Mental health predictors of breastfeeding initiation and continuation among HIV infected and uninfected women in a South African birth cohort study

Eileen Thomas a,⁎, Caroline Kuo a,b, Sophie Cohen c, Jacqueline Hoare a, Natassja Koen a,e, Whitney Barnett c, Heather J. Zar c,d, Dan J. Stein a,e

a Department of Psychiatry and Mental Health, University of Cape Town, J-Block, Groote Schuur Hospital, Observatory, Cape Town 7925, South Africa
b Department of Behavioral and Social Sciences, Center for Alcohol and Addiction Studies, Brown University, 121 South Main Street, Box G-S121-4th Floor, Room 406, Providence, RI 02912, USA.
c Department of Paediatrics and Child Health, Red Cross War Memorial Children's Hospital, Cape Town, South Africa
d Medical Research Council Unit on Child and Adolescent Health, South Africa
e Medical Research Council Unit on Anxiety and Stress Disorders, South Africa

ABSTRACT

Breastfeeding is a cost-effective, yet underutilized strategy to promote maternal and infant health in low and middle income countries (LMICs). Breastfeeding remains challenging for mothers living with HIV in LMICs, yet few studies have examined mental health predictors of breastfeeding initiation and continuation. We investigated breastfeeding among mothers by HIV status in South Africa, evaluating predictors of breastfeeding initiation and continuation to identify intervention-targets. Breastfeeding patterns were investigated in a subsample of 899 breastfeeding mothers from the Drakenstein Child Health Study; a prospective birth cohort of 1225 pregnant women, between March 2012 and March 2015 in a peri-urban area. Breastfeeding was assessed at 5 time-points between 6 weeks and 24 months’ infant age. Cox proportional hazard models evaluated breastfeeding initiation and duration. Logistic regression models with breastfeeding non-initiation as the outcome parameter were performed to determine associations with maternal sociodemographic, psychosocial factors and gestational outcomes. More HIV-uninfected mothers initiated breastfeeding (n = 685, 97%) than HIV-infected mothers (n = 87, 45%). Median duration of exclusive breastfeeding was short (2 months), but HIV-infected mothers engaged in exclusive breastfeeding for longer duration than uninfected mothers (3 vs 2 months). Despite concerning high rates, mental disorders were not significant predictors of breastfeeding behaviour. Employment and HIV diagnosis during pregnancy predicted a lower likelihood of breastfeeding initiation among HIV-infected mothers, while employment was associated with earlier breastfeeding-discontinuation in HIV-uninfected mothers. Findings indicate that future interventions should target sub-populations such as HIV-infected women because of distinct needs. Workplace interventions appear particularly key for mothers in our study.

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1. Introduction

Breastfeeding confers numerous health benefits to mothers and infant and is an essential strategy for reducing morbidity and mortality in low and middle income countries (LMICs) where malnutrition and infectious diseases are common (Doherty et al., 2011; Chowdhury et al., 2015). The World Health Organization's (WHO) infant feeding guidelines emphasize exclusive breastfeeding for the first 6 months of life as a cost-effective, safe source of nutrition (World Health Organization, 2010). In LMICs with large HIV epidemics such as South Africa, in the presence of national ART programmes with high coverage of pregnant and breastfeeding women, breastfeeding benefits outweigh risks of vertical HIV transmission (Bispo et al., 2017). As such, WHO recommends HIV-infected mothers exclusively breastfeed from birth to 6 months and receive antiretroviral therapy (ART) to limit mother to child (PMTCT) HIV transmission; breastfeeding is recommended until 12 months (Department of Health, 2014a; WHO, n.d.). South African PMTCT guidelines emphasize exclusive breastfeeding for the first 6 months, and complementary feeding thereafter (Department of Health, 2014b).

In South Africa, Prevention of Mother to Child Transmission (PMTCT) commenced in 2002 and included provision of free infant formula milk provision at public health facilities to HIV infected mothers who chose not to breastfeed (Vythilingum et al., 2013). The South

⁎ Corresponding author.
E-mail address: eileenthomas@sun.ac.za (E. Thomas).
African PMTCT program underwent several revisions between 2002 and 2015 in tandem with emerging global health evidence (WHO, 2012; Coutsoudis et al., 2002). Policies to encourage initiation and continuation of exclusive breastfeeding regardless of mother's HIV-status were adopted in 2012 (Meeting, 2011) and 2013 (Health TND of, 2013). These included halting the provision of formula milk to HIV-infected mothers, unless medically indicated (Meeting, 2011). However, the phasing-out of free infant formula milk occurred at different time point across the 9 provinces of South Africa. In the Western Cape Province, no new PMTCT mothers were issued formula milk only from 1 April 2015 and distribution was concluded by 30 September 2015 (Directorate, 2015).

Despite clear best-evidence clinical guidelines and strong policy support, initiation and continuation of breastfeeding remain a challenge for women in general (Patel et al., 2015; Victoria et al., 2016a), and among HIV-infected mothers specifically (Marquis et al., 2016). In South Africa, exclusive breastfeeding rates, regardless of HIV status, remains low at approximately 32% (South Africa Demographic and Health Survey, 2016). Breastfeeding practices among uninfected mothers are slightly better compared to HIV-infected mothers (Gewa et al., 2011a; Doherty et al., 2012), but are still below ideal targets (Victoria et al., 2016b).

Many studies examining barriers and facilitators of breastfeeding in LMIC, including South Africa, have been done (Doherty et al., 2012). Pregnancy and gestational factors such as unplanned pregnancy, nulliparity, caesarean section, infant male gender and low birth weight have been found to be negatively associated with breastfeeding behaviour (Patel et al., 2015; Kimani-Murage et al., 2015; Gewa et al., 2011b). Among HIV-infected mothers HIV-infection and a low CD4+ T-cell count during pregnancy have been found to be associated with non-initiation (Bork et al., 2013; Fadnes et al., 2009; Mnyani et al., 2016), while low socioeconomic status and large family size have been associated with early breastfeeding cessation (Haile et al., 2014). Notably absent are studies in the context of a generalized HIV epidemic that examine factors that disproportionately affect LMIC mothers such as mental disorders.

The prevalence of maternal mental disorders is a significant issue in LMICs (Gelaye et al., 2016; Baron et al., 2016), and among populations infected or affected by HIV (Stein et al., 2015). Women in LMICs are more likely to be exposed to risk factors for poor mental health including trauma and HIV (Gelaye et al., 2016; Herba et al., 2016). Depression, anxiety, intimate partner violence (IPV), as well as alcohol and smoking during pregnancy have all been shown to negatively influence breastfeeding behaviour (Fairlie et al., 2009; Arifunhera et al., 2015; Misch and Yount, 2014a; Zureick-Brown et al., 2015; Nkala and Msuya, 2011; Zakaria-Jrkoivc et al., 2015). Nevertheless, most data on the relationship between maternal mental health and breastfeeding come from high-income countries.

The aim of this study was to investigate mental health predictors of breastfeeding initiation and continuation in a South African birth cohort study in a LMIC with a high prevalence of HIV.

2. Methods

Data were derived from a prospective study of mother-infant pairs enrolled in the Drakenstein Child Health Study (DCHS), a multidisciplinary, population-based birth cohort study investigating the determinants of child health in the Western Cape, South Africa (Zar et al., 2015).

2.1. Study-setting and inclusion criteria

Between March 2012 and March 2015, pregnant women residing in the Drakenstein sub-district, outside Cape Town were enrolled in the DCHS. The Drakenstein sub-district is a peri-urban, low socioeconomic community. Women were recruited from two primary health care clinics, Mbwekeni and TC Newman that serve two separate communities, a black African population and a mixed ancestry community. Both clinics form part of the well-established, free primary health care system utilized by ≥90% of the population. Pregnant women between 22 and 28 weeks of gestation were enrolled if they were at least 18 years of age, intended to live in the Drakenstein district for at least one year and gave informed consent. Only mothers with complete breastfeeding and antenatal psychosocial health data were included in this analysis.

2.2. Sample

Between March 2012 and March 2015, N = 1225 pregnant women were enrolled in the DCHS (Fig. A1). Of this sample, n = 1136 mothers gave live births to 1142 infants (including 4 twins and 1 triplet). Mothers of twins and triplets were excluded from this analysis and 238 mothers (20%) were also excluded because of missing breastfeeding and/or mental health data. Therefore, n = 899 mother-infant dyads were included in this analysis (Fig. A1).

2.3. Measures

Reliable and validated questionnaires suitable for use in South Africa were administered to participants at antenatal clinic visits between 28 and 32 weeks’ gestation as previously described (Stein et al., 2015; Zar et al., 2015).

2.3.1. Breastfeeding

Breastfeeding practices were assessed at postnatal study visits conducted at 6–10 weeks, 14 weeks, 6 months, 9 months, 12 months, 18 months and 24 months of child age. At each visit, mothers completed a 36-item questionnaire which included detailed questions on current child feeding practices, such as whether the child was currently receiving breastmilk, formula milk or both, start dates and stop dates of each, frequency of current feeds and composition of formula. Dietary intake of solid foods was recorded by mothers indicating frequency (Never, Daily, Weekly or Monthly) from a list of 21 food items. Among mothers who reported initiating breastfeeding, duration of exclusive breastfeeding was calculated according to when mothers reported that they had first introduced formula or complementary feeds; duration of any breastfeeding was calculated as the time until mothers reported overall breastfeeding cessation.

2.3.2. Maternal sociodemographic variables

Socioeconomic and demographic characteristics at enrolment were determined using a questionnaire adapted from the South African Stress and Health Study (Herman et al., 2009) including items assessing income, education, employment, housing and family. At their antenatal visit, mothers completed a food security and partner support questionnaire (Stein et al., 2015; Zar et al., 2015).

2.3.3. Maternal mental health

To assess depressive symptoms, the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) was completed at 28–32 weeks gestation. The SRQ-20 was used to screen for more general symptoms of psychological distress including depressive and anxiety disorders (Harpham et al., 2003). Trauma-exposure measures included the Childhood Trauma Questionnaire (CTQ-20) and the Intimate Partner Violence Questionnaire (IPV) to assess lifetime and recent (past year) exposure to emotional, physical and sexual abuse (Bernstein et al., 1994; Jewkes, 2002). The modified Post Traumatic Stress Disorder Symptom scale (MPSS) (Foà et al., 1993), a self-report measure which mirrors the DSM-IV criteria for PTSD, was completed if a participant reported exposure to a life-threatening trauma using the World Mental Health Life Events Questionnaire (Myer et al., 2008). The MPSS was categorized into three categories: no trauma exposure, trauma-exposed without PTSD, and suspected PTSD. Substance use was measured with the Alcohol, Smoking and Substance Involvement Screening test (ASSIST), a WHO-developed self-report tool assessing substance use across ten categories of substances (WHO, 2010).
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