RESEARCH ARTICLE

Traditional birth attendants, HIV/AIDS and safe delivery in the Eastern Cape, South Africa – evaluation of a training programme

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Introduction. Traditional birth attendants (TBAs) are still frequently utilised in rural areas in South Africa, even when mothers have access to formal health care facilities. Studies reveal that utilisation of TBAs can be beneficial in some contexts, with support and supervision from the Western health sector.

Aim. To evaluate a training programme for TBAs on HIV/AIDS and safe delivery.

Method. The study used a pre-post training evaluation design of 50 TBAs in two primary health care clinic areas in rural South Africa.

Results. Most TBAs had some knowledge of risk signs during pregnancy. At follow-up assessment HIV/AIDS knowledge had significantly increased and HIV risk practices when assisting during a delivery had significantly decreased. Most TBAs were involved in HIV/sexually transmitted infection (STI) management such as risk assessment, risk reduction counselling, distribution of condoms, community education and home-based care. After the training significantly more TBAs conducted prenatal check-ups, assessed the baby's position in the uterus and took the mother's and baby's pulse, and fewer TBAs conducted abnormal or complicated deliveries.

Conclusion. Training of TBAs can increase their knowledge, improve their attitudes and reduce risk practices. TBAs need skilled and equipped available support to carry out basic preventive measures in the obstetric patient, anticipate and identify obstetric complications, administer nevirapine prophylaxis, and make appropriate and timely referrals backed up with efficient referral mechanisms to reduce maternal morbidity and mortality.

A traditional birth attendant (TBA) is defined (based on the Traditional Health Practitioners Act) as a person who engages in traditional health practice and is registered under this Act.[1] According to Nolte[2] the TBA in South Africa can be characterised as a middle-aged or elderly woman with no formal training, who acquired her skills through experience and attends to women during pregnancy, labour and the postnatal period in various ways. Practices may include advice or instructions as to what to eat and what not to eat, the giving of herbal remedies for pain, sickness or discomfort, abdominal massages, offering comfort to mothers, and giving them a sense of security. They also assist with the delivery and advise and assist the new mother on how to care for the baby after it is born.[1] A number of authors have indicated the importance of traditional birth attendants in the delivery of health care to the mother and child in South Africa.[2-5] In various studies in rural South Africa, including the Eastern Cape province, 40 - 60% rates of home delivery have been observed.[6,7]

The World Health Organization (WHO)[8] notes that TBAs can potentially improve maternal and newborn health at community level. The role of TBAs in caring for pregnant women and conducting deliveries is acknowledged, but generally they are not trained to deal with complications. A paradigm shift from the risk approach to focus on emergency obstetric care (every pregnancy carries a risk) has occurred since 1997. While most pregnancies and births are uneventful, all pregnancies are at risk. Around 15% of all pregnant women develop a potentially life-threatening complication. It is therefore essential for women to be cared for by skilled health workers if maternal mortality is to be reduced.[8] TBAs and village midwives have been employed in many interventions to reduce maternal mortality and improve pregnancy outcomes in developing countries, with mixed results.[9,10]

The problem of HIV/AIDS in South Africa means that delivery attendants should protect mothers, children and themselves from exposure to blood and body fluids.

Knowing and understanding the issues surrounding HIV/AIDS infection control can help birth attendants to protect themselves and others. Some studies in Africa show that TBAs have poor HIV knowledge and poor hygienic practices and may be at risk of occupationally acquired HIV infection.[5,11,12] Recently it has been noted that TBAs can play a role in prevention of HIV from mother to child.[13]

The aim of this study was therefore to evaluate a training programme for TBAs on HIV/AIDS and safe delivery.

Method

Design

The study used a pre-post training evaluation design of TBAs in two primary health care clinic areas in rural South Africa. A previous survey showed that in these two areas more than 50% of women who had delivered before had delivered their last baby at home.[6]

Sample and procedure

The sample included 50 traditional birth attendants from two areas around two clinics in the Eastern Cape. Purposive and key informant sampling was used to include all traditional birth attendants from the two selected communities in Quakeni Local Service Area in the Eastern Cape after access was established through other TBAs, community leaders and clinic staff.

The study was approved by the Human Sciences Research Council Ethics Committee (Clearance No. REC 2/12/11/02). Informed consent was obtained from all participants. Questionnaires were interview-administered in Xhosa by the second author (NH), who had been trained in administration of this interview schedule. Participants were given R50 each as a token for participation.

The questionnaire was administered before and four months after the training, and the response rate was 100%. The training, over a period of 4 days, included the following modules: (*i*) HIV and AIDS; (*ii*) prevention of HIV transmission from mother to child; (*iii*) antenatal care; (*iv*) obstetric care; (*v*) postpartum care; (vi) counselling on safe infant feeding; (*vii*) status and role of TBAs; (*viii*) traditional medicine and rituals in delivery and infant care; and (*ix*) monitoring and follow-up. Modules *vii* - *ix* included skilled birth attendants from the nearest hospital. TBAs were also provided with a TBA delivery kit, including gloves, razor blades and male condoms.[14]

Measure

A semi-structured questionnaire was developed from the literature[4,15] and formative research with 20 TBAs in the area[11] (who did not form part of the final sample) including the following components: socio-demographic data (8 items), practice characteristics (18 items), open-ended questions on knowledge of risk signs during pregnancy, HIV/AIDS knowledge (9 items, rated as true, false or do not know), HIV risk perception (2 items, rated from 1 = great risk to 3 = not at risk), HIV and sexually transmitted infection (STI) management (12 items), HIV risk practices (9 items), and attitudes towards biomedical health practitioners and referral (4 items). Response options for all questions, if not stated differently, were 'yes' or 'no'. The questionnaire was translated from English into Xhosa and cross-checked by an external expert.

Data analysis

Descriptive statistics was used to obtain frequency distributions and where appropriate paired samples *t*-tests were used to compare means at time 1 and 2, using SPSS version 12.0.

Results

Results are divided into: (*i*) sample and practice characteristics; (*ii*) knowledge on pregnancy risk signs; (*iii*) HIV/AIDS knowledge; (*iv*) HIV risk perception; (*v*) HIV and STI management; (*vi*) HIV risk practices; (*vii*) TBA practice; and (*viii*) attitudes towards biomedical health practitioners and referral.

Sample and practice characteristics

The majority of the TBAs (78%) were between 31 and 50 years old. All TBAs belonged to the Xhosa ethnic group. More than half (54%) had 5 or less years of formal education, while 16% had no formal education. None of the TBAs had undergone formal training as a TBA; they had only observed deliveries for 1 - 3 years. Two-thirds of the TBAs (66%) had started practising at an age over 30 years, and half (52%) had been practising for more than 5 years. The majority (70%) had assisted in 3 - 10 deliveries in the past 12 months, and 28% in 2 or less deliveries; only 1 TBA had assisted in more than 10 deliveries in the past 12 months (Table I).

Knowledge of pregnancy risk signs

TBAs were asked on risk signs during pregnancy in an open-ended question before (pre) and 4 months after (post) the training. Most were able to identify some risk signs during pregnancy before and after the training, ranging from headaches, bleeding and swollen feet or legs to stress. There was an increase in identifying sexually transmitted diseases as risk signs during pregnancy after the training. However, the awareness of difficult labour, headaches and bleeding as risk factors during pregnancy were less often mentioned post as opposed to pre-test (Table II).

HIV/AIDS knowledge

Most TBAs had correct knowledge on HIV and AIDS, but knowledge still significantly increased after the training ($p = 0.018$) (Table III).

Table I. Socio-demographic and practice characteristics

	N	%
Sex female	50	100
Age (yrs)	4	8
21 - 30	13	26
31 - 40	26	52
41 - 50	5	10
51 - 60	2	4
61 - 70		
Ethnicity Xhosa	50	100
Formal education		
None	8	16
≤ 5 years	19	38
> 5 years	23	46
Training/observation (mo.)		
0 - 12	25	50
13 - 24	10	20
25 - 60	15	30
Age at which started as TBA (yrs)		
21 - 30	17	34
31 - 40	26	52
41 - 50	7	14
Number of years practising as TBA		
0 - 5	24	48
6 - 10	10	20
≥ 11	16	32
Number of pregnant women known to TBA currently		
0 - 1	11	22
2 - 3	21	42
≥ 4	18	36
Number of deliveries assisted in past 12 months		
0 - 2	14	28
3 - 5	20	40
6 - 10	15	30
11 - 20	1	2

Table II. Risk signs during pregnancy

	Pre (% of cases)*	Post (% of cases)*
Swollen feet/legs	36	48
Epilepsy	14	23
Difficult labour	30	21
Headaches	74	21
Bleeding	36	19
High blood pressure	16	15
Diabetes	12	13
Sexually transmitted diseases	0	13
Stress	10	4
Other (glands in body, malnourishment, substance abuse, domestic violence)	10	25

*Multiple responses possible.

HIV risk perception

While 76% of TBAs initially felt at great risk of HIV infection when assisting during a delivery, most felt only somewhat at risk (68%) or at no risk (14%) after the training. The significantly lower perception of HIV risk at work after the training corresponded somewhat but not significantly with lower HIV risk perception in their personal lives (Table IV).

HIV/STI management

Most TBAs knew where to obtain voluntary counselling and testing (VCT), approved of distributing condoms, and were involved in HIV/STI management such as risk assessment, risk reduction counselling, distribution of condoms, community education and home-based care. Compared with before the training, after the training keeping of records of deliveries in the past 3 months and having a supply of gloves significantly increased (Table V).

HIV risk practices

HIV risk practices significantly reduced after the training ($p = 0.007$), especially with regard to the use of gloves and new razor blades and non-use of reed to cut the umbilical cord (Table VI).

TBA practice

At post test 14% of the TBAs had not attended at any delivery in the past 3 months, the majority (56%) had attended at 1 or 2 deliveries, and 30% had attended at 3 or more deliveries.

After the training more TBAs conducted prenatal check-ups, assessed the baby's position in the uterus, took the mother's and baby's pulse, checked whether the mother had taken nevirapine and referred her to the clinic for nevirapine for the baby, and fewer TBAs conducted abnormal or complicated deliveries (Table VII).

Before the training 40 of the TBAs indicated that they themselves provided the instruments for delivery and 10 said the mothers did so. After the training almost all ($N = 47$) the TBAs indicated that they supplied the instruments themselves.

Attitudes towards biomedical health practitioners and referral

Before and after the training almost all TBAs were prepared to work with the clinic (98% and 100%) and would be likely to make referrals to a clinic (100%). Three-quarters (74%) before training and 86% after training indicated that they would refer a woman with risk signs during pregnancy to the health facility. The proportion of TBAs who were confident about working with the clinic increased from 78% before to 94% after the training.

Discussion

This study reported on a pre-post training assessment on HIV/AIDS and safe delivery among 50 previously untrained (on the job training) TBAs, most assisting

Table III. HIV/AIDS knowledge

	Correct pre *N* (%)	Correct post *N* (%)
A person can get HIV by using a cup or plate that has been used by a person with HIV/AIDS (False)	41 (83.7)	45 (90)
Having sex with more than one partner can increase a person's chance of being infected with HIV (True)	48 (96.0)	50 (100)
People can protect themselves from HIV by using a condom correctly every time they have sex (True)	50 (100.0)	50 (100)
You can get HIV through contact with infected blood (True)	48 (96.0)	50 (100)
HIV can be transmitted from mother to child through breastfeeding (True)	48 (96.0)	49 (98)
Transmission of HIV from mother to child can be prevented (True)	47 (94.0)	49 (98)
Needles and razors can transmit HIV (True)	50 (100.0)	50 (100)
There is no cure for HIV, the virus that causes AIDS (True)	46 (92.0)	49 (100)
A TBA can contract HIV when assisting during a delivery (True)	48 (96.0)	49 (100)

Paired samples test: M = –0.27; 95% CI = –0.48, –0.05; t = –2.45; p = 0.018.

Table IV. HIV risk perception

	Great risk *N* (%)	Somewhat at risk *N* (%)	Not at risk *N* (%)	Paired samples test M (SD)	t
How much do you feel at risk of getting HIV when assisting with delivery?					
Pre	38 (76)	8 (16)	4 (8)	2.0 (0.6)	5.83*
Post	9 (18)	34 (68)	7 (14)	1.3 (0.6)	
How much do you feel at risk of getting HIV in your personal life?					
Pre	16 (32)	15 (30)	19 (38)	2.2 (0.6)	1.46
Post	5 (10)	28 (56)	17 (34)	2.1 (0.8)	

*$p < 0.001$.

Table V. HIV/STI management practices

	Pre (*N*)	Post (*N*)
Do you know where you can obtain voluntary HIV counselling and testing services?	47	50
Did you refer a pregnant woman for HIV testing in the past 3 months?	40	37
Did you do HIV/STI risk behaviour assessment (e.g. ask about risky sex) in the past 3 months?	41	42
Did you do HIV/STI risk reduction counselling (e.g. advice on condom use, abstinence, fidelity and partner reduction) in the past 3 months?	43	42
Do you approve of distributing condoms to your clients?	49	50
Did you distribute condoms in the past 3 months?	38	31
Do you have a container with condoms in stock?	40	41
Did you do HIV/AIDS community education in the past 3 months?	44	44
Did you do home-based care in the past 3 months?	38	40
Did you keep records of deliveries in the past 3 months?	29	44
Do you have a supply of gloves to protect you against infection?	33	46
Do you have a container where you keep used blades after completing a procedure?	2	1

with less than 10 deliveries in a year, in rural South Africa; the latter is similar to those of other studies in South Africa.[3,15]

Most TBAs were found to have some knowledge on risk signs during pregnancy. However, there was a decline in knowledge on major risk signs of difficult labour, headaches and bleeding and an increase in knowledge on sexually transmitted diseases and other conditions (swollen feet/legs, glands in body) after the training. Although the training emphasised both common obstetric problems and sexually transmitted diseases including HIV, TBAs seem to recall more knowledge related to sexually transmitted diseases. Mchunu and Bhengu[15] asked trained TBAs structured questions (as opposed to the open-ended questions in this study) about risk signs during pregnancy, and found that most reported correctly on 'bleeding from the vagina', 'back pain along the sides of the spine' and 'resting pulse over 100 beats/minute', 'swelling of the face and hands' and 'shortness of breath', while only

Table VI. Infection control

	Pre (*N*)	Post (*N*)
During delivery do you use bare hands (washed before)? (in the past 3 months) (risk)	13	1
During delivery do you use bare hands (not washed before)? (in the past 3 months) (risk)	0	0
During delivery do you use gloves (unused)? (in the past 3 months) (low risk)	40	47
During delivery do you use gloves (used)? (in the past 3 months) (risk)	0	2
Do you cut the umbilical cord with a new razor blade (in the past 3 months) (low risk)	44	47
Do you cut the umbilical cord with a used razor blade (in the past 3 months) (risk)	1	0
Do you cut the umbilical cord with scissors (not sterilised) (in the past 3 months) (risk)	1	1
Do you cut the umbilical cord with scissors (sterilized) (in the past 3 months) (low risk)	3	1
Do you cut the umbilical cord with reed or dry wood from mountain (not sterilised) (in the past 3 months) (risk)	8	0
Do you cut the umbilical cord with reed or dry wood from mountain (sterilised) (in the past 3 months) (low risk)	0	1
Total: Paired samples test: $t = -2.82$; $p = 0.007$	M = 7.28 SD = 1.2	M = 7.84 SD = 0.7

Table VII. Practice as TBA

	Pre (*N*)	Post (*N*)
Do pregnant women come to you?	40	50
Do you conduct prenatal check-ups?	22	48
Do you assess the baby's position in the uterus?	23	49
Do you take the mother's pulse?	5	40
Do you take the baby's pulse?	2	36
Do you conduct abnormal or complicated deliveries?	5	0
Do you check if the mother has taken nevirapine?	39	47
Do you advise your client to go to the clinic for nevirapine for the baby?	39	47
Do you advise your client to go to the clinic for immunisations?	50	50
Do you do a postpartum visit at the client's home?	50	49
Do you give advice about birth control?	40	49

11% were correct on 'back pain along the spine' and 2% on 'emotional highs and lows'.[15]

While 76% of TBAs initially felt at great risk of HIV infection when assisting during a delivery, this concern reduced significantly after the training. This may be attributed to increased knowledge on how to protect themselves from HIV and increased use of gloves.

HIV risk practices reduced significantly after the training, especially with regard to the use of gloves and new razor blades and non-use of reed to cut the umbilical cord, as has been found in other studies.[16,17]

After the training significantly more TBAs conducted prenatal check-ups, assessed the baby's position in the uterus, took the mother's and baby's pulse, checked whether the mother had taken nevirapine, and referred the mother to the clinic for nevirapine for the baby, and fewers TBAs conducted abnormal or complicated deliveries (10% in the past 3 months before and none after training). Mchunu and Bhengu[15] also found higher levels of prenatal check-ups and assessment of mother's and baby's pulse among trained TBAs in KwaZulu-Natal, and Msaky *et al.*[17] found increased nevirapine counselling among TBAs in PMTCT service delivery in Tanzania.

Conclusion

Training of TBAs can increase their knowledge, improve their attitudes and reduce risk practices. TBAs need skilled, equipped available support to carry out basic preventive measures in the obstetric patient, to anticipate and identify obstetric complications, to ensure nevirapine prophylaxis, and to make appropriate and timely referrals backed up with efficient referral mechanisms to reduce maternal morbidity and mortality.

Limitations of the study

The study used only a pre-post design and only self-report measures, which limit the validity and reliability of the results. Further, follow-up research on maternal and child health in the communities studied should be conducted in order to establish the outcome of the training impact.

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