

INFANT FEEDING PRACTICES AND ASSOCIATED FACTORS AMONG HIV POSITIVE MOTHERS IN GERT SIBANDE DISTRICT, SOUTH AFRICA

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INTRODUCTION

The presence of the HIV/AIDS has challenged the breastfeeding culture and it has led to difficulties in selecting the best infant feeding option. Women have the potential to transmit HIV to their infants during pregnancy, labour and through breast feeding, and therefore the health of women is addressed through PMTCT programmes (WHO, 2006) and in the absence of any intervention the risk of such transmission is 15 - 30% in non-breastfeeding populations, with breastfeeding by an infected mother increasing the risk to a total of 20 - 45% (de Cock, 2000). The purpose of this study was to assess knowledge, practices and attitudes of HIV positive women with infants between ages 3 to 6 months who have attended PMTCT services at Gert Sibande.

METHODS

A postnatal survey was conducted with 815 HIV+ mothers who have participated in voluntary counselling and testing (VCT) at 72 health care facilities of Gert Sibande district. A cross-sectional survey study was conducted at 7 sub districts of Gert Sibande. The data collection tool comprised questions on demographics, antenatal care, knowledge of HIV, HIV counselling and testing, ARV/NVP, and infant feeding, testing and care and family planning.

DATA ANALYSIS

Uni- and bi-variate analyses and, multiple logistic regressions were used to investigate associations between the outcome of infant feeding and possible predictive factors. The factors that were found to be significant in the uni-variate analysis were first included into a full model with all potentially important social co-variables to adjust for confounding. Subsequently, variables with no effect in the adjusted model were removed one-by-one to obtain more robust results. Associations were considered significant at $P < 0.05$.

RESULTS

The mean age of the infants was 4.5 months (SD=1.2). The mean age of the mothers was 27.7 years (SD= 6.4). Fifty-seven percent of mothers fell between the 21 to 30 year age categories, two-thirds (62.3%) had between Grades 10 to 12 education, and 67.0% were single. A fifth of participants were cohabiting with a partner. Only 10.1% of participants were married. The mean number of biological children was 2.1 (SD 1.2)

HIV KNOWLEDGE

- Thirty-one percent of women stated that HIV infected women always transmit the virus to their babies and 53.8% said positive women will sometimes transmit the virus to their babies.
- We asked mothers whether they consulted a traditional healer while pregnant with the current baby - 25% conceded and 74.8% disagreed. Ninety-five percent of women reported having gone to the hospital/clinic for check-ups while pregnant. We asked whether they received explanations that HIV can be passed to the baby in the womb, 12% dissented. Ninety-five percent of women were informed that HIV can be transmitted to an infant during delivery. Fifteen percent of participants' infants had been admitted to hospital since birth.

Table 1: PMTCT HIV knowledge and infant feeding

	Yes N (%)	No N (%)
Can a HIV positive woman infect her baby during pregnancy?	571 (70.6)	238 (29.4)
Can a HIV positive woman infect her baby during delivery?"	640 (78.7)	173 (21.3)
Can a HIV positive woman infect her baby during breastfeeding?"	635 (78.4)	175 (21.6)
When you were pregnant with this baby, did you go to the hospital/clinic for checkups?	771 (95)	41 (5)
Did you receive explanations that HIV can be passed in breast milk?	743 (94.8)	41(5.2)
Did you receive information on infant feeding options?	739 (94.4)	44 (5.6)
Did you receive information on the dangers of mixed feeding?	726 (92.6)	58 (7.4)
Did you receive an inquiry as to whether you could safely formula feed?	720 (92.1)	62 (7.9)
Did you receive information about the need to boil water to make formula?	728 (93.1)	54 (6.9)
...an inquiry about access to clean water, fuel and a fridge?	696 (89.1)	119 (10.9)
...an inquiry about your understanding of exclusive breastfeeding?	699 (89.5)	116 (10.5)
...explanations that no water or formula is needed if baby is exclusively breastfed?	708 (90.7)	107 (9.3)
Did you receive counselling on infant feeding options within 72 hours of delivery?	667 (85.3)	115 (14.7)
Within an hour of delivery did you start exclusively breast feeding?	368 (46.9)	416 (53.1)
Were you shown how to breast feed?	398 (53.2)	350 (46.8)
Within an hour of delivery did you start exclusively formula feeding?	436 (56.0)	343 (44.0)
Did the health care worker ask you about attachment and positioning the mother's breast while breast feeding?	337 (70.9)	138 (29.1)
Did you receive free formula feeding?	333 (43.2)	438 (56.8)
Did a health care worker demonstrate formula preparation?	458 (76.1)	144 (23.9)
Did the health care worker ask you about the method of cleaning utensils and mixing formula?	500 (82.6)	105 (17.4)
Did you receive replacement feeding for your infant?	217 (29.9)	509 (70.1)
Did you give replacement feed along with breast milk?	183 (38)	299 (62)
Did you feel comfortable not breast feeding	210 (49)	219 (51)

DISCUSSION - REGRESSION ANALYSIS WITH MIXED AND FORMULA FEEDING

In univariate analysis vaginal delivery, fewer ANC visits, the father accompanied mother to ANC, no maternal and infant administration of nevirapine, unknown HIV status of infant, incorrect knowledge on HIV transmission through breastfeeding, and currently being pregnant were associated with mixed infant feeding, while in multivariate analysis fewer ANC visits, infant hospital admission and currently pregnant were retained. Further, in univariate analysis older age, health facility delivery, delivery by caesarean section, partner knows his HIV status, the father accompanied mother to ANC, the partner was told about nevirapine, maternal and infant administration of nevirapine, knowledge of infant HIV status, PMTCT HIV knowledge, higher infant feeding post HIV test counselling score, correct knowledge on HIV transmission through breastfeeding, attending a support group and being on ART were associated with exclusive formula feeding, while in multivariate analysis older age, health facility delivery, knowledge of infant HIV status and being on ART were retained.

Table 2: Regression analysis with mixed feeding and formula feeding

Variable	M (SD)/ Median (IQR) or N (%)	M (SD)/N (%)	Mixed feeding		Ad OR Nagelkerke R ² = .17	Formula		Ad OR Nagelkerke R ² = .19
			CrOR	95% CI		CrOR	95% CI	
Age	Median 27 years (IQR=23-32), range 18-48	N	27.7 (6.5)	0.98 (0.95-1.01)	---	26.7 (6.5)	1.04 (1.02-1.07)	1.04 (1.00-1.09)*
Formal education	High (Grade 8 or more)=662 (81.9) Low (none-Grade 7)=146 (18.1)	N	88 (13.3) 13 (8.9)	1.00 0.64 (0.35-1.18)	---	333 (60.3) 76 (52.1)	1.00 1.07 (0.75-1.54)	---
Number of children	2.2 (1.2), range 0-9	N	2.2 (1.3) 2.0 (1.2)	0.90 (0.75-1.07)	---	2.2 (1.4) 2.1 (1.3)	0.93 (0.84-1.04)	---
Marital status	Married/Co-habiting= 246 (30.7) Single/separated/divorced/widowed= 566 (69.3)	N	23 (9.3) 76 (13.7)	1.00 1.53 (0.94-2.51)	---	131 (53.3) 276 (49.5)	0.86 (0.64-1.16)	---
Place of delivery	Health facility=736 (93.6) Home =50 (6.4)	N	90 (12.2) 7 (14.0)	1.00 1.17 (0.61-2.68)	---	15 (30.0) 389 (52.9)	1.00 0.49 (0.21-0.71)**	1.00 0.30 (0.09-1.02)*
Delivery mode	Caesarian section=182 (22.7) Vaginal delivery=620 (77.3)	N	12 (6.6) 87 (14.0)	1.00 2.31 (1.23-4.33)	1.00 1.39 (0.70-2.76)	108 (59.3) 302 (48.7)	1.00 0.65 (0.47-0.91)*	1.00 0.93 (0.48-1.84)
Gestational age	Premature=85 (10.9) Term=693 (89.1)	N	82 (11.8) 11 (12.9)	1.00 1.11 (0.57-2.17)	---	41 (51.5) 357 (48.2)	1.00 0.88 (0.56-1.38)	---
Share HIV test result with someone	No=239 (29.8) Yes=564 (70.2)	N	25 (10.5) 71 (12.5)	1.00 1.23 (0.76-2.00)	---	113 (47.3) 295 (52.3)	1.00 1.22 (0.90-1.65)	---
Share HIV test result with partner	No=458 (56.2) Yes=357 (43.8)	N	61 (13.3) 40 (11.2)	1.00 0.82 (0.54-1.26)	---	228 (48.7) 189 (52.9)	1.00 1.19 (0.90-1.56)	---
Share HIV test result with mother	No=618 (75.8) Yes=197 (24.2)	N	75 (12.1) 26 (13.2)	1.00 1.10 (0.68-1.78)	---	303 (49.0) 109 (55.3)	1.00 1.29 (0.93-1.78)	---
Partner knows HIV status	No=201 (35.4) Yes=366 (64.6)	N	17 (8.5) 48 (13.1)	1.00 1.63 (0.91-2.92)	---	92 (45.8) 212 (55.7)	1.00 1.63 (1.15-2.31)	1.00 1.09 (0.62-2.27)
Number of ANC visits	None=41 (5.0) M=4.2 (2.1)	N	4.4 (2.1) 3.2 (2.0)	1.00 0.72 (0.42-0.83)	1.00 0.74 (0.43-0.87)	4.2 (2.2) 4.3 (2.0)	1.00 1.53 (1.08-2.17)	---
Father of pregnancy accompanied to ANC	No=633 (79.5) Yes=163 (20.5)	N	69 (10.9) 22 (17.8)	1.00 1.77 (1.10-2.84)	1.00 1.21 (0.63-2.31)	310 (49.0) 97 (59.5)	1.00 1.00	1.00 0.69 (0.37-1.31)
Saw TBA with pregnancy	No=608 (74.8) Yes=206 (25.2)	N	73 (12.0) 28 (13.7)	1.00 1.16 (0.73-1.85)	---	312 (51.3) 100 (48.8)	1.00 0.90 (0.66-1.24)	---
Told partner that were to take drug (NVP)	No=312 (41.9) Yes=433 (58.1)	N	38 (12.2) 48 (11.1)	1.00 0.90 (0.57-1.41)	---	137 (43.9) 267 (59.4)	1.00 1.87 (1.39-2.50)	1.00 1.47 (0.68-3.19)
Maternal NVP	No=176 (21.6) Yes=639 (78.4)	N	34 (19.3) 67 (10.5)	1.00 0.49 (0.31-0.77)	1.00 0.62 (0.33-1.18)	54 (30.7) 388 (56.0)	1.00 2.88 (2.02-4.11)	1.00 1.47 (0.66-3.20)
Infant NVP	No=188 (23.1) Yes=627 (76.9)	N	36 (19.1) 66 (10.4)	1.00 0.49 (0.31-0.78)	1.00 0.61 (0.32-1.16)	64 (34.0) 348 (55.5)	1.00 2.42 (1.72-3.40)	1.00 1.25 (0.64-2.12)
Infant HIV positive	No=310 (85.9) Yes=51 (14.1)	N	23 (7.4) 3 (6.9)	1.00 0.78 (0.23-2.70)	---	188 (50.6) 30 (58.8)	1.00 0.93 (0.51-1.69)	---
Infant HIV status unknown	No=464 (56.7) Yes=361 (44.3)	N	26 (7.2) 75 (16.5)	1.00 2.55 (1.59-4.08)	1.00 1.29 (0.70-2.36)	218 (40.4) 194 (44.7)	1.00 0.49 (0.37-0.65)	1.00 0.61 (0.41-0.93)
Infant hospital admission	No=661 (84.8) Yes=117 (15.2)	N	70 (10.8) 29 (24.8)	1.00 2.74 (1.68-4.45)	1.00 2.95 (1.61-5.43)	337 (51.8) 58 (49.6)	1.00 0.92 (0.62-1.36)	---
PMTCT HIV knowledge score	M=2.8 (1.2), range 0-4	N	2.8 (1.2) 2.6 (1.2)	1.00 0.97 (0.73-1.03)	---	2.7 (1.3) 2.9 (1.1)	1.00 1.22 (1.08-1.38)	1.00 0.76 (0.58-1.15)
HIV transmission through breastfeeding knowledge	Incorrect=176 Correct=635	N	29 (16.6) 70 (11.0)	1.00 0.62 (0.39-1.00)	1.00 0.66 (0.36-1.20)	65 (37.1) 346 (54.5)	1.00 2.03 (1.44-2.86)	1.00 4.13 (1.40-12.14)
Infant feeding post HIV test counselling received score	M=1.4 (1.5), range 0-8	N	7.4 (1.5) 7.2 (1.6)	1.00 0.94 (0.83-1.01)	---	7.2 (1.7) 7.5 (1.3)	1.00 1.17 (1.06-1.29)	1.00 1.22 (0.68-2.55)
Received infant feeding options counselling within 72 hours of delivery	No=116 (14.7) Yes=667 (85.3)	N	16 (13.9) 83 (12.4)	1.00 0.88 (0.49-1.56)	---	57 (49.6) 347 (55.2)	1.00 1.11 (0.75-1.65)	---
Attended support groups	No=649 (82.4) Yes=139 (17.6)	N	75 (11.6) 23 (16.5)	1.00 1.52 (0.91-2.52)	---	90 (64.7) 319 (49.2)	1.00 1.90 (1.30-2.78)	1.00 1.62 (0.96-2.72)

- Formula feeding seemed to be the preferred mode of infant feeding, with about 60% of mothers reporting exclusively formula feeding.
- The high proportion of breastfeeding mothers (35.6%) is an indication that it is still a commonly used method of infant feeding.
- The percentage of mothers that are mix feeding is not acceptable, as mix feeding predisposes an infant to gastroenteritis and increased chances of MTCT during breast feeding. When using OR, knowledge scores on HIV transmission through breastfeeding were a strong predictor for choosing to give formula feed to infants (OR = 4.13). Having had more ANC visits was identified as protective from mixed feeding. The father of a child accompanying the woman to ANC and a woman telling her partner about her intake of NVP affected the choice of formula feeding in univariate analysis. Informing their partners that they were taking NVP might make them accept their status and might lead to opting for formula feeding which is currently regarded a better option for reducing MTCT. Having disclosed their status might have psychological benefits as they do not have to hide while formula feeding.

CONCLUSION

The study identified gaps in PMTCT knowledge which seem to affect appropriate infant feeding. Mixed feeding, an undesirable practice in infant feeding was reported in this study. Various determinants of mixed feeding and exclusive formula feeding in the context of PMTCT were identified that can guide infant feeding counselling and support services of PMTCT programmes. Infant feeding education should be strengthened in primary health care, particularly in situations where prevention of mother to child transmission of HIV is prioritised. Intensifying training of health care workers on infant feeding may enable them to disseminate uniform messages to pregnant women and mothers with young children might benefit the PMTCT programme. Nutrition education strategies that are aimed at fighting the culture of mixed feeding need to be developed.