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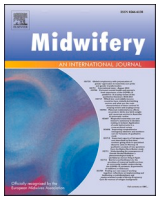

Research Article

Knowledge and attitudes of midwives towards collaboration with traditional birth attendants for maternal and neonatal healthcare services in rural communities in South Africa

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ABSTRACT

Objectives: We assessed the knowledge and attitude of registered midwives towards collaborating with traditional birth attendants for maternal and neonatal healthcare services in rural communities.
Design: A descriptive cross-sectional survey was followed in this study.
Participants: Registered midwives in selected clinics in the City of Tshwane Municipality. Participants were recruited by stratified random sampling. Data was collected at the Thirty-four primary healthcare facilities in Gauteng province, South Africa.
Measurement and results: A self-assessment questionnaire was administered to 304 registered midwives. Two-hundred and sixty respondents returned the questionnaire representing a response rate of 86.6 % which was statistically significant. The majority of Midwives in South Africa displayed a low level of knowledge (mean = 41.8, SD=1.7) on the role and practices of traditional birth attendants). Only 30.8 % ($n = 80$) of midwives knew of the roles of traditional birth attendants for maternal and neonatal healthcare (MNH) services. With respect to knowledge, there was significant associated with the Professional category ($p < 0.015$). In terms of attitude, registered midwives displayed negative attitudes towards collaborating with traditional birth attendants (mean = 46.8, SD=2.1). Approximately half (54.2 %, $n = 140$) of midwives were amenable towards collaborating in the provision of antenatal care, and 70.4 % ($n = 183$) of midwives agreed to collaborate with traditional birth attendants for extended roles such as accompanying women to health facilities. Association of demographic data and level of attitude showed there was significant relationship ($p < 0.05$) between registered midwives' level of education and their attitude towards collaboration.
Key conclusions: Midwives demonstrated positive attitude towards collaborating with traditional birth attendants at the antenatal care level only. Midwives were not amenable to collaboration at the level of intrapartum and postpartum care.
Implications for practice: Based on our results, collaboration should be at antenatal care level to allow for early detection, treatment, and prevention of antenatal complications thus reducing maternal mortality and morbidity.

Introduction

Collaboration between midwives and traditional birth attendants (TBAs) is associated with improved maternal and neonatal health (MNH) outcomes and better access to MNH services in remote rural communities (Magrath, 2022; Miller, Smith, 2017). The World Health Organization (2015) published the "Working with individuals, families and communities to improve maternal and new born health guidelines", which highlighted the need for collaborations or partnerships between health professionals and TBAs. These partnerships are important as TBAs are regarded as primary health providers during childbirth in many rural communities. Childbearing women in remote communities frequently seek the services of TBAs, who are trusted and provide culturally appropriate pregnancy care in line with the traditional expectations of women and communities (Gurara et al., 2020; Miller, Smith, 2017). Hence, TBAs are considered significant allies for health

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education, social support, community awareness, and maintaining complex relationships between the childbearing women, families, communities, and the formal healthcare system.

Skilled birth attendants (SBAs) and skilled care for childbirth are crucial for saving the lives of childbearing women, which relates to the third sustainable development goal (SDG 3) to reduce maternal and neonatal morbidity, and mortality rates (World Health Organization, 2015). To achieve the status of being an SBA, TBAs should be trained to ensure that they are skilled and knowledgeable. Approximately 77 % of women in some rural areas in Uganda and Burundi give birth at home without an SBA (Chi, Urdal, 2018). To achieve the necessary skills, the World Health Organization (2015) has delineated the roles and responsibilities of TBAs to achieve MNH. Similarly, the *Alma Ata declaration* of 1978 states that as TBAs form part of the healthcare system, it is imperative to explore the possibilities of engaging TBAs in primary health care and training them accordingly (Organization, 1978). In South Africa and other African countries, TBAs have been in existence for a long time and they continue to play an important role in assisting childbirth care services, particularly in rural areas (Gurara et al., 2020; Sari, 2019). Despite their important role, TBAs are still not fully recognised and have not been included in primary health care reengineering teams that were established to address the objectives of the National Health Insurance (Department of Health, 2011; Nkosi, 2020).

Additionally, the knowledge possessed by TBAs is not well researched or understood by modern health care professionals, including midwives. In most settings, modern health care professionals view TBAs as people who are responsible for implementing harmful traditional herbs, remedies, and practices or delaying childbearing women from seeking professional help in case of complications arising during pregnancy and childbirth (Chi, Urdal, 2018; Gurara et al., 2020). Some of the practices include the use of *Isihlambezo* (herbal decoction) which is a traditional herb that is known to accelerate uterine contractions and also associated with adverse obstetric complications of uterine rupture (Hlatshwayo, 2017). In Malawi and Ghana, TBA care is associated with increased maternal mortality rates (Hermawan, 2016). In countries such as Ethiopia, TBAs are no longer allowed to conduct homebirths but are assigned certain collaborative roles such as referring pregnant mothers to health facilities and accompanying mothers during labour (Gurara et al., 2020). In Indonesia, TBAs are trained to conduct uncomplicated births, reduce infections, detect pregnancy complications, and refer mothers to skilled providers in the formal healthcare system when necessary thus improving maternal and neonatal outcomes (Sari, 2019). TBAs have different roles in different countries often depending on the needs of a particular country.

In Ghana, the lack of collaboration between TBAs and other health professionals has been attributed to a lack of recognition and appreciation by health professionals who consider TBAs as competitors (Gurara et al., 2020). In South Africa, Ngomane & Mulaudzi (2012) argued that pregnant women attended antenatal care (ANC) clinics late in their pregnancy as they waited for the foetus to be fully formed before seeking ANC as related with cultural beliefs. Registered midwives need to be aware of these beliefs and practices supposing that they want to collaborate with TBAs who encourage such practices. Modern midwives' attitudes towards TBAs have always been very negative as they view traditional practices as unsafe and harmful (Ohaja et al., 2020; Peprah et al., 2018). In response, TBAs have had to discard some of their practices and learn new methods deemed safer by those who view the western health care system as superior and more efficient. The culture and practices of TBAs are being forcefully modified to fit in with 'safer' and more scientific practices that will ensure the safety of the mother and child (Musie et al., 2022).

South Africa, like most African countries, has a pluralistic parallel healthcare system, that has diversified health seeking behaviours, the two most popular being an allopathic (western/modern) and traditional (indigenous) healthcare system (Nemutandani, 2016; Ohaja et al., 2020). A dichotomy exits between western maternity care and indigenous traditional practices associated with pregnancy and childbirth. Moreover, the national healthcare system is primarily grounded on western medicine, but certain traditional practice is tolerated and regulated by law. Efforts have been made by the Department of Health (DoH) to recognise and regulate the practices of the traditional health practitioners (THPs) including TBAs in the promulgation of the Traditional Health Practitioners Act of 1997 and Draft Policy on African Traditional Medicine developed to define traditional health practice and regulate the registration of THPs (Street, 2016). However, the reality remains that these two health care systems are operating in parallel in a monopolistic healthcare system. Although these systems seem to be at odds, they can both add value to the care of pregnant women and childbirth if the two systems collaborate.

Several countries such as Indonesia and Nigeria have fostered collaboration between registered midwives and trained TBAs in a bid to improve maternal and neonatal outcomes (Agus et al., 2018). A systematic review has highlighted the need to integrate TBAs into the formal health system, to improve access and utilisation of skilled birth attendant facilities by women in low- and middle-income countries (LMICs) (Miller, Smith, 2017). At the heart of SDG 3, lies the core priority of universal access to health care. TBAs are recognised as key role players in the community as they can connect childbearing women to healthcare facilities. Nevertheless, TBAs are often overlooked in these very communities (Moodley et al., 2018). There is a dearth of literature in South Africa relating to registered midwives' knowledge and attitude towards collaborating with TBAs. Registered midwives are important skilled stakeholders because they are the cadre who are ideally placed to interact with TBAs. Based on this, the researchers deemed it necessary to conduct the study on knowledge and attitudes of midwives towards collaboration with traditional birth attendants for maternal and neonatal healthcare services in rural communities in South Africa.

Methods

Design and sampling

This was a descriptive cross-sectional survey (Polit and Beck, 2022). For the purpose of sampling the respondents were selected using stratified random sampling (registered midwives). Stratified random sampling was chosen to increase the precision in the sample by dividing the population into stratums from which the elements are randomly selected (Botma et al., 2018). To achieve the representative sample, stratums were formed by dividing the city of Tshwane municipalities into 5 regions(stratum) which included the primary health facilities were the respondents will be randomly selected from. We used a sample size calculation to estimate the minimum number of respondents required to have sufficient statistical power. The Qualtrics sample size formula which was used was based on sampling from fixed population. A sample size of 304 participants was deemed sufficient, however only 260 returned the survey resulting in response rate of 86 % which was statistically significant. Midwives working in 34 primary healthcare facilities (PHC) in the City of Tshwane, South Africa were randomly selected. The district has five different regions where clinics are located in rural remote areas. Based on a total population of 963, margin error of 5, confidence interval (CI) of 95 %, the following calculations were used:

Necessary Sample Size = (Z-score)^2 * Std Dev*(1-Std Dev) / (margin of error)^2

$$n = \frac{(N * X)}{(X + N - 1)}$$

where $X = Z_{\alpha/2}$*p*(1-p)/MOEˆ2 and $Z_{\alpha/2}$ is the critical value of the normal distribution at α/2 (e.g. for a confidence level of 95 %, α is 0.05 and the critical value z is 1.96).

MOE is defined as the margin of error, p is the sample proportion

N is the definite population size (963=619 + 344), Using a sample

proportion of $p = 0.5$, Using the relation above, the computed $n = 274$. Assuming for a dropout of 10 %. The new sample size with inflation factor becomes

$n = 274 \times 100/ (1–0.10) = 304$ respondents.

Data collection

Data were collected between October 2021 and February 2022. The researcher visited clinics to explain the purpose of the study to prospective participants. Midwives who expressed willingness to participate in the study provided written consent. Out of 304 midwives who expressed willingness to participate, 86.6 % ($n = 260$) returned questionnaires. Questionnaires were collected and double-checked on site for completeness. The demographic profile of the participants is presented in Table 1.

Data collection instrument

The midwives completed the self-assessment questionnaires either online via Qualtrics (a link was sent by email) or by completing hard-copy questionnaires onsite. The questionnaire was developed by the researchers based on previous international and national literature (Adatara et al., 2018; Gurara et al., 2020; Haruna et al., 2019a). Two academics (from midwifery and indigenous knowledge systems) reviewed the questionnaire. Further consultation with a professional statistician was sought before commencing data collection to confirm the appropriateness of the questionnaire to achieve the aims and objectives of the study. The questionnaire was pre-tested on 5 % of the sample size to assess the reliability of the instrument and a Cronbach's α of 0.905 indicated strong internal consistency and reliability of the questionnaire. The questionnaire was modified by adding a few questions and modifying existing questions to reduce ambiguity. The final questionnaire were in English and included 30 items. Section A: demographic information of respondents (7 items). Section B: assessment of midwives' knowledge on the role of TBAs (9 items with yes = 1 and no = 2 responses). Section C: four-point Likert scale on midwives' attitude towards collaborating with TBAs (10 items, strongly agree [4], agree [3], disagree [2], strongly disagree [1]). Strongly agree and agree responses were grouped into a yes-group, and disagree and strongly disagree responses were grouped into a no-group. Since there is no cut off on the knowledge and attitude scales, the respondents who scored high quartile scores were classified as having high knowledge and positive attitude scores.

Table 1
Demographic characteristics of South African midwives who participated in this study ($n = 260$).

Variables	(*n*=,%)
Age group	
20–30 years	(50) 19.2 %
31–40 years	(77) 29.6 %
41–50 years	(69) 26.5 %
51–60 years	(64) 24.6 %
Gender	
Female	(239) 92 %
Male	(21) 8 %
Ethnicity	
African	(250) 96 %
Coloured	(7) 3 %
White	(3) 1 %
Educational attainment	
Four-year diploma	(33) 51.2 %
Bachelor's degree	(82) 31.5 %
Master's degree	(15) 5.8 %
PhD degree	(2) 1 %
Other	(28) 11 %
Professional designation	
Registered midwife	(213) 81.9 %
Advanced midwife	(27) 10.4 %
Operational manager	(6) 2.3 %
Midwifery lecturer	(14) 5.5 %
Work experience	
< 9 years	(94) 36 %
10–20 years	(100) 38 %
21–30 years	(43) 17 %
> 31 years	(23) 9 %

Data analysis

Data were captured on Microsoft Excel and later imported into Stata version 13 for analysis. Descriptive statistics namely mean, standard deviation, frequency and proportion were used to summarize the demographic information and responses to the questionnaire. Fischer exact, Chi-square tests and Multiple regression (odds ratios [ORs] together with their 95 % confidence intervals [CIs]) were used to examine associations between independent variables (midwives' socio demographic characteristics) and outcome variables (midwives' knowledge and attitude toward collaboration for maternal and child healthcare services). The assumptions for each test were met before running the tests. Statistical significance was set at 0.05.

Ethical considerations

The research study was approved by the University of Pretoria, Faculty of Health Sciences Research Ethics committee (approval number 599/2020). Additional approval also received from the National Ministry of Health and the City of Tshwane Municipality responsible for the clinics. Respondents were provided with the informed consent prior to participation. All personal information was kept confidential as required and used only for scientific purposes. All ethical considerations of confidentiality, beneficence, and non-maleficence were applied in the study.

Results

Demographic characteristics

A total of 260 midwives participated in the survey, yielding a response rate of 86.6 %. The respondents' demographic variables included age, gender, ethnicity, professional designation, work experience, and highest academic qualification (Table 1). The mean (SD) age of the sampled midwives was 41.1 (SD=0.64). Half of the respondents were between the ages of 31 and 50 years (56.1 %). Most of the midwives were professional midwives (81.9 %). More than half of the respondents had a four-year diploma (51.1 %) as their highest qualification.

Midwives' knowledge on the practice and role of TBAs

Responses to the knowledge items are presented in Table 2. On average, the respondents were able to answer all the knowledge questions (mean= 41.8, SD 1.7). Most of the respondents had poor knowledge regarding practice of TBAs. Most midwives indicated 'no' to six out of the nine questions. Out of 260 midwives, 69.2 % ($n = 180$) did not know the role of a TBA for MNH. Only three questions indicated midwives' knowledge of traditional practice with 52.7 % ($n = 137$) of midwives agreeing that TBAs should be involved in MNH. As indicated in Table 2, the frequency of yes and no responses differed significantly for six items.

Attitudes of midwives regarding collaboration with TBAs for MNH

Responses to attitude items are shown in Table 3. In general, the respondents were negative about collaborating with TBAs (mean= 46.8, SD= 2.1). Most midwives were negative about collaborating with TBAs,

Table 2
Registered midwives' knowledge of traditional birth practice and traditional birth attendants (TBAs) for maternal and child healthcare (MNH) in South Africa ($n = 260$).

Knowledge item	Yes (n=, %)	No (n=, %)	X^2/ Fischer-test P-value
Have you learnt or heard about TBAs prior to this questionnaire?	(145) 55.8 %	(115) 44.2 %	0.063
Do you know the role of TBAs, also known as traditional midwives, for MNH?	(80) 30.8 %	(180) 69.2 %	0.00[s]
Have you learnt about the practices performed by TBAs for pregnancy and childbirth?	(69) 26.5 %	(191) 73.5 %	0.00[s]
Do you know that TBAs are registered with the Traditional Health practitioners act (THP Act 22 of 2007)?	(78) 30 %	(182) 70 %	0.00[s]
Have any of your patients consulted TBAs before?	(83) 31.9 %	(177) 68.1 %	0.00[s]
Do you agree that TBAs should be involved with MNH?	(137) 52.7 %	(123) 47.3 %	0.39
Do you think that pregnant women can consult both TBAs and western healthcare during their pregnancy and childbirth?	(128) 49.2 %	(132) 50.8 %	0.80
Do you think TBAs should be given an opportunity to conduct home births?	(95) 36.5 %	(165) 63.5 %	0.00[s]
Would you like to receive additional training and information on TBA practice and roles for MNH?	(157) 60.4 %	(101) 39.6 %	0.00[s]

Abbreviations: TBA, traditional birth attendants; MNH, maternal and child healthcare. Significant results are highlighted in p-value less than 0,05[s].

Table 3
Midwives' attitudes regarding collaboration with traditional birth attendants ($n = 260$).

Items on attitude	Disagree (n=,%)	Agree (n=,%)	Significance $P > \|z\|$
Traditional birth attendant (TBA) practice must be approved for maternal and neonatal healthcare (MNH)	(144) 55.4 %	(116) 44.6 %	0.11
Traditional health care is considered to be safe	(190) 73.1 %	(70) 26.9 %	0.20
I am willing to collaborate with TBAs for antenatal visits and check-ups	(119) 45.8 %	(141) 54.2 %	0.52
Midwives should work with TBAs for intrapartum care and complications associated with childbirth such as postpartum haemorrhage (PPH)	(135) 51.9 %	(125) 48.1 %	0.75
Midwives should work with TBAs for three days postnatal check-up	(132) 50.8 %	(128) 49.2 %	0.15
I am willing to work with TBAs for family planning services	(136) 52.3 %	(124) 47.7 %	0.01[s]
TBAs could assist with challenges experienced in clinics such as staff shortages	(150) 57.7 %	(150) 42.3 %	0.00[s]
Midwives should accept a woman referred by the TBA	(45) 17.3 %	(215) 82.7 %	0.00[s]
It is crucial for midwives to refer a pregnant woman to a TBA	(195) 75 %	(65) 25 %	0.00[s]
Collaborations with TBAs as birth as birth companions/doulas is needed	(77) 29.6 %	(183) 70.4 %	0.00 [s]

Abbreviations: TBAs, traditional birth attendants. Significant results are highlighted in p-value less than 0,05[s].

indicating negative responses on seven out of 10 items. Most of the midwives (75 %) refused to refer childbearing women to traditional health facilities. Generally speaking, midwives were negative towards engaging with TBAs on issues relating to child birth and postnatal care.

Just more than half (54.2 %) of midwives agreed that it would be acceptable to collaborate with TBAs with regard to ANC appointments and check-ups for childbearing women. Most midwives (82.7 %) confirmed that they would accept a woman referred from a TBA to the health facility ($p = 0.00$) and lastly, most respondents (70.4 %) confirmed that they would collaborate with TBAs, who accompanied a woman or acted as a doula ($p = 0.00$).

Association between knowledge and demographic variables

Level of knowledge of registered midwives was significantly associated with professional designation ($p < 0.015$), but not with other variables. With respect to knowledge scores, operational managers had the highest knowledge scores (66.7 %) followed by advanced midwives (52.7 %), other health professions, including academics (51.6 %), and professional nurses (39.1 %). Professional nurses had poor knowledge regarding the traditional practice of the TBAs. Multivariate logistic models examining the association between knowledge and attitude with the demographic factors are shown in Tables 4 and 5. Knowledge was not significantly influenced by any of the factors in the presence of other factors (Table 4).

Association between attitude and demographic variables

Attitude was significantly associated with three demographic variables, namely professional designation, highest qualification, and type of workplace (Table 5). In terms of professional designation, operational nurses had the most positive attitude (81.5 %, OR = 0.55) towards collaboration, whilst professional nurses (44.8 %, OR = 1.16, $P < 0.05$) were associated with having a negative attitude towards collaboration ($P = 0.012$). Attitude was also associated with highest level of qualification, with midwives with a master's qualification being associated with having a positive attitude towards collaborating with TBAs than the attitudes of midwives with other qualifications (OR = 1.37, $P = 0.021$). Midwives in the millennial age group (31–40 years) were also associated with having a positive attitude.

Discussion

This study was designed to assess the knowledge and attitude of midwives towards collaborating with Traditional birth attendants (TBAs) for Maternal and Neonatal Healthcare (MNH) services in rural communities. The results of the study confirm that most midwives have poor knowledge of the role and responsibilities of TBAs for MNH. Most of the midwives in the study have heard about women consulting with traditional birth attendants during pregnancy and childbirth, however have limited knowledge to the actual practices and roles of TBAs for maternal and neonatal healthcare. Our findings are similar to findings from a study conducted in China, which reported that skilled birth attendants (SBA) lack knowledge on complementary and traditional practice medicine in general despite the prevalent use thereof (Bahall, Legall, 2017). Further analysis of the results showed that midwives agree to collaborate with TBAs for maternal and neonatal healthcare in resource restricted areas but only at the antenatal level of care. A study conducted in Nigeria confirms that the views of midwives are diverse and conflicting towards collaborating with TBAs for MNH (Ohaja et al., 2020). Some midwives believe that TBAs should be prohibited, arguing that they are to blame for women's low utilization of skilled-birth care or hospital-based maternity care, which leads to an increase in maternal mortality rates. Contrastingly, other midwives, believe that traditional birth attendants 'cannot be phased out' because of their valuable contributions, particularly in rural areas where access to formal maternity care is hampered and acknowledging that many women prefer the local practice over the strictly biomedical orthodox childbirth (Ohaja et al., 2020). In support, similar study adds that women preference for TBAs may be accentuated by absolute and relative lack of SBA and health facilities in communities (Ntoimo et al., 2022). Other findings report that women delayed attendance to SBA care due to the buoyed reasons

Table 4
Multivariable logistic regression of knowledge and demographic characteristics of midwives in South Africa ($n = 260$).

Knowledge item	Odds ratio	Standard error	Standard deviation (z)	Probability greater than standard deviation ($P > [z]$)	95 % Confidence interval (CI)
Age group	0.811	0.154	−1.10	0.269	0.560–1.176
Years of experience	1.402	0.306	1.55	0.121	0.915–2.151
Professional designation	1.226	0.213	1.17	0.241	0.872–1.723
Qualification	1.233	0.165	1.57	0.116	0.950–1.602
Type of workplace	1.162	0.152	1.15	0.250	0.900–1.500
Cons estimate baseline odds	0.225	0.111	−3.04	0.002[a]	0.086–0.590

a P value < 0.05 significant.
b P value< 0.01 odds ratio examining if other factors affect knowledge items.

Table 5
Multivariable logistic regression of attitude and demographic characteristics of midwives in South Africa ($n = 260$).

Attitude item	Odds ratio	Standard error	Standard deviation (z)	Probability greater than standard deviation $P > [z]$	95 % Confidence interval (CI)
Age group	0.551	0.127	−2.08	0.037[a]	0.468–0.977
Years of experience	1.239	0.263	0.90	0.370	0.794–1.856
Professional designation	1.156	0.206	0.81	0.418	0.814–1.640
Qualification	1.365	0.184	2.31	0.021[a]	1.048–1.778
Type of workplace	1.425	0.175	1.15	0.038[a]	1.015–1.710
Cons estimate baseline odds	0.477	0.228	−1.55	0.037[a]	0.187–1.218

[a] P value < 0.05 Significant
[b]P value < 0.01 odds ratio examining if other factors affect attitude items.

that health facilities are frequently far distant, and women frequently have difficulty reaching them due to terrible roads and transportation issues, particularly when labour begins at night. In such instances, ladies will have little choice but to use the easily available TBAs for delivery (Ntoimo et al., 2022).

Contrastingly, a study done in Tanzania highlights that the skilled birth attendants (SBAs) including midwives and the TBAs had similar perceptions on the role of TBA for MNH (Shimpuku et al., 2021). The midwives perceived that TBA were responsible for supporting pregnant women throughout pregnancy and delivery, providing emergency delivery assistance, health education for the community, and referrals to formal healthcare system. In addition, it was noted that TBAs could not use oxytocin to stop women's bleeding after birth nor provide suturing for tears in a woman's perineum (Haruna et al., 2019b).

Nonetheless, the midwives in Tanzania indicated that TBA lacks knowledge, skills and training in maternal and neonatal healthcare services, while the TBAs claimed their compliance with the training received (Shimpuku et al., 2021). The lack of skills and knowledge could possibly be a result of international and national policy changes that ended TBA training and support, TBAs may have started to experience a greater lack of resources and the loss of the ability to update their knowledge (Shimpuku et al., 2021). Most of the midwives were unaware that some of TBAs are registered with the THP act 22 of 2002. The WHO and Alma Ata declaration of 1978 recommended re-training of TBAs to improve their skills and competencies in managing uncomplicated deliveries and referring difficult deliveries to orthodox health facilities (Lane, Garrod, 2016; Sibley et al., 2012). Given the fact that most TBAs had no formal education, it was imperative that TBAs are formally trained to recognise complications earl and refer women timeously to prevent mortality (Aziato, Omenyo, 2018). Despite the re-training programs of unskilled TBAs had no substantial impact on perinatal mortality and reducing maternal mortality rates in developing countries thus leading to abolition of TBA-assisted deliveries (WHO, 2015).

The use of TBAs during childbirth in resource-restricted settings is not surprising as the Safe Motherhood Initiative seeks to reduce morbidity and mortality from pregnancy-related causes. Several studies have explored the role of TBAs in maternal health, including childbirth within some countries in Africa. A study noted limited, informal collaboration between SBAs and TBAs in northern Uganda, where TBAs delivered in some facilities under the guidance and supervision of SBAs contributing to lower injuries, complications and reduced mortality rates (Tabong et al., 2021). A national survey conducted in Sierre Leone found that up to 77 % of women in some rural areas giving birth at home without a skilled attendant (midwives or obstetricians). The main alluded roles of TBAs in maternal and neonatal health includes providing care that is aligned to pregnant women cultural beliefs, advice on family planning, nutritional requirements, educated on pregnancy-related taboos, screening of high-risk mothers, fertility/infertility treatment, determination of ailments or abnormalities relating to reproductive organs and reproduction. Lastly, preserving and utilizations of herbal plants to manage certain conditions during pregnancy and childbirth (Adu-Gyamfi et al., 2018). According to a distinct study carried out in Burundi and Uganda, TBAs serve as many pregnant women's initial point of contact throughout their pregnancies, labours, deliveries, and postpartum periods. The reason for using TBAs is that the proportion of skilled attended deliveries was much lower, resulting in increased mother and infant mortality during childbirth in resource-constrained conflicted areas (Chi, Urdal, 2018). The results also showed that midwives in the study were adamant to receive additional information on the role of TBAs for MNH. Nolte (1998) proposed that midwives should be obliged to learn about the practices of TBAs, because lack of knowledge may lead to misconceptions and result in negative attitude towards traditional health practice. Similarly, in Canada, aboriginal indigenous midwives also advocate for westernized midwifery care to retain the best traditional values and cultural practices of pregnant women alongside best evidence-based practices (Lee, et al., 2022).

Health professionals' lack of knowledge on traditional medicine may be due to the lack of documentation and formalized guidelines that outline the role of TBAs for maternity care (Miller, Smith, 2017; World Health Organization, 1992). Traditional practice, especially for maternity care, is often regarded as sacred and is not clearly documented in guidelines or protocols. Despite poor knowledge, countries such as Ghana have made efforts to formalise traditional midwifery education and training for TBAs (Aziato, Omenyo, 2018). Most midwives in our study agreed that TBAs should be involved in maternal and childcare. In Nigeria, it is acknowledged that TBAs have the ability and skills to care for a woman during pregnancy and childbirth especially for normal low

risk pregnancy. Several studies have indicated the importance of including TBAs in the formal healthcare system to improve maternal and neonatal outcomes (Haruna et al., 2019a, 2019b).

The results of the study also showed that midwives have a negative attitude toward collaborating with TBAs. Most respondents disapproved of the traditional practice of TBAs and condemning their practice to being unsafe. A similar study conducted in Tanzania also described the perspectives of health professionals on the practice of TBAs for MNH (Crain, 2019). Various obstetric complications were attributed to homebirths conducted in villages by TBAs (Crain, 2019). Furthermore, health facilities in Tanzania are better equipped for emergency situations whereas TBAs were associated with unhygienic practices that could lead to puerperal infections and sepsis (Crain, 2019; Haruna et al., 2019b). Several studies also adds that childbirth is much safer when it takes place in the hospital under the care of skilled birth attendants as current strategy have identified the need to implement skilled birth care in efforts to meet the Sustainable developmental goal (SDG) 3 globally (Ntoimo et al., 2022).

Despite the negative perceptions towards collaboration with traditional birth attendants, the WHO has highlighted that traditional practice has been in existence since the dawn of humankind (Organization, 1978). Traditional midwives have provided maternity and new born care since the biblical era prior to colonisation and, in some settings, childbearing women still prefer TBAs over the health care system (Ntoimo et al., 2022; Soman, 2013). Our findings support the calls for TBAs to be included in the formal healthcare system. Ohaja et al. (2020) confirms the views of midwives on the inclusion of TBAs in the formal healthcare system in Nigeria, where most midwives feel that TBAs engage in dangerous activities and do not know where to draw the line, and often delay transferring women to hospital.

In our study, most midwives had a positive attitude towards collaborating with TBAs with regards to antenatal care (ANC) visits and check-ups of pregnant women only. These findings are interesting compared the findings of other studies. In Indonesia, as in other countries, the ANC period has been identified as the most crucial point of entry of pregnant women (Agus et al., 2018). In Indonesia, pregnant women often choose ANC with TBAs due to traditional beliefs associated with pregnancy, which affected their choice of caregiver (Agus et al., 2018). Despite safe motherhood initiatives having been implemented for two decades now, women in many countries are not accessing health facilities for ANC and are still booking late for ANC, rather using the services of TBAs (Ohaja et al., 2020). In Zimbabwe, pregnant women delay seeking ANC during the first three months of pregnancy due to fears of witchcraft, with many women keeping their pregnancy a secret (Choguya, 2015; Mathole et al., 2005). TBAs could play a significant role in influencing and advocating for childbearing women to attend ANC in most settings as they are respected and may assist in health promotion in the community at large (Magrath, 2022).

Strengths and limitations

This study has some strengths that need to be remarked. This is the first study conducted to determine midwives' knowledge and attitude towards collaborating with TBAs for maternal and neonatal healthcare in South Africa. Secondly, the study consisted of an adequate sample size to reach statistical significance. Lastly, previous studies in Nigeria, Tanzania and Indonesia (Miller, Smith, 2017, Ohaja,et al, 2017 ; Ohaja, Murphy-Lawless, 2017; Panuntun et al., 2019; Shimpuku et al., 2021) have identified the roles of TBAs in maternal and neonatal healthcare and the establishment of partnerships between midwives and TBAs for improved maternal and newborn healthcare. We believe that the results of the study provide new perspectives related to midwives' knowledge and attitudes towards collaborating with TBAs for maternal and neonatal healthcare in South Africa. Furthermore, the results may be useful to policy-makers seeking to foster collaborations between TBAs and SBAs especially at an antenatal level in rural communities and other sub-Saharan African countries with similar contexts. The study recommends collaboration to exist at an antenatal level where, the TBAs will be able to identify complications arising early during pregnancy and timeously refer the women to healthcare facilities.

Our findings may be limited by the absence of a universal or validated questionnaire. We developed the tool specifically for this study. To overcome this limitation, we engaged a team of experts to assess the content of the tool, and we pre-tested the tool. The study was also conducted in one geographic area which limits the generalisability of the results to urban areas. Future studies are needed to determine the knowledge and attitude of midwives in other geographic regions with a more diverse population to enhance generalisability.

Conclusion

The World health organization (WHO) has recommended collaboration between midwives and TBAs as a strategy to increase the use of SBAs where TBAs are providers of childbirth care and are linked with the formal healthcare system. However, not collaborating remains the modus operandi. In our study, registered midwives had poor knowledge on the role and practices of TBAs for MNH. A dearth of knowledge may act as a barrier as midwives and TBAs are working with the same childbearing women, yet not as a team. Midwives in our study were, however amenable to collaborating with TBAs for Antenatal care (ANC) only and not during intrapartum and postpartum care.

Ethical approval

Ethics approval was received from the selected University, Faculty of Health Sciences Research Ethics Committee (approval no 599/2020). Further approval was obtained from the National Department of Health (NDoH) and the City of Tshwane municipality responsible for the clinics located in this district.

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CRediT authorship contribution statement

Maurine Rofhiwa Musie: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft, Writing – review & editing. **Fhumulani Mavis Mulaudzi:** Supervision, Validation.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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