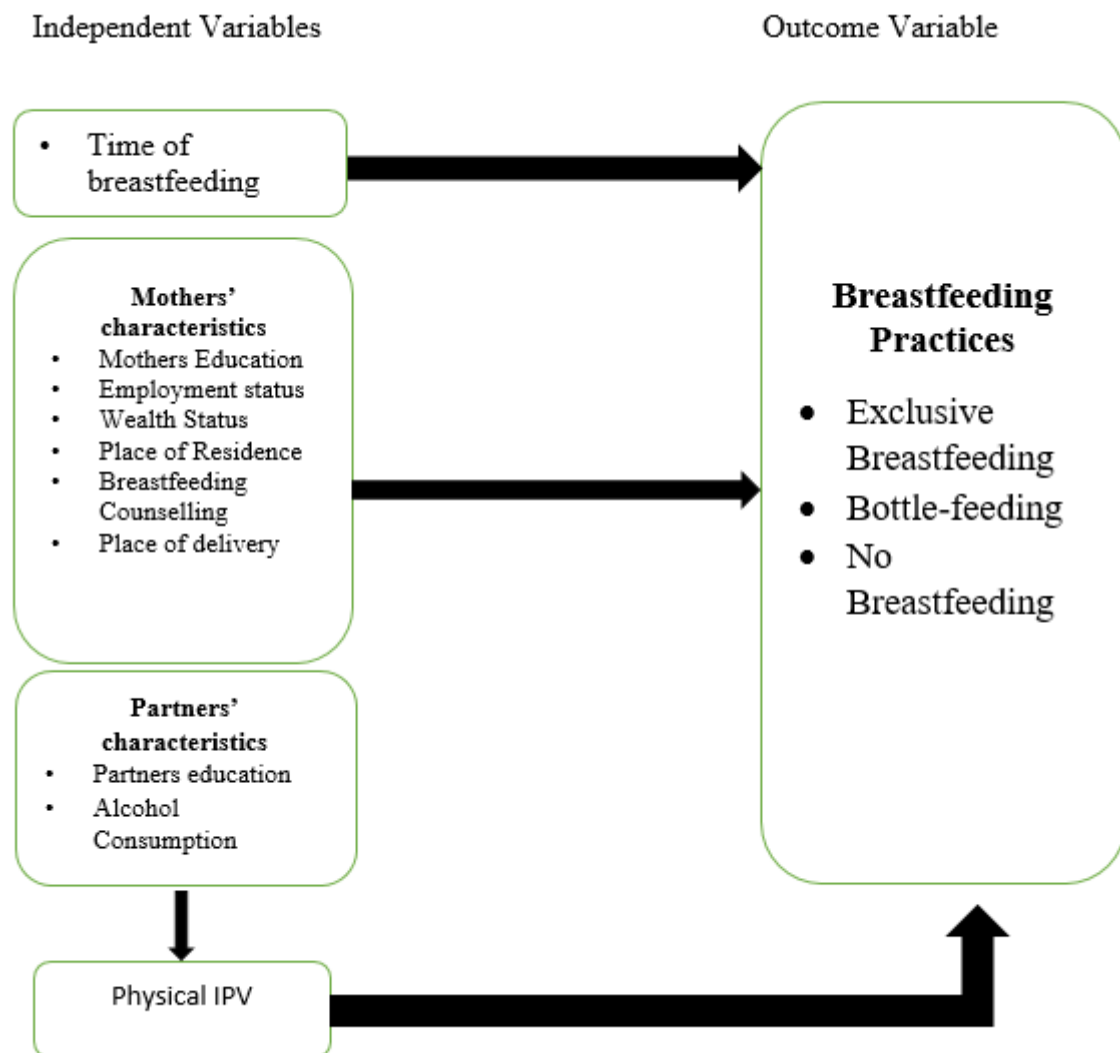


Figure 2: Conceptual Framework adapted from Primo and Brandão Interactive Theory of Breastfeeding

2.5 Hypotheses

The following hypotheses were tested:

1. H_0 : Experience of physical IPV has no influence on breastfeeding practices in South Africa

H_1 : Experience of physical IPV has influence on breastfeeding practices in South Africa

Significance level $\alpha=0.05$ and $\alpha=0.1$

CHAPTER 3: METHODOLOGY

3.1 Data source

The study used the 2016 South Africa Demographic Health Survey (SADHS) dataset. In South Africa, the survey was conducted in 1998 and 2016. Data was drawn from children and the individual recode datasets. The individual recode dataset includes information on (but not limited to) fertility levels and preferences, marriage, sexual activity, breastfeeding and infant feeding practices, nutrition, coverage of HIV counselling and testing (HCT) (NDoH et al., 2019). Furthermore, the SADHS includes the domestic violence module which is a separate module and it does not form the general questionnaire of the survey. In this module, only one woman aged 15-49 years per household was randomly selected to be eligible (NDoH et al., 2019). The children recode had information of children and their mothers. The survey data collection was carried out from June 2016 to November 2016 and Stats SA was in charge of the survey (NDoH et al., 2019).

3.2 Study Design

The SADHS 2016 used a two-stage sampling technique. In the first sampling stage, 750 primary sampling units (PSUs) were selected from a list of Census 2011 enumeration areas (EAs) (NDoH et al., 2019). At the second sampling stage, 20 dwelling units (DUs) were systematically selected from each PSUs and every household in the selected DUs was eligible for an interview. A sample of 15292 households were selected of which 11083 were successfully interviewed. A total of 8514 women of reproductive ages (15-49years) who were permanent residents or visitors who stayed in the selected household a night before the survey were interviewed (NDoH et al., 2019).

3.3 Study population and Sample size

The population of interest in this study was women of reproductive ages who had children in the last six months and were selected for the domestic violence module. The analysis sample size of the study was 648 (665 unweighted) women aged 15-49 years who had children aged 0-5 months and were selected for the domestic violence module.

3.4 Variables

3.4.1 Outcome Variable

The outcome variable for this study was breastfeeding practices. The variable was categorised as exclusive breastfeeding (0), bottle-feeding (1) and no breastfeeding (2). Breastfeeding

practices were derived using the following variables. The variable m4 on the duration of breastfeeding children born in the last six months preceding the survey. For children who were ever breastfed, their mothers were asked about types of drinks and foods that were given to a child other than breast milk 24 hours before the survey. The survey questions were

- Did the child eat any solid, semi-solid or soft foods yesterday during the day or at night?
- Did the child drink anything from the bottle with the teat yesterday or last night?
- Did you ever breastfed the child?

The mother was also asked whether the child was fed from a bottle with a nipple. Further, the mother was asked whether the child had ever received breast milk. These questions were used to determine whether the child was exclusively breastfed, bottle-fed or never breastfed. The types of drinks and foods that were given to children were obtained from variables v409 to v414 in the DHS dataset. Exclusive breastfeeding was derived from children who were not given any other food or liquid but only breast milk who are aged 0-5 months. Bottle-feeding was derived from the variable m14 which asked whether the child drank anything from a bottle with a nipple. Lastly, no breastfeeding was derived from the m4 variable which gave the number of infants that were never breastfed.

3.4.2 Independent variables

The main independent variable was physical IPV. The variable for physical IPV was measured by using data from domestic violence module in DHS which collects information from women who ever experienced violence from their partners. IPV was measured by experiences of less severe and more severe physical. For this study, less and more severe physical IPV was combined. The physical IPV variable was derived from the following questions:

Did your (last) partner ever do any of the following?

- (a) Slap you, push you, shake you, or throw something at you?
- (b) Kick you, drag you, beat you up?
- (c) Try to choke or burn you on purpose?
- (d) Threaten to attack you with a knife/ gun or other weapons
- (e) Threw something at you.

Table 1: Definition and categorization of independent variables for this study

Name of variable	Question	Original Codes	Categorisation of variable
Physical IPV	Has your partner ever slapped, pushed, shook, kicked, dragged, beaten, try to choke or burn on purpose, threatened to attack with a knife/ gun or other weapons, threw something at you?	Less severe: 1. No 2. Yes More severe: 1. No 2. Yes	1. No 2. Yes
Duration (Time)	How long did the child breastfeed?	0 -48 months	0-5 months
Highest Level of Education	What is the highest level of education you attended?	0. None 1. Primary 2. Secondary 3. Higher	1. Primary/lower 2. Secondary 3. Higher
Employment Status	What is your occupation? That is what kind of work do you mainly do?	0. Not working 1. Professional 2. Clerical 4. Self-employed 5. Unskilled 6. Domestic 7. Services 8. Skilled manual 9. Unskilled manual	0. Unemployed 1. Employed
Wealth Status	Calculated using data on household ownership of selected assets	1. Poorest 2. Poorer 3. Middle 4. Richer	1. Poor 2. Middle 3. Rich

		5. Richest	
Place of Residence	Do you live a city, town or rural area, a farm, tribal area, or an informal settlement	1. Urban 2. Rural	1. Urban 2. Rural
Place of Delivery	Where did you give birth?	11. Respondents home 12. Other home 21. Government hospital 22. Government clinic 23. Mobile Clinic 26. Other public sector 31. Private hospital	1. Home 2. Public Hospital 3. Private Hospital
Breastfeeding Counselling	During the first two days after child's birth, did any health provider counsel you on breastfeeding?	1. No 2. Yes	1. No 2. Yes
Paternal Education	What is your partner's highest level of education?	1. None 2. Primary 3. Secondary 4. Higher	1. None/ Primary 2. Secondary 3. Higher
Partners Alcohol Consumption	Does your partner drink alcohol?	1. No 2. Yes	1. No 2. Yes

3.5 Data Analysis

Data was analysed using statistical software package Stata version 15. The following research objectives were addressed:

Objective 1: To determine rates and levels of breastfeeding practices according to physical IPV, socio-demographic, contextual and partner's characteristics

For the first objective, rates of breastfeeding practices were presented in a pie chart. Breastfeeding rates were calculated using the following formula:

$$\frac{\text{number of children aged } i \text{ who were breastfed at age } i}{\text{total number of children aged } i} \times 100$$

(Source: Lung'aho et al., 1996)

Where: i = children's age in months

Line graph was used to show trends of breastfeeding practices in six months. Also, levels of breastfeeding practices were presented by using frequency and percentage distributions. Furthermore, bar chart was used to show the percentage distribution of breastfeeding practices by physical IPV. Lastly, cross-tabulations were performed to examine the relationship between physical IPV and breastfeeding practices. The Chi-square test was used to examine significant differences in breastfeeding practices and selected characteristics at $\alpha=0.05$.

Objective 2: To examine the association between physical IPV and breastfeeding practices

The second objective was addressed by fitting multinomial logistic regression. This regression model was chosen because the outcome variable has more than two categories. The association between breastfeeding practices and independent variables was examined by conducting unadjusted and adjusted multinomial logistic regression. The unadjusted model (Model 1) showed relative risk ratios for breastfeeding practices with each variable. The adjusted model showed relative risk ratios for breastfeeding practices with socio-economic, contextual and partners' characteristics. The adjusted model consisted of four models namely:

Model 2: Considered breastfeeding practices, physical IPV and socio-economic characteristics (time of breastfeeding in months, mothers highest level of education, employment status, wealth status and place of residence)

Model 3: Considered model 1 and contextual characteristics (place of delivery and breastfeeding counselling)

Model 4+: is a full model which accounted for model 2 and partner's characteristics (highest level of education and alcohol consumption)

The level of significance was set at 0.05 and 0.1. Data was weighted to account for over and under sampling of some settings in the country. In this study, the results were interpreted using relative risk ratios including their significant status and all the results were interpreted (i.e statistically significant and not statistically significant results). The equation that was used is:

$$\ln\left(\frac{\text{Breastfeeding practices}}{(1-\text{breastfeeding practices})}\right) = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + e_0$$

(Source: Kleinbaum 2010)

Where

β_n is the regression coefficient for n independent variable (physical IPV, socio-economic, contextual and partners characteristics).

α_0 is the intercept of the model

X_n is n independent variable (physical IPV, socio-economic, contextual and partners characteristics).

3.6 Ethical Issues

Data for this study was from the secondary source and the respondents' information is not known to the researcher of this study. To access datasets from DHS website <https://dhsprogram.com/>, a written request and registration was done by entering email address and passwords, specifying project title, describing the study and selecting the region that will be used in the study. The account was approved and permission to use data was granted within 24 hours by The DHS Program. The ethics waiver application form was completed and the electronic copy was sent to the relevant Departmental Ethics Committee. The ethics waiver application form was signed by both the supervisor and the student. Ethics clearance was obtained from the Faculty of Humanities and protocol number WDEMG2019/07/12 was issued.

CHAPTER 4: RESULTS

4.1 Rates and Levels of breastfeeding practices in South Africa

4.1.1 Levels of Breastfeeding practices by Physical IPV and other independent variables

Table 2 below shows the characteristics of the study population. The percentage of women who reported experiencing physical IPV was 5.13%. The average duration of breastfeeding practices was 3.5 months. Almost three-quarters of women had attained secondary level education while approximately 11% had primary or no education and higher education. Further, 87.33% of women partners/husbands had secondary education while only 4.51% had attained higher education. The majority of women (61.09%) were unemployed while 38.91% were employed. About 24.32% of women reported that they were from middle households while 36.85% and 38.85% reported that their households were poor and rich respectively.

Urban areas comprised of 74.38% of women while 25.62% resided in rural areas. More than three quarter (83.7%) of women received breastfeeding counselling during the first two days after birth while only 16.3% reported that they did not receive any breastfeeding counselling. Majority of women (87.13%) delivered at public hospitals while only 3.32% delivered at home and 9.55% delivered at private hospitals. Approximately 63.56% of women reported that their partners did no use alcoholic drinks while 36.44% used alcohol.

Table 2: Frequency and percentage distribution of sampled women in South Africa

Characteristics	N (648)	%
Physical IPV		
No	615	94.87
Yes	33	5.13
Time (in months)		
Mean [Min-Max]	3.5 [0-5]	
Maternal Education		
Primary/No education	69	10.59
Secondary	509	78.56
Higher	70	10.89
Paternal Education		
Primary/ No education	53	8.16

Secondary	566	87.33
Higher	29	4.51
Mothers Employment Status		
No	396	61.09
Yes	252	38.91
Mothers Wealth Status		
Poor	239	36.85
Middle	158	24.32
Rich	251	38.85
Place of Residence		
Urban	482	74.38
Rural	166	25.62
Place of Delivery		
Home	21	3.32
Public hospital	565	87.13
Private hospital	62	9.55
Breastfeeding Counselling		
No	105	16.30
Yes	542	83.70
Partners Alcohol Consumption		
No	412	63.56
Yes	236	36.44

4.1.1 Rates of breastfeeding practices in South Africa

As presented in figure 3 below, 65% of women did not breastfeed their children, 25% fed their children from a bottle with a nipple while only 10% exclusively breastfed their children.

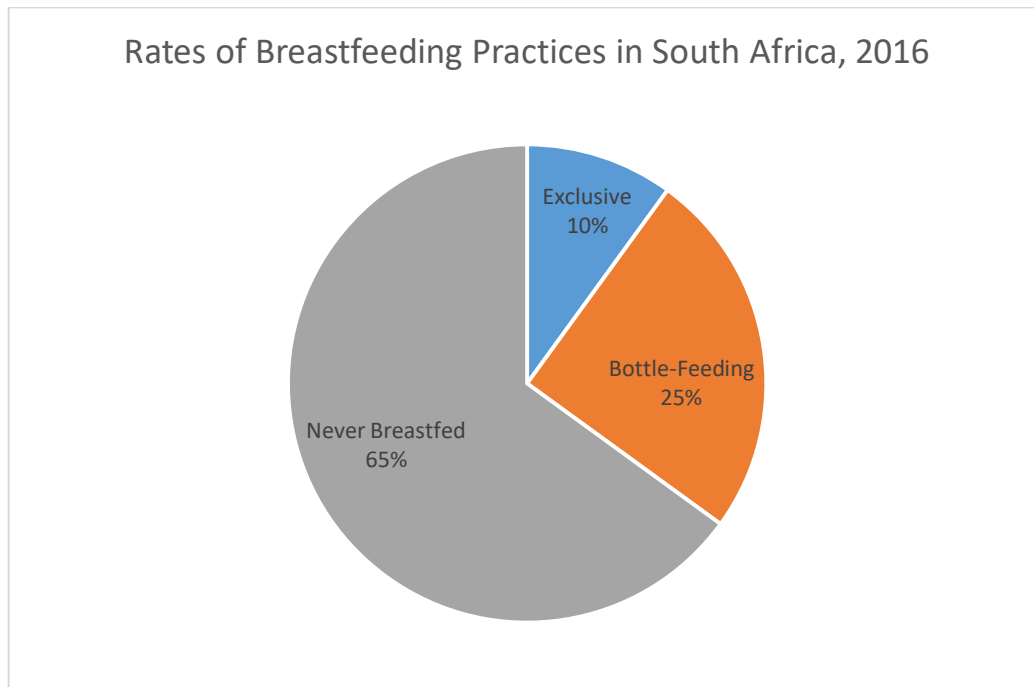


Figure 3: Rates of breastfeeding practices in South Africa, 2016

4.1.2 Trends of Breastfeeding

Figure 4 below shows the trend of breastfeeding practices in six and less. Exclusive breastfeeding is observed to decline with time in months. The rate of exclusive breastfeeding was 69% among women with infants less than one month old as compared to the rate of 13% among women with infants aged five months old. Rates of bottle-feeding and no breastfeeding increase with time in months. The rate of bottle-feeding among women with infants aged less than one month was 19% while more than half (53%) of women with infants aged five months were bottle-feeding. On the other hand, 11% of women with infants aged less than one month were not breastfeeding and the rate increased to 33% among women with infants aged five months.

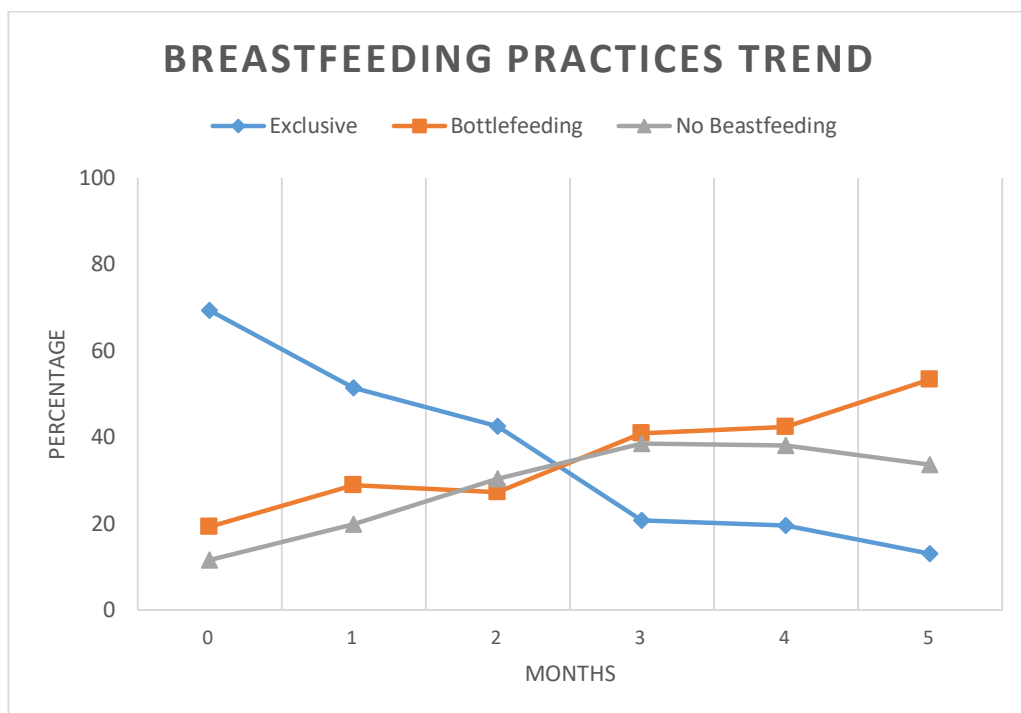


Figure 4: Trends of Breastfeeding practices in South Africa

4.1.4 Breastfeeding practices by experience of physical IPV

As shown in figure 5 below, the percentage of women who were exclusively breastfeeding was higher among women who experienced physical IPV (21.33%) compared to women who did not experience physical IPV (8.98%). The percentage of women who bottle-fed was higher among women who experienced physical IPV 25.61% compared to women who did not experience physical IPV (18.74%). On the other hand, the percentage of women who were not breastfeeding was higher among women who did not experience physical IPV (65.41%) compared to women who experienced physical IPV (59.93%).

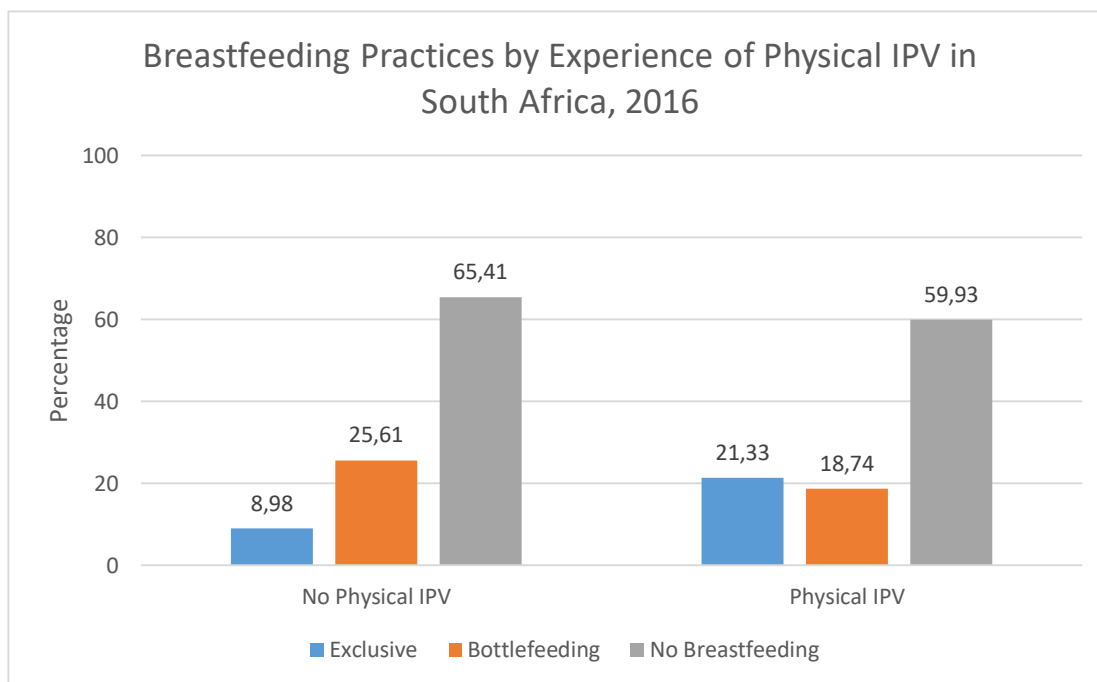


Figure 5: Percentage distribution of breastfeeding practices by experience of physical IPV in South Africa, 2016

4.1.5 Breastfeeding practices by socio-economic, contextual and partners characteristics

Table 3 below shows that more than half of women with primary or no education (57.82%) were not breastfeeding while 69.18% of women who had higher education were not breastfeeding. About 17.86% of women who had primary or no education were exclusively breastfeeding while only 8.97% and 6.16% of women who had secondary and higher education were exclusively breastfeeding. On the other hand, there was no much difference between women who had primary or no education (24.33%), secondary education (25%) and higher education (24.66%) who were bottle-feeding and the relationship was not statistically significant.

Approximately 14.36% of women who their partners had primary or no education were exclusively breastfeeding while only 7.72% of women who their partners had higher education were exclusively breastfeeding. Relatively 30.28% of women who their partners had higher education were bottle-feeding compared to 20.93% of women who their partners had primary or no education. Further, 65.34% of women who their partners had secondary education were not breastfeeding while 64.71% and 62% of women who their partners had primary or no education and higher education were bottle-feeding respectively and the association was not statistically significant.

Approximately one quarter of women who were employed were bottle-feeding and 24.84% of unemployed women were bottle-feeding. Relatively 12.12% of unemployed women were exclusively breastfeeding while only 5.67% of women who were working were exclusively breastfeeding. The majority of women who were unemployed (63.04%) and employed (68.07%) were not breastfeeding and the association was not statistically significant while only 5.67% of employed women were exclusively breastfeeding. Less than 10% of women who reported that they were from poor and middle households were exclusively breastfeeding while 11.58% of women who reported that they were from rich households were exclusively breastfeeding. Relatively 60.69% of women who were from poor households were not breastfeeding while approximately 68% of women who were from middle and rich households were not breastfeeding. Furthermore, 30.64% of women from poor households were bottle-feeding compared to 20.35% of women who were from rich households and the association was not statistically significant.

Relatively 29.75% of women who resided in rural areas were bottle-feeding compared to 23.71% of women who resided in urban were bottle-feeding. About 66.05% of women from urban areas were not breastfeeding while 62.48% of women from rural areas were not breastfeeding. Approximately 10% of women from urban areas were exclusively breastfeeding their children while less than 10% of women from rural areas (7.77%) were exclusively breastfeeding and the association was not statistically significant.

It was found that approximately 9% of women who delivered at home, public hospitals and private hospitals were exclusively breastfeeding. About 70.58% of women who delivered at private hospitals were no breastfeeding while 64.48% of women who delivered at public hospitals were not breastfeeding. One-quarter of women who delivered at the hospital were bottle-feeding while 20.26% of women who delivered at private hospitals and 23.6% of women who delivered at home were bottle-feeding and the association was not statistically significant. Relatively 10.36% of women who received breastfeeding counselling were exclusively breastfeeding while only 5.7% of women who did not receive breastfeeding counselling were exclusively breastfeeding. Relatively 26.41% of women who were counselled about breastfeeding, bottle-fed while 19.33% of women who did not receive counselling on breastfeeding were bottle-feeding. Three-quarter of women who did not receive breastfeeding counselling were not breastfeeding and 63.22% of women who received breastfeeding counselling were not breastfeeding and the association is not statistically significant.

Relatively 69.26% of women whose partners did not use alcohol were not breastfeeding and 57.93% of women whose partners used alcohol were not breastfeeding. About 27.95% of women whose partners used alcohol were bottle-feeding while 23.72% of women whose partners did not use alcohol were bottle-feeding. Furthermore, 10.36% of women whose partners were using alcoholic drinks were exclusively breastfeeding while 7.02% of women whose partners were not using alcoholic drinks were exclusively breastfeeding and the association was statistically significant.

Table 3: Feeding practices by selected characteristics in South Africa, 2016

Socio-demographic Characteristics	Exclusive Breastfeeding %	Bottle-feeding %	No breastfeeding %	Chi-square χ^2
Mothers Education				$\chi^2 = 6.93$ p = 0.337
Primary or less	17.86	24.33	57.82	
Secondary	8.97	25.47	65.56	
Higher	6.16	24.66	69.18	
Paternal Education				$\chi^2 = 2.21$ p = 0.832
Primary or less	14.36	20.93	64.71	
Secondary	9.26	25.41	65.34	
Higher	7.72	30.28	62.00	
Mothers Employment Status				$\chi^2 = 7.62$ p = 0.098
No	12.12	24.84	63.04	
Yes	5.67	25.92	68.41	
Mothers Wealth Status				$\chi^2 = 8.24$ p = 0.186
Poor	8.67	30.64	60.69	
Middle	7.87	24.94	67.19	
Rich	11.58	20.35	68.07	
Place of Residence				$\chi^2 = 2.88$ p = 0.319
Urban	10.24	23.71	66.05	
Rural	7.77	29.75	62.48	
Place of Delivery				$\chi^2 = 1.08$

Home	9.92	23.60	66.48	p = 0.928
Public Hospital	9.64	25.87	64.48	
Private Hospital	9.16	20.26	70.58	
Breastfeeding Counselling				$\chi^2 = 5.77$
No	5.7	19.33	74.97	p = 0.186
Yes	10.36	26.41	63.22	
Partners Alcohol Consumption				$\chi^2 = 12.19$
No	7.02	23.72	69.26	p = 0.018
Yes	14.12	27.95	57.93	

4.2 Associations between breastfeeding practices and physical IPV

4.2.1 Unadjusted multinomial Logistic Regression

The unadjusted model in Table 4 below shows that there is a significant association between breastfeeding practices and physical IPV ($p < 0.05$). The relative risk of bottle-feeding versus exclusive breastfeeding decreased by 69% among women who experienced physical IPV compared to women who did not experience physical IPV. Also, the relative risk of no breastfeeding versus exclusive breastfeeding decreased by 61% among women who experienced physical IPV compared to women who did not experience physical IPV and the association was statistically significant (0.39; CI: 0.175-0.887; $p = 0.025$).

The Table shows that as duration increases by one month, the relative risk of bottle-feeding versus exclusive breastfeeding decreased by 1% and the association was not statistically significant whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased by 3.2% and the association was statistically significant. Women with higher education were more likely to bottle-feed in relation to exclusively breastfeed compared to women who had primary or lower education (1.72; CI: 0.543-5.489; $p = 0.354$) and the association was not statistically significant. Also, the relative risk of no breastfeeding increased by 74% and 76% among women who had secondary and higher education compared to women who had primary or no education and the association was not statistically significant.

The relative risk of bottle-feeding versus exclusive breastfeeding increased by 100.1% times among women who were employed compared to women who were not working (2.01; CI: 1.031-3.912; $p = 0.040$) and the association was statistically significant. On the other hand,

women who were employed were more likely to never breastfeed in relation to exclusively breastfeed compared to unemployed women (2.21; CI: 1.183-4.133; $p = 0.013$) and the association was statistically significant. The relative risk of bottle-feeding compared to exclusive breastfeeding decreased by 16% and 22% among women who reported that they were from middle and rich households compared to women from poor households whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased by 4% and 1% among women who were from middle and rich households and the association was not statistically significant.

Women who resided in rural areas were 72% more likely to bottle-feed in relation to exclusively breastfeed compared to women who resided in urban areas and the association was statistically significant. The relative risk of no breastfeeding compared to exclusive breastfeeding increased by 47% among women who resided in rural areas compared to women who resided in urban areas and the association was not statistically significant. The relative risk of women who bottle-fed versus exclusive breastfeeding decreased among women who delivered at public hospitals (0.29; CI: 0.051-1.761; $p = 0.257$) and private hospital (0.44; CI: 0.062-3.163; $p = 0.497$) compared to women who delivered at home and the association was not statistically significant. Women who delivered at public hospitals (0.38; CI: 0.070-2.253; $p = 0.364$) and public hospitals (0.68; CI: 0.103-4.599; $p = 0.746$) were less likely to never breastfeed in relation to exclusively breastfeed compared to women who delivered at home and the association was not statistically significant.

Women who received breastfeeding counselling were 38% less likely to bottle-feed in relation to exclusively breastfeed compared to women who never received breastfeeding counselling and the association was not statistically significant. Relative risk of no breastfeeding versus exclusive breastfeeding decreased among women who received breastfeeding counselling compared to women who did not receive breastfeeding counselling (0.42; CI: 0.191-0.941; $p = 0.077$) and the association was statistically significant.

The relative risk of bottle-feeding versus exclusive breastfeeding increased among women who their partners had secondary education (3.56; CI: 1.704-7.445; $p = 0.005$) and higher education (5.45; CI: 1.282-23.191; $p = 0.054$) compared to women who their partners had primary or lower education and the association was statistically significant. Women who their partners had secondary education were 2.48 times more likely to bottle-feed relative to exclusively breastfeeding compared to women who their partners had primary or no education and the

association was statistically significant. The relative risk of bottle-feeding versus exclusive breastfeeding increased among women who their partners had higher education (3.166; CI: 0.829-12.094; $p = 0.157$) and the association was not statistically significant.

The relative risk of bottle-feeding versus exclusive breastfeeding decreased by 17% among Women who their partners consumed alcohol compared to women who their partners did not consume alcohol and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding decreased among women who their partners used alcohol compared to women who their partners did not use alcohol (0.66; CI: 0.392-1.137; $p = 0.137$) and the association was not statistically significant.

Table 4: The unadjusted multinomial logistic regression of breastfeeding practices by physical IPV, demographic and socio-economic characteristics

Characteristics	Bottle-feeding			No Breastfeeding		
	RRR	p-value	CI	RRR	p-value	CI
Physical IPV						
No	RC					
Yes	0.31*	0.020	0.118-0.831	0.394*	0.025	0.175-0.887
Time in months						
Duration	0.99	0.239	0.989-1.002	1.03*	0.000	1.024-1.039
Mothers Education						
Primary/lower	RC					
Secondary	1.69	0.184	0.778-3.699	1.74	0.121	0.853-3.522
Higher	1.72	0.354	0.543-5.489	1.76	0.296	0.609-5.082
Mothers Employment status						
No	RC					
Yes	2.01*	0.040	1.031-3.912	2.21*	0.013	1.183-4.133
Mothers Wealth Status						
Poor	RC					
Middle	0.84	0.655	0.406-1.761	1.04	0.900	0.531-2.056
Rich	0.78	0.485	0.406-1.533	1.01	0.973	0.547-1.866

Place of residence						
Urban	RC					
Rural	1.72*	0.084	1.026-2.913	1.47	0.193	0.903-2.397
Place of Delivery						
Home	RC					
Public Hospital	0.29	0.257	0.051-1.723	0.38	0.364	0.070-2.153
Private Hospital	0.44	0.497	0.062-3.163	0.68	0.746	0.103-4.599
Breastfeeding Counselling						
No	RC					
Yes	0.62	0.362	0.265-1.462	0.42**	0.077	0.191-0.941
Paternal Education						
Primary	RC					
Secondary	3.56*	0.005	1.704-7.445	2.48*	0.013	1.362-4.548
Higher	5.45**	0.054	1.282-23.191	3.16	0.157	0.829-12.094
Partners alcohol consumption						
No	RC					
Yes	0.83	0.534	0.468-1.481	0.66	0.137	0.392-1.137

RC denotes Reference Category, *=p<0.1 (significant at 90%), **=p<0.05 (significant at 95%)

Source: Computed for this study from SADHS, 2016

4.2.2 Model 2

Table 5 below shows the adjusted relative risk ratios of breastfeeding practices by physical IPV and socio-economic characteristics. The relative risk of bottle-feeding versus exclusive breastfeeding decreased among women who experienced physical IPV (0.29; CI: 0.103-0.814; p = 0.019) compared to women who did not experience physical IPV and the association was statistically significant. Women who experienced physical IPV were 67% less likely to never breastfeed in relation to exclusively breastfeed and the association was statistically significant.

As time increases by one month, the relative risk of bottle-feeding versus exclusive breastfeeding decreases by 1% and the association was not statistically significant whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased by 3% and the association was statistically significant. The relative risk of bottle-feeding versus exclusive

breastfeeding increased among woman who had secondary education compared to women who had primary or no education (2.19; CI: 1.071-4.477; $p = 0.071$) whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased among women who had secondary education compared to women who had primary or no education (2.21; CI: 1.134-4.342; $p = 0.051$) and the association was statistically significant.

Women who were employed were 1.85 times more likely to bottle-feed than to exclusively breastfeed compared to women who were unemployed and the association was statistically significant whereas the relative risk of no breastfeeding increased among women who were employed (2.13; CI: 1.187-3.836; $p = 0.033$) and the association was statistically significant. The relative risk of bottle-feeding versus exclusive breastfeeding decreased among women who reported they were from middle households (0.89; CI: 0.458-1.745; $p = 0.784$) and rich households (0.92; CI: 0.457-1.881; $p = 0.861$) compared to women who were from poor households and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding increased by 10% and 25% among women who were from middle and rich households and the association was not statistically significant.

Women who resided in rural areas were more likely to bottle-feed in relation to exclusively breastfeed compared to women who resided in urban areas (1.73; CI: 0.928-3.246; $p=0.147$) and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding increased among women from rural areas (1.66; CI: 0.902-3.069; $p=0.171$) than women from urban areas and the association was not statistically significant.

Table 5: The adjusted multinomial logistic regression of breastfeeding practices by physical IPV and socio-economic characteristics

Characteristics	Bottle-feeding			No Breastfeeding		
	RRR	p-value	CI	RRR	p-value	CI
Physical IPV						
No	RC					
Yes	0.29*	0.019	0.103-0.814	0.33*	0.018	0.131-0.829
Time in months						
Duration	0.99	0.277	0.989-1.002	1.03*	0.000	1.027-1.042
Mothers Education						

Primary/lower	RC					
Secondary	2.19**	0.071	1.073-4.477	2.21**	0.051	1.134-4.342
Higher	1.98	0.305	0.660-5.979	1.26	0.718	0.435-3.664
Mothers Employment Status						
No	RC					
Yes	1.85**	0.086	1.026-3.364	2.13*	0.033	1.187-3.836
Mothers Wealth Status						
Poor	RC					
Middle	0.89	0.784	0.458-1.745	1.10	0.804	0.573-2.122
Rich	0.92	0.861	0.457-1.881	1.25	0.595	0.622-2.530
Place of residence						
Urban	RC					
Rural	1.73	0.147	0.928-3.246	1.66	0.171	0.902-3.069

RC denotes Reference Category, *=p<0.1 (significant at 90%), **=p<0.05 (significant at 95%)

Source: Computed for this study from SADHS, 2016

4.2.3 Model 3

Table 6 below presents the adjusted relative risk ratios of breastfeeding practices by physical IPV, socio-economic and contextual characteristics. The relative risk of bottle-feeding versus exclusive breastfeeding decreased among women who experienced physical IPV compared to women who did not experience physical IPV (0.30; CI: 0.107-0.855; p = 0.024) and the association was statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding decreased by 63% among women who experienced physical IPV and the association was statistically significant.

One month increase in time reduced the likelihood of bottle-feeding (0.99; CI: 0.989-1.002; p = 0.218) and the association was not statistically significant. On the other hand, it was observed that a month increase in time also increased the likelihood of no breastfeeding by 3% and the association was statistically significant. The relative risk of bottle-feeding versus exclusive breastfeeding increased among woman who had secondary education compared to women who had primary or no education (2.24; CI: 1.090-4.619; p = 0.066) whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased among women who had secondary education compared to women who had primary or no education (2.14; CI: 1.086-4.243; p =

0.065) and the association was statistically significant. Women who had higher education were 2.22 times more likely to bottle-feed in relation to exclusively breastfeed compared to women who had primary or no education whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased by 31% among women who had higher education compared to women who had primary or no education and the association was not statistically significant.

Women who were employed were 1.77 times more likely to bottle-feeding in relation to exclusively breastfeed compared to women who were unemployed and the association was not statistically significant whereas the relative risk of no breastfeeding increased among women who were employed (2.06; CI: 1.147-3.733; $p = 0.043$) and the association was statistically significant. The relative risk of bottle-feeding versus exclusive breastfeeding decreased among women who reported they were from middle households (0.89; CI: 0.456-1.754; $p = 0.786$) and rich households (0.88; CI: 0.435-1.802; $p = 0.779$) compared to women who were from poor households and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding increased by 14% and 27% among women who were from middle and rich households and the association was not statistically significant.

Women who resided in rural areas were more likely to bottle-feed in relation to exclusively breastfeed compared to women who resided in urban (1.71; CI: 0.913-3.203; $p = 0.159$) and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding increased among women from rural areas than women from urban areas (1.68; CI: 0.910-3.122; $p = 0.163$) and the association was not statistically significant.

The relative risk of women who bottle-fed versus exclusive breastfeeding decreased among women who delivered at public hospital (0.27; CI: 0.046-1.663; $p = 0.240$) and private hospital (0.28; CI: 0.037-2.115; $p = 0.301$) compared to women who delivered at home and the association was not statistically significant. Women who delivered at public hospitals (0.44; CI: 0.075-2.658; $p = 0.364$) were less likely to bottle-feed in relation exclusively breastfeed compared to women who delivered at home and the association was not statistically significant. Women who delivered in private hospitals (1.53; CI: 0.203-11.534; $p = 0.729$) were more likely to never breastfeed in relation to exclusively breastfeed and the association was not statistically significant.

Women who received breastfeeding counselling were 45% less likely to bottle-feed in relation to exclusively breastfeed compared to women who did not receive breastfeeding counselling and the association was not statistically significant. Relative risk of no breastfeeding versus

exclusive breastfeeding decreased among women who received breastfeeding counselling (0.59; CI: 0.238-1.306; $p = 0.259$) compared to women who did not receive breastfeeding counselling and the association was not statistically significant.

Table 6: The adjusted multinomial logistic regression of breastfeeding practices by physical IPV, socio-economic and contextual characteristics

Characteristics	Bottle-feeding			No Breastfeeding		
	RRR	p-value	CI	RRR	p-value	CI
Physical IPV						
No	RC					
Yes	0.30*	0.024	0.107-0.855	0.37*	0.037	0.170-0.810
Time in months						
Duration	0.99	0.218	0.989-1.002	1.03*	0.000	1.024-1.039
Highest level of education						
Primary/lower	RC					
Secondary	2.24**	0.066	1.090-1.619	2.14**	0.065	1.086-4.243
Higher	2.22	0.237	0.731-6.772	1.31	0.676	0.609-5.082
Employment status						
No	RC					
Yes	1.77	0.113	0.978-3.229	2.06*	0.043	1.147-3.733
Wealth Status						
Poor	RC					
Middle	0.89	0.786	0.456-1.754	1.14	0.729	0.593-2.222
Rich	0.88	0.779	0.435-1.802	1.27	0.573	0.628-2.579
Place of residence						
Urban	RC					
Rural	1.71	0.159	0.913-3.203	1.68	0.163	0.910-3.122
Place of Delivery						
Home	RC					
Public Hospital	0.27	0.240	0.046-1.663	0.44	0.458	0.075-2.658

Private Hospital	0.28	0.301	0.037-2.115	1.53	0.729	0.203-11.534
Breastfeeding Counselling						
No	RC					
Yes	0.55	0.263	0.228-1.322	0.59	0.259	0.238-1.306

RC denotes Reference Category, *= $p < 0.1$ (significant at 90%), **= $p < 0.05$ (significant at 95%)

Source: Computed for this study from SADHS, 2016

4.2.4 Model 4

Table 7 shows the full adjusted model which consists of breastfeeding practices by physical IPV, socio-economic, contextual and partners' characteristics. The results showed that women who experienced physical IPV were less likely to bottle-feed in relation to exclusively breastfeeding compared to women who did not experience physical IPV (0.34; CI: 0.139-0.847; $p = 0.051$) and the association was statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding decreased by 54% among women who experienced physical IPV compared to women who did not experience physical IPV and the association was not statistically significant.

One month increase in time reduced the likelihood of bottle-feeding (0.99; CI: 0.990-1.002; $p = 0.351$) and the association was not statistically significant. On the other hand, it was observed that a month increase in time also increased the likelihood of no breastfeeding by 3% and the association was statistically significant. The relative risk of bottle-feeding versus exclusive breastfeeding increased among women who had secondary education (1.65; CI: 0.771-3.563; $p = 0.277$) and higher education (1.42; CI: 0.420-4.813; $p = 0.635$) compared to women who had primary or no education and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding increased among women who had secondary education (1.59; CI: 0.675-3.759; $p = 0.287$) and higher education (1.02; CI: 0.253-4.083; $p = 0.980$) compared to women who had primary or no education and the association was not statistically significant.

The relative risk of bottle-feeding versus exclusive breastfeeding increased by 70% among women who were employed compared to women who were not working (1.70; CI: 0.925-3.131; $p = 0.151$) and the association was not statistically significant. On the other hand, women who were employed were more likely to never breastfeed in relation to exclusively breastfeed compared to women who were not working (2.03; CI: 1.113-3.711; $p = 0.053$) and the association was statistically significant. The relative risk of bottle-feeding compared to

exclusive breastfeeding decreased by 22%% and 23% among women who reported that they were from middle and rich households compared to women from poor households whereas the relative risk of no breastfeeding versus exclusive breastfeeding increased by 5% and 18% among women who were from middle and rich households and the association was not statistically significant.

The relative risk of bottle-feeding versus exclusively breastfeeding increased among women who resided in rural areas compared to women who resided in urban areas (1.78; CI: 0.937-3.378; $p = 0.139$) and the association was not statistically significant. The relative risk of no breastfeeding compared to exclusive breastfeeding increased by 77% among women who resided in rural areas compared to women who resided in urban areas and the association was not statistically significant. The relative risk of women who bottle-fed versus exclusive breastfeeding decreased among women who delivered at public hospitals (0.23; CI: 0.037-1.461; $p = 0.192$) and private hospital (0.21; CI: 0.027-1.716; $p = 0.224$) compared to women who delivered at home and the association was not statistically significant. Women who delivered at public hospitals (0.40; CI: 0.044-3.646; $p = 0.418$) the relative risk of no breastfeeding versus exclusive breastfeeding increased among women who delivered in private hospitals (1.28; CI: 0.107-15.267; $p = 0.844$) compared to women who delivered at home and the association was not statistically significant.

Women who were bottle-feeding versus women who were exclusively breastfeeding were about 40% less likely to have received breastfeeding counselling and the association was not statistically significant. The relative risk of no breastfeeding versus exclusive breastfeeding decreased among women who received breastfeeding counselling (0.61; CI: 0.220-1.693; $p = 0.343$) compared to women who did not receive breastfeeding counselling and the association was not statistically significant.

The relative risk of bottle-feeding versus exclusive breastfeeding increased among women who their partners had secondary education (3.91; CI: 1.649-9.288; $p = 0.009$) and higher education (6.16; CI: 1.105-34.354; $p = 0.082$) compared to women who their partners had primary or lower education and the association was statistically significant. Women who their partners had secondary education (3.30; CI: 1.376-7.916; $p = 0.007$) were more likely to bottle-feed in relation to exclusively breastfeed compared to women who their partners had primary or no education and the association was statistically significant. The relative risk of bottle-feeding versus exclusive breastfeeding increased among women who their partners had higher

education (2.69; CI: 0.381-19.100; $p = 0.320$) and the association was not statistically significant.

Women whose partners consumed alcohol were 11% less likely to bottle-feed in relation to exclusively breastfeed compared to women whose partners did not consume alcohol and the association was not statistically significant. Relative risk of no breastfeeding versus exclusive breastfeeding decreased among women whose partners used alcohol (0.73; CI: 0.398-1.358; $p = 0.326$) and the association was not statistically significant.

Table 7: The adjusted multinomial logistic regression of breastfeeding practices by physical IPV, socio-economic, contextual and partners' characteristics

Characteristics	Bottle-feeding			No Breastfeeding		
	RRR	p-value	CI	RRR	p-value	CI
Physical IPV						
No	RC					
Yes	0.34**	0.051	0.139-0.847	0.44	0.103	0.169-1.175
Time in months						
Duration	0.99	0.351	0.990-1.002	1.03*	0.000	1.028-1.045
Highest level of education						
Primary/lower	RC					
Secondary	1.65	0.277	0.771-3.563	1.59	0.287	0.675-3.759
Higher	1.42	0.635	0.420-4.813	1.02	0.980	0.253-4.083
Employment status						
No	RC					
Yes	1.70	0.151	0.925-3.131	2.03**	0.053	1.113-3.711
Wealth Status						
Poor	RC					
Middle	0.78	0.571	0.397-1.568	1.05	0.897	0.472-2.350
Rich	0.77	0.571	0.378-1.606	1.18	0.696	0.503-2.794
Place of residence						
Urban	RC					

Rural	1.78	0.139	0.937-3.378	1.77	0.134	0.836-3.751
Place of Delivery						
Home	RC					
Public Hospital	0.23	0.192	0.037-1.461	0.40	0.418	0.044-3.646
Private Hospital	0.21	0.224	0.027-1.716	1.28	0.844	0.107-15.267
Breastfeeding Counselling						
No	RC					
Yes	0.60	0.347	0.250-1.458	0.61	0.343	0.220-1.693
Paternal Education						
Primary	RC					
Secondary	3.91*	0.009	1.649-9.288	3.30*	0.007	1.376-7.916
Higher	6.16**	0.082	1.105-34.354	2.69	0.320	0.381-19.100
Partners alcohol consumption						
No	RC					
Yes	0.89	0.584	0.497-1.418	0.73	0.326	0.398-1.358

RC denotes Reference Category, *=p<0.1 (significant at 90%), **=p<0.05 (significant at 95%)

Source: Computed for this study from SADHS, 2016

CHAPTER 5: DISCUSSION

The study highlighted the existence of breastfeeding and bottle-feeding for children among mothers covered in the study in the face of policy that support exclusive breastfeeding in South Africa (NDoH, 2016) and the guidelines from World Health Organisation on exclusive breastfeeding (WHO, 2018).

The findings from this study showed that majority of women were not breastfeeding while exclusive breastfeeding rates remain low. The exclusive breastfeeding rates obtained in this study were lower than 32% obtained in 2016 SADHS (NDoH et al., 2019). This could be due to the study population that was used in this study which included women of reproductive ages who were selected in the domestic violence module. This supports the argument that exclusive breastfeeding rates remain low in Southern Africa (Issaka et al., 2017). Taking into account the existing literature on barriers of breastfeeding, women claim that their breasts do not produce enough milk while others claimed that their working hours do not allow breastfeeding (Zhang et al., 2018). It is worth noting that stressful events, demographic and socio-economic factors disrupts breastfeeding processes. The Interactive Theory of Breastfeeding states that stress, woman biological conditions and perceptions affect a mother and child ability to breastfeed.

The results of the study show a strong association between IPV and breastfeeding practices. Women who experienced physical IPV were more likely to exclusively breastfeed and as compared to women who did not experience physical IPV. The findings were not consistent with the recent studies that found a negative association between breastfeeding and physical IPV (Madsen et al., 2019; Metheny & Stephenson, 2019). The results were consistent with the study that found a positive association between Physical IPV and breastfeeding practices in Malawi, Tanzania and Zambia (Misch & Yount, 2014). The possible explanation for this observation may be the underreporting of physical IPV as women may fear to discuss IPV due to consequences of disclosure (García-Moreno et al., 2013). The second explanation may be that women who experience physical IPV were more willing to protect their children needs and show positive parenting behaviours which include exclusive breastfeeding (Caleyachetty et al., 2019)

On the other hand, there was no significant association between physical IPV and no breastfeeding after adjustment for socio-economic, contextual and partners characteristics. This findings were consistent with the study that found that there was no significant association between physical IPV and breastfeeding in Nigeria (Misch & Yount, 2014). This results can

be explained by the fact that physical IPV or breastfeeding practices were wrongly classified. In the case of reporting physical IPV, women might fear to disclose the nature of violence (García-Moreno et al., 2013) while reporting breastfeeding practices could be exposed to poor recall (Oakley et al., 2018).

The study also found that the time of breastfeeding is significantly associated with not breastfeeding. The study showed that, as time increased, women were more likely to not breastfeed. The results were found to be consistent with the study that revealed that women were more likely to stop breastfeeding before six months (Sipsma et al., 2013). The possible reason for the observation is that women in this category believe that breast milk alone is not enough for the child's growth (Mandiwana, 2017). Another possible reason is that women claim that they have to go back to work or school hence introducing solid foods and other liquids (Zhang et al., 2018).

Surprisingly, there was no significant association observed between the time of breastfeeding and bottle-feeding. Women introduce bottle-feeding as they need to return to work (Zhang et al., 2018) and advertisements on formula milk represent it as better than breast milk (Rollins et al., 2016). Again, bottle-feeding was found to be more prevalent among families with higher socioeconomic status in developing countries (Oakley et al., 2018). The results were not consistent with the study that found that in Southern Africa, the prevalence of bottle-feeding was high because of cultural beliefs and norms (Issaka et al., 2017).

With regard to the level of education, the findings showed that there is no association between the level of mothers' education and breastfeeding practices. The highest level of education was not associated with complementary breastfeeding and bottle-feeding. The findings were not consistent with the studies that found that maternal education significantly associated with breastfeeding practice (Raheel & Tharkar, 2018; Wallenborn et al., 2018). However, the findings were supported by the study that found that maternal education was not significantly associated with breastfeeding practices (Al-Ruzaihan et al., 2017).

Findings revealed that employment status was significantly associated with no breastfeeding. Women who were working were more likely to never breastfeed. The findings were found to be similar to the study that showed that women who were employed had increased odds of stopping or never breastfeeding (Habibi et al., 2018). The reason for the findings could be that mothers needed to return to work so they choose to stop breastfeeding because workplace does not have rooms for breastfeeding (Zhang et al., 2018). The findings also showed that wealth

status had no impact on the choice of feeding. This could be mainly because all women had knowledge about optimal breastfeeding and the effect was no significant (Kornides & Kitsantas, 2013).

Place of residence was found to be significantly associated with bottle-feeding before adjustment for contextual and partners' characteristics. Findings revealed that women from rural areas were more likely to bottle-feed than women in urban areas. Increased odds of bottle-feeding could be due to cultural beliefs that hindered the practice of exclusive breastfeeding in rural areas (Issaka et al., 2017). Also, knowledge about breastfeeding was found to be a positive factor that allows women to exclusively breastfeed (Kornides & Kitsantas, 2013). Access to media in urban areas could enable women to be aware of the benefits of exclusive breastfeeding than in rural areas (Mandiwana, 2017).

The study findings showed that the place of delivery and breastfeeding counselling were not significantly associated with breastfeeding practices. The results were not consistent with the study that found that optimal breastfeeding was more likely to be practiced by women who gave birth in a medical facility than at home in Southern Africa (Oakley et al., 2018). However, the results were significant with the study that found that the place of delivery had no impact on breastfeeding practices (Agho & Ezech, 2019). On the other hand, Agho & Ezech, (2019) found a significant association between breastfeeding counselling though Dhakal and colleagues 2017) found that breastfeeding counselling was not significantly associated with any breastfeeding practice.

The study findings showed that the partners' education was significantly associated with bottle-feeding and no breastfeeding. The results showed that women whose partners had higher education were more likely to bottle-feed or not breastfeed. The results were found to be consistent with the study that found that paternal education was statistically associated with any breastfeeding practice (Metheny & Stephenson, 2019). Nevertheless, the other study found that paternal education was not statistically associated with breastfeeding practices (Sipsma et al., 2013). Also, partners' alcohol consumption was not significantly associated with breastfeeding practices. The theory explains that the women's intention to breastfeed is determined by her attitude towards breastfeeding and subjective norms regarding breastfeeding (Tengku Ismail et al., 2016)

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study identified socio-economic, contextual and partner's determinants associated with breastfeeding practices in South Africa. The study found that the majority of women were not breastfeeding in South Africa. It highlighted that lack of support from partners, community and employers and lack of knowledge can result in stopping or never breastfeeding. The study also found that physical IPV was positively associated with breastfeeding practices. Women in South Africa continue to exclusively breastfeed their children even when experiencing physical IPV. The findings of the study also indicate that a month increase is associated with increased odds of not breastfeeding. Also, the majority of women were not breastfeeding while one-quarter of women were bottle-feeding. The study suggests that though physical IPV has positive impact on breastfeeding, more efforts are needed to fight against physical IPV and make women aware of benefits of breastfeeding.

6.2 Recommendations

6.2.1 Study recommendations

There is a need for a follow-up research to investigate cultural factors that may influence breastfeeding practices in rural areas of South Africa. There is also a need for further research to investigate the role of other forms of IPV and how they influence breastfeeding practices. Lastly, qualitative research is needed that would help to understand and give more detailed information of what really motivated women who experienced physical IPV to breastfeed and how they are coping to breastfeed. There is still a need for further research to determine the kind of support women need in order to practice exclusive breastfeeding

6.2.2 Policy Implications

Efforts should be made to increase knowledge through media about the importance of exclusive breastfeeding practices among women and enlightenment to discourage physical IPV in the society. Also, the issue of IPV should be included in women and child health programs. The results suggest that interventions should target rural residents, working women and women who their partners have higher education.

More efforts are still needed to scale up rates of exclusive breastfeeding up to six months considering rates of childhood morbidity and mortality. Employment was found to have an

impact on not breastfeeding. Rooms for breastfeeding should be provided in all workspaces and allocation of at least 30 minutes so that women should breastfeed their children.

More programmes should be implemented to scale-up rates of exclusive breastfeeding. Policies should be enforced that does not give women any options for feeding substitutes. This means that bottle-feeding should be discouraged at all levels including health facilities. Village health workers can also visit homes of breastfeeding women to give support and also encourage women to breastfeed especially in rural areas. These efforts will help in achieving the UN Decade of Nutrition target to increase exclusive breastfeeding rate to 50% by 2025. The increase of exclusive breastfeeding will also help to achieve the SDG of eliminating hunger and ending malnutrition.

6.3 Strengths and Limitations

The strength of the study is that the study managed to identify breastfeeding practices with physical IPV which helped in discovering the negative relationship between physical IPV and breastfeeding practiced. Notwithstanding the existence of physical IPV, some women still choose to breastfeed their children. The study also had some limitations. Using 24-hour recall to calculate breastfeeding practices is not accurate enough because other breastfeeding practices could have been performed before 24 hours before the interview and this may or may not reflect actual feeding practices. Women are well aware of recommended feeding practices which can lead them to give false information about feeding practices. The study is based on self-reported information and recall biases may underestimate or overestimate the relationship between variables. Also, fear of consequences of stigmatization and cultural attitudes towards physical IPV in different communities may contribute to the underreporting of experience of physical IPV.

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APPENDIX

Appendix A: Test for Multicollinearity

pwcorr FP physical m4 v106 v714 v190 v025 doc m78d v701 d113

	FP physical	m4	v106	v714	v190	v025	
FP	1.0000						
physical	-0.0619	1.0000					
m4	0.5376	0.0378	1.0000				
v106	0.0404	-0.0601	0.0090	1.0000			
v714	0.0832	-0.0078	0.0336	0.1590	1.0000		
v190	0.0262	-0.0543	0.0154	0.3191	0.1674	1.0000	
v025	0.0208	-0.0175	0.0314	-0.1256	-0.0972	-0.4958	1.0000
doc	0.0276	-0.0158	-0.0779	0.0011	-0.0016	0.0019	-0.0040
m78d	-0.0129	0.0000	-0.0057	0.0121	-0.0164	0.0001	0.0126
v701	0.0505	-0.0484	-0.0054	0.3737	0.1003	0.2311	-0.1208
d113	-0.0707	0.1652	-0.0146	-0.0203	0.0266	0.0067	-0.0048
	doc	m78d	v701	d113			
doc	1.0000						
m78d	0.0193	1.0000					
v701	-0.0025	0.0175	1.0000				
d113	-0.0037	-0.0162	0.0127	1.0000			

Appendix B: Turnitin Report

[Document viewer](#)

Turnitin Originality Report

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Similarity by Source	
Similarity Index	
18%	
Internet Sources:	2%
Publications:	8%
Student Papers:	15%

Appendix C: Literature Matrix								
Author(s)	Title and Year	Theories (y/n – which ones)	Study Design	Data Source	Methods	Level of Analysis	Results / Findings	Gaps
Misch S. Emily and Yount M. Kathryn	Intimate Partner Violence and Breastfeeding in Africa (2014)	No	Quantitative	Demographic and Health Surveys	Logistic Regression	Individual	Adjusting for relevant covariates, IPV was negatively associated with breastfeeding practices in most countries. Nevertheless, physical IPV was positively associated with early breastfeeding initiation in Malawi and Tanzania while sexual IPV was found to be positively associated with exclusive	The study didn't look at the determinants of partners who are abusive.

							breastfeeding in Zambia.	
Mezzavilla R., Ferreira M., Curioni C., Lindsay A., Hasselmann M.	Intimate Partner Violence and Breastfeeding Practices: a systematic review of observational studies (2017)	No	Quantitative	MEDLINE, LILACS, SCOPUS, PsycINFO and Science Direct	PRISMA	Individual	The study found that there was a statistical association between IPV and breastfeeding practices.	The study didn't address how researchers can contribute to scarce literature available
Sipsma H., Magriples U., Divney A., Gordon D., Gabzdyl E. and Kershaw T.	Breastfeeding behaviour among adolescents: Initiation, Duration and Exclusivity (2013)	No	Quantitative	Longitudinal cohort of pregnant adolescent and their partners	Multivariate Logistic Regression and Cox Proportional Hazards	Individual	With adjustment of control variables, IPV was negatively associated with breastfeeding practices.	The study failed to acknowledge the coping mechanism of women who continue breastfeeding regardless of IPV
Zureick-Brown S., Lavilla K.	Intimate Partner Violence and infant feeding	No	Quantitative	National Family Health	Logistic Regression	Individual	After adjustments of covariates, results showed	The sample size was very small.

and Yount K.	practices in India: a cross-sectional study (2015)			Survey for India			that exposure to IPV was not statistically associated breastfeeding initiation and bottle feeding. On the other hand, exposure to IPV was significantly associated with exclusive breast feeding and complementary breastfeeding.	
Metheny N. and Stephenson R.	Is Intimate Partner Violence a barrier to breastfeeding? An analysis of 2015 Indian National Family Health Survey	No	Quantitative	National Family Health Survey for India	Logistic Regression	individual	While adjusting for covariates, severe physical IPV was statistically associated with exclusive breastfeeding among women	The study was unable to report circumstance related to partners behaviour

							with infants aged 0-6 months. On the other hand, there was no statistical association between any form of IPV and feeding practices among women with children aged 7- 12 months.	
Wallenborn J., Cha S. and Masho S.,	Association between Intimate Partner Violence and breastfeeding duration: Results from 2004-2014 Pregnancy Risk Assessment	No	Quantitative	Pregnancy Risk Assessment Monitoring System	Multinomial Logistic Regression	Individual	Women who are exposed to IPV were less likely to breastfeed their children	The study failed to account for children's factors

	Monitoring System (2018)							
Holland M., Therent-Morris K., Mittal M., Nelson A. and Dozier A.	Breastfeeding and Exposure to past, current and neighbourhood violence (2018)	No	Quantitative	Self-reported surveillance Surveys	Logistic Regression and Survival Analysis	Individual	When adjusting for breastfeeding plan, Exposure to violence was statistically associated with breastfeeding initiation and duration of breastfeeding. Exposure to violence was not significantly associated with exclusive breastfeeding.	Data was very small and the study failed to detect associations with small effect sizes
James P., Taft A., Amir H. and Agius P.	Does Intimate Partner Violence impact on women's initiation and duration of	No	Quantitative	Improving maternal and child health nurse care for vulnerable	Logistic Regression	Individual	Findings showed that IPV has no influence on breastfeeding initiation and duration of	The study didn't include the child and partners characteristics

	breastfeeding (2014)			mothers (MOVE)			breastfeeding. Breastfeeding rates were not statistically different between women who experienced IPV and those who did not experience IPV.	
Martin-de-las-Heras S., Velasco C., Launa-del-Castillo JD and Khan KS	Breastfeeding avoidance following psychological Intimate Partner Violence during pregnancy: a cohort study and multivariate analysis (2018)	No	Quantitative	Interviews	Multivariate Logistic Regression	Individual	While adjusting for covariate variables, psychological IPV was statistically associated with breastfeeding avoidance. Women who experienced psychological IPV had higher odds of	The study failed to include necessary cofounders that were intended to be included like obesity

							avoiding to breastfeed.	
Moraes C., Oliveira M., Reichenheim M. and Lobato G.	Severe physical violence between intimate partners during pregnancy: a risk factor of early cessation of exclusive breastfeeding (2011)	Yes- Severe Physical Violence during Pregnancy (the model shows the concepts and stages of IPV during pregnancy and early weaning)	Quantitative	Interviews	Complementary log-log model	individual	After controlling for socioeconomic , demographic, reproductive and lifestyle variables, IPV was found to be statistically associated with breastfeeding. Women who experienced IPV were more likely to cease exclusive breastfeeding compared to women who did not experience IPV.	The study was unable to adjust for partners variables that might lead to violence
Madsen et al.	Intimate Partner Violence and	Yes- Directed Acyclic	Quantitative	Interviews	Logistic Regression	Individual	The findings of the study showed that	The study was unable to look at

	subsequent premature termination of exclusive breastfeeding: A cohort study (2019)	graph model					exposure to IPV has increased odds of early termination of exclusive breastfeeding.	children behaviours that might also contribute to termination of breastfeeding
Cerulli c., Chin N., Talbot n. and Chaudron L	Exploring the impact of Intimate Partner Violence on Breastfeeding Initiation. Does it matter? (2010)	No	Qualitative	Not specified	Not Specified	Individual	The study found that children who are exposed to IPV have a higher risk of poor health outcomes.	The study did not include methodology that was used.
Lau Ying and Chan Kin Sin	Influence of Intimate Partner Violence during pregnancy and early postpartum depressive on	No	Qualitative	Questionnaires	Multinomial Logistic Regression	Individual	While adjusting for demographic, socioeconomic and obstetric variables, IPV was associated with breastfeeding	The study failed to look at how women respond to IPV and why they stay in

	breastfeeding Among Chinese women in Hong Kong (2007)						initiation. It was found that women who experienced IPV during pregnancy were less likely to initiate breastfeeding.	abusive relationships
Silverman J., Decker M., Reed E and Jay A.	Intimate Partner Violence around the time of Pregnancy: Association with breastfeeding behaviour (2006)	No	Quantitativ e	Pregnancy Risk Assessment Monitoring Systems (PRAMS)	Logistic Regression	Individua l	Adjusting for covariates, IPV was not significantly associated with avoidance to breastfeed and early cessation of breastfeeding.	The study failed to show how IPV has an impact on baby formula