

ORIGINAL RESEARCH ARTICLE

Herbalists' explanations of infertility: The case of Northern and Southern Ghana

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Abstract

In sub-Saharan Africa, traditional medical practitioners also referred to as herbalists, offer diagnostics and therapeutics for diverse medical conditions irrespective of the cause. Given their traditional role as healers and repository of knowledge about medicinal plants, spirituality, customs and religion, people use their services regardless of their location, education, or socio-economic backgrounds. The aim of the study is to explore herbalists' views and explanations on infertility and women with infertility. Using an exploratory qualitative design, semi-structured interviews were conducted with 10 herbalists, 5 from the North-East region, 2 from Ashanti region and 3 from the Greater Accra region. Following thematic analysis, findings show that infertility has multiple causes - medical, natural, spiritual and lifestyle. Some herbalists stated that everyone was created to bear children while others refuted this notion. They shared the common consensus that not everyone can have children even though they may be medically and spiritually fit. The public should be advised on the need for periodic reproductive health checks. Also, there should be a conscious, concerted efforts to gradually dissociate unhealthy explanations of infertility from the actual empirically proven realities. This would empower society to rise above those entrenched beliefs, thereby reducing the stigma associated with infertility and women with infertility. (*Afr J Reprod Health* 2022; 26[5]: 96-106).

Keywords: Herbalists, infertility, Ghana, spiritual, women, qualitative

Résumé

En Afrique subsaharienne, les médecins traditionnels, également appelés herboristes, proposent des diagnostics et des traitements pour diverses affections médicales, quelle qu'en soit la cause. Compte tenu de leur rôle traditionnel de guérisseurs et de dépositaire des connaissances sur les plantes médicinales, la spiritualité, les coutumes et la religion, les gens utilisent leurs services indépendamment de leur emplacement, de leur éducation ou de leur milieu socio-économique. Le but de l'étude est d'explorer les points de vue et les explications des herboristes sur l'infertilité et les femmes atteintes d'infertilité. En utilisant une conception qualitative exploratoire, des entretiens semi-structurés ont été menés avec 10 herboristes, 5 de la région du Nord-Est, 2 de la région d'Ashanti et 3 de la région du Grand Accra. Suite à une analyse thématique, les résultats montrent que l'infertilité a de multiples causes - médicales, naturelles, spirituelles et liées au mode de vie. Certains herboristes ont déclaré que tout le monde a été créé pour avoir des enfants tandis que d'autres ont réfuté cette notion. Ils partageaient le consensus commun selon lequel tout le monde ne peut pas avoir d'enfants même s'ils sont médicalement et spirituellement aptes. Le public devrait être informé de la nécessité de contrôles périodiques de santé reproductive et il devrait y avoir un effort conscient pour dissocier progressivement les explications malsaines de l'infertilité. Cela donnerait à la société les moyens de s'élever au-dessus de ces croyances enracinées pour réduire la stigmatisation associée à l'infertilité et aux femmes atteintes d'infertilité. (*Afr J Reprod Health* 2022; 26[5]: 96-106).

Mots-clés: Herboristes, infertilité, Ghana, spirituel, femmes, qualitatif

Introduction

Infertility has been in existence throughout history and a challenging condition in the lives of couples¹. The concept of infertility is considered one of the unresolved problems of human race². From orthodox medical perspective, infertility is the failure to establish a clinical pregnancy after a year

of regular unprotected sexual intercourse in the absence of known reproductive pathology³. In some studies⁴, about 3.5-16.7% of couples experience infertility in developing countries and about 6.9-9.3% in developed countries. According to medical research, the main cause of infertility is untreated health conditions while those in the developed countries are attributed to aging⁵.

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Obviously, infertility has lots of detrimental effects and hence it has been identified as a global health condition⁶. Due to the combined effects of medical and social consequences of infertility, couples with infertility, especially women resort to different means of resolving this challenge.

Globally, about 80% of the public use a form of herbal remedy for some aspects of primary healthcare⁷. It has also been shown that 80% of Africans use traditional medicine to meet their healthcare needs⁸. This is because herbal medicine is perceived to have a high treatment efficacy and enhance wellness⁷. The use of herbal medicine dates back to prehistoric times; and it has gone through tremendous improvement⁹; however, nothing or very little has improved in the practices of traditional herbalists in the rural areas. For example, as modern herbalists use complex machines in processing and packaging their products⁹, traditional herbalists still process the herbs mechanically just like before. This possibly may be due to their old ways of doing things, lack of social amenities and financial constraints.

Herbal medicine is used by all, notwithstanding their location, educational and socio-economic backgrounds⁹. It should read 'In contrast to other studies, less educated, unskilled or semi-skilled persons patronized herbal medicine more not only because of their poor socio-economic status but also cost and utility considerations¹⁰. Moreover, in a study by Kaadaaga and colleagues in Uganda, about 76.2% of the participants sought herbal treatment prior to medical treatment. They further stated that couples with infertility, below 30 years of age, with primary or no education, and married less than 3 years, used herbal medicine⁸. This contrasting finding suggests that there might be a mediating factor influencing the use of herbal medicine rather than location, educational or socioeconomic backgrounds. People patronize herbal medicine based on advertisements, recommendations by family and friends, naturalness of the medicine without side effects and to avoid delays at the hospital⁹.

Another study has shown that, Ghanaian women choose between modern, traditional and religious caregivers for their childbearing issues¹¹. Due to time-tested success, traditional practices are most preferred¹¹. Herbal treatment is and continues to be an integral part of the health system especially

prior to the advent of western medicine⁹ and hence part of traditional practices. In the 1970s and 1980s in Ghana, the most common infertility treatment methods were by herbalists, juju men, traditional priests and in some cases re-marrying¹². This is perhaps because of the perceived causes of infertility. Although culture is dynamic, the traditional and religious cause and explanations of infertility persist¹³⁻¹⁴.

For example, in sub-Saharan Africa, medical and spiritual treatments are common among couples with infertility especially at the early stages of the marriage⁵. Some studies have suggested that couples resort to different culturally approved means in solving these issues in various societies⁵. For example, couples with infertility in Africa resort to traditional healers and herbalists for treatment⁵ because most consider it cost effective¹⁵.

Herbalists who reside in the rural areas usually practice within their homes. They cut and pluck herbs upon assessments and examinations for their patients. Most of these herbalists are unlettered and have acquired knowledge from generations, belief systems and indigenous cultural practices¹⁶. They are largely known for treating all forms of ailments; physical, psychological, spiritual or conditions caused by invisible forces¹⁶. Thus, they are known to provide comprehensive and holistic treatment¹⁶. For instance, in some studies, herbalists treat malaria, typhoid, infertility, diabetes, hepatitis, injuries and health conditions caused by the unseen, like spirits and enemies¹⁶. In other studies, herbalists also treat diseases and illnesses such as malaria, gonorrhoea, guinea worms, dysentery, headaches, infections, ulcers and infertility¹⁶⁻¹⁷. In the cities or urban areas, modern herbalists usually have qualifications from recognised institutions on herbs and operate in well-furnished herbal hospitals and clinics. In Ghana, most modern herbalists have obtained tertiary education in herbal medicine from the Kwame Nkrumah University of Science and Technology (KNUST) in a 4-year bachelors programme⁹. Herbal medicines and products are regulated and monitored by a regulatory body. For instance, in Ghana, The Food and Drugs Board Authority and the Centre for Research in Plant Medicine regulates and investigates the safety and efficacy of the herbal products before being approved for use⁹.

Major factors influencing the use of herbal medicine in Africa

Several factors affect the choice of treatment method by women with infertility. In a study titled "we are always desperate and will try anything to conceive": the convoluted and dynamic process of health seeking among women with infertility in the West Coast region of the Gambia, women with infertility combined biomedical and indigenous treatment. Their choice was dependent on the perceived aetiology, duration of the infertility and the perceived effectiveness of the treatment¹⁸. Further, it was observed that, other considerations such as affordability, accessibility, socioeconomic status, and respondents' family and social networks played a role¹⁸. Again, limited access to infertility care influenced women to focus on traditional medicine for treatment¹⁹. Other reasons for the use of traditional medicine or herbal medicine are due to patient's cultural and religious values^{11,19}. This is because, traditional medicine encompasses total knowledge, skills and practices based on beliefs and indigenous cultural experiences and therefore easily blends with the people's socio-cultural life¹⁶. For instance, depending on the perceived causes of one's infertility, they consult only to a certain group of healers such as marabouts¹⁸. In some studies¹⁶, patients are more comfortable with traditional medicine healers because of their mode of treatment such as providing explanations to their conditions. For example, according to some herbalists¹⁴, aside treatment, they counselled and encouraged their patients. Furthermore, the herbalists usually spoke the same language as their patients and hence, patients are able to express themselves easily and comfortably²⁰.

In a study to explore the socio-cultural beliefs and practices associated with infertility in Kenya, infertility was attributed to witchcraft and spiritual forces by some herbalists. According to the herbalist, there are some instances the perpetrators even confessed to their doings²¹. This confirms that explanation of infertility especially in Africa are a combination of cultural, religious and health reasons²¹. Consequently, the reason most women usually prefer traditional healers or herbalists. This indicates that, patients usually visit herbalists when

they attribute their conditions to other factors rather than biomedical causes.

According to some studies¹⁸, indigenous healers have diverse ways of diagnosing their patients. For example, they use patterns of cowrie shells, stones, or lines in sand. In other studies²², traditional healers combined history-taking, physical diagnosis, divinations in diagnosing and treating conditions. Further, they used mainly plants, animals, and minerals as the source of their treatment. For example, in some studies², in treating female infertility, flowers, fruits, leaves and seeds contribute to about 65% of the plant parts used while seeds, roots, leaves and pollen grains constitute 88% of the parts used in treating male infertility. Their dosages are also determinant of the severity of the condition, the age of the patient and the healer's experience².

Owing to the high cost of services in the modern herbal hospitals and clinics, most people, especially those with low socio-economic backgrounds, seek for treatment from the traditional herbalists. Hence, there is the need to explore and understand the views of herbalist on infertility, the aetiology and how they explain it. This is because, women in Africa utilize herbal medicine for their infertility problems⁸. Furthermore, according to some studies, women frequently use herbal medicines for their gynaecological conditions¹⁰.

Notwithstanding the current knowledge and extensive research on herbal medicine, most studies on African herbalists have focused on the modern herbalists operating from clinics and hospitals. Looking at the different modes of treatments, locations, and experiences of these herbalists (traditional herbalists) especially in the rural areas, there is the urgent need to get close to them and find out their views and mode of treatment for infertility. This has become imperative because most of their oral knowledge, observations and experience acquired through their practise are undocumented. Looking at the enormous impact they have made in their communities as regards to how they treat infertility and other conditions, there is the need for them to be closely studied and documented. Therefore, the present study aims to explore herbalists' views and explanation of infertility.

Method

Study design

To better capture the causes and explanations of the condition, the herbalists with whom women with infertility solicited treatment, were interviewed face-to-face. Thematic analysis was applied and aimed at exploring the descriptions, causes, treatment, and explanations of infertility. This approach has become imperative, because in some studies obstetrics and gynaecology patients utilize herbal medicines more, for diverse reasons. The current article focuses on the explanations of infertility among the herbalists.

Study location

The North-East, Ashanti and Greater Accra regions of Ghana were the study areas. To capture the traditional and cultural aspects of the phenomenon, the herbalists were selected from three regions to establish the similarities and differences in their meaning-making. From the North-East and Ashanti regions, the rural dwellings of these areas were the specific study areas, whereas in the Greater Accra region, Sakaman in the Accra metropolitan District²³ was used. The East and West Mamprusi municipalities formed the Northern location. East Mamprusi is sited at the North- Eastern part of the Northern region sharing its west boundary with West Mamprusi²⁴. Kwabre East and Kumasi Metropolitan assembly formed the Ashanti region, which is the most densely populated region in Ghana²⁵.

Herbalists

Herbalists use different herbs to treat different categories of diseases and illnesses. Their expertise and knowledge on the efficacy of herbs are mainly passed down from their elders^{16,26}. In northern Ghana, herbalists, particularly those in the Muslim states, charms or talismans are applied together with other herbs²⁶. Some sons are trained by their fathers on how to use certain herbs to cure some specific diseases. With time, such families become specialists in treating those specific conditions²⁶. Furthermore, traditional medicine, mostly administered by traditional herbalists are known to

treat both symptomatic and hidden conditions. They are known to treat conditions caused by spirits, ancestors, or enemies. Herbalists are known for treating all kinds of diseases and illnesses such as malaria, chicken pox, gonorrhoea, guinea worms, dysentery, headaches, ulcers and others^{16,26}. As a result, they are known to be "complete healers".

Herbalists use different methods in treating different conditions. For example, herbalists treat headache with a kind of pap made from green leaves and the patient is asked to apply to the affected areas²⁶. Moreover, Boils were opened freely by the herbalists making about three or four long cuts with a knife. The wounds were then allowed to suppurate; herbal medicine was then applied to cure and close by itself²⁶.

Difference between herbalists in Southern and Northern Ghana

Most of the herbalists in the north have no formal education. In addition to using herbs for treatment, they also did divinations to ascertain the cause of diseases, illnesses, and conditions. They also performed animal sacrifices as part of their treatment processes unlike the southerners. Most of them identified themselves as herbalists and soothsayers.

While the southerners mostly prepared their treatments by boiling the herbs (decoctions), pounding or grinding into powdered forms, the northerners burnt the herbs into charcoal forms. Though some of the herbalists in the rural areas had exclusive places of dispensing their vocation, they also operated from within their homes, using their verandas.

Similarities

Both herbalists in the north and south were males, profess a kind of belief system or believed in an external power outside of them. According to some of the herbalists, herbs are living things and so they must get the ability to communicate with them. To get that ability, one needed to possess some powers to know when and how to communicate with the herbs. This, to him explains why they all profess a kind of belief. They also treated common diseases such as skin rashes, infertility, malaria, among others. They mostly held certain religious or

traditional positions in their communities. For example, some of the herbalists in the north were Imams /Muslims Clerics and those in the south are leaders or pastors in their churches. As such, they are highly respected, powerful, and influential in their communities.

Differences

Most of the herbalists in the north were Muslims, while those in the south were mostly Christians and traditionalists. The southerners were mostly herbalists while those in the north were soothsayers as well.

Participant's recruitment

To recruit participants, some stakeholders in the communities (heads of families) were first contacted about the phenomenon and which herbalists were efficient in treating the conditions. Through their help, the herbalists were identified and subsequently asked to partake in the study in North-East and Ashanti regions. In the Greater Accra region, the herbalists were approached directly, and their consent were sought. After the consent was granted, dates, times and venue for the interviews were suggested by the herbalists. The interviews took place at their premises where they considered comfortable. Interviews were audio recorded with the permission of the participants, and notes were also taken. In total, 10 herbalists were interviewed: 5 from the North-East region, 2 from Ashanti region and 3 from the Greater Accra Region. Their experience varied between 3-40 years. The content of the notes involved the surroundings, the herbs and mode of preparation, their demeanour, mood and body language as they shared their experiences. In terms of education, the participants' education ranged from informal education to tertiary education. However, the educated ones had their studies in other fields except one who had a degree in herbal medicine.

Data collection

In-depth interviews were the main data collection methods. The principal investigator carried out all the interviews in the North-East Region with the help of a translator who was a native speaker of the language and a graduate teacher. However, the

other interviews in the Ashanti and Greater Accra regions were carried out only by the principal investigator. Interviews in the Ashanti region was conducted in Twi and as a native speaker of the language, the researcher needed no translation. The interviews in the Greater Accra region were conducted in English. For the participants to feel comfortable, a considerable amount of time was spent in establishing rapport and explaining the purpose of the study. This empowered them to feel free to express their views on the aetiology and treatments of the phenomenon. Rapport was established before the commencement of the interviews. Each interview lasted between 50 to 60 minutes.

Data analysis

After listening to the interview recordings repeatedly, they were transcribed verbatim. The interviews from the Ashanti region were translated from Twi to English by the First Author; the interviews from the North-East and Greater Accra region were already in English. The texts underwent thematic analysis using the six-phase guide of doing analysis by Braun and Clarke²⁷. That is familiarizing to know the data, generating initial codes, searching for themes, reviewing themes, defining, and naming themes, and producing the report. The main theme and sub-themes were extracted from the transcripts through the process. The main theme was causes of infertility with four subthemes: spiritual, medical, lifestyle and natural causes. In establishing subthemes, we extracted statements with meanings that emerged in most transcripts. The coding was driven by the guidelines of the coding manual for qualitative researchers²⁸.

Results

Herbalists formulated their views on the causes of infertility based on the cases they have treated and through their observations and experiences over period of years. They stated medical, spiritual, lifestyle and natural causes.

Medical causes

The herbalists often referred to medically identifiable physical factors as causes of infertility. Among the causes they mentioned were irregular

menstrual cycle, hormonal imbalance, problems in the lower abdomen and infections. In their view, these are key obstructions to pregnancy or childbirth. These views were in line with orthodox medicine and that showed the herbalist's medical knowledge. However, they stated that unorthodox (from the point of view of medical science) means, such as herbs, can successfully be used for treating these.

"when you come to the study of hormones, some women are more likely to have more testosterone than oestrogen and that can interfere with hormonal balance and you may do everything to bring it to a balance and they still they won't go pregnant" (a 67-year old, Greater Accra region)

"One of the challenges is irregular menstrual cycle or challenges and sicknesses along the lower abdomen or womb can hinder the woman's ability to conceive" (a 67-year old, North-East region)

"In women, the fallopian tube can be having some infections.....maybe chlamydia blocking the fallopian tube" (a 46-year-old, Ashanti region)

Spiritual causes

Besides resorting to medical knowledge, the herbalists also relied on traditional African beliefs on infertility. Almost all the herbalists stated that there are spiritual causes to infertility. Some speculated wombs of the victims are removed spiritually due to envy, jealousy, and ancestral curses. Others predicted infertility was as a result of women married spiritually by some entities without their consent. Moreover, only two of them stated there were no spiritual causes to it or even if there were, it was negligible. Furthermore, they stated that what is perceived as a spiritual husband or wife is a psychological or physiological deficiency of sex. In addition, it was believed that not all causes can be explained by science.

"Spiritually, there could be an attack...a spiritual curse in the family...ancestral curse or covenant...maybe his or her grandparents went in for some favours and that is the prize for it. For example, they may be having only a few people in the family, and so. they go to a god to help them get more people in the family ...therefore the family in return may have to...dedicate all their female borns in the family for the god to marry...so they are

unable to have children"(a 46 -year old, Ashanti region)

"It is true they experience those things ...soiling their beds etc....and there are psychological and physiological causes...the real spiritual cause for this is negligible...there are entities we call them incubus and succubus and they come in to fill it in for you. The males are known as incubus....and they sleep with the women and the succubus sleep with the men. Men experience succubus and women experience incubus...that's how we call them...but that's exceedingly rare. 99% of these dreams are because you are sexually starved....so it's a physiological need" (A 67-year-old, Greater Accra region)

"You may have a woman who on a laboratory examination... is fertile, and everything is fine... and the man too is very viable...ok. but they cannot go pregnant...however, let them separate... for the woman to get another man...she will easily go pregnant...science cannot totally explain all these and there are several cases of that". (a 67-year-old, Greater Accra Region)

Lifestyle

The herbalists also thought that sometimes, the lifestyle of people predisposes them to infertility. Examples of these lifestyle factors were indulging in illegal abortions, eating unhealthy foods, drinking a lot of alcohol and smoking.

The lifestyle factors that were thought to increase the risk of infertility among women were related to abortions and the modern, sugar-rich diet.

"Abortion might destroy the womb especially if they are teenagers and they keep aborting....it can destroy the womb.... the womb can develop sores...abortion is in categories...this usually occurs...when it is done illegally" (A 45-year-old, North-East region)

For men, lifestyle factors inducing infertility were related to modern clothing, poor diet, and such unhealthy habits as smoking and drinking alcoholic beverages. These were seen to have detrimental effects to their sperm count.

"Nylon pants can cause that if panties are not made of cotton...it can reduce the sperms or reduce the strength of it" (51-year-old, Greater Accra region)

“Through some foods...plain rice without anything like vegetables, stew etc....can reduce sperm” (70-year-old, North-East region)

“Some of the causes are alcohol intake and smoking...if it's too much can cause low sperm count.” (51-year-old, Greater Accra region)

Natural occurrence

Some herbalists thought that sometimes a woman just is not able to conceive, without a specific reason. They believed not everyone is designed to have children. They saw men's infertility as something that can be medically ascertained by testing the sperm.

“There are people who from the onset cannot conceive or cannot give birth so that happens.”

(a 70-year-old, North-East region)

“Not every woman is designed to have children.... With men, it is very easy to know with today's scientific test that you are azoospermia and so you can't have a child...”

(a 67-year-old, Greater Accra region)

One herbalist also said that despite male infertility, couples sometimes mysteriously succeed to conceive.

“but there has been cases also of male azoospermia and suddenly the man gets a child and we may all think that....no....the woman passed somewhere (unfaithful)..you do the test and you will know that it is the man [who is the father]...once something happened outside of this world...just one sperm or two happen to be strong enough to look for the ovum....find it and fertilize so these are the variables in life and the uncertainties that makes life exciting....life is supposed to be an adventure” (a 67-year-old, Greater Accra region)

Discussion

The findings show that infertility is not only seen by herbalists as a medical condition but as having other causes. According to the herbalists, there are medical, spiritual, natural and lifestyle causes to infertility. These are in line with studies which suggests that infertility is believed to have spiritual, medical and lifestyle causes²⁹. For example, studies by Fido and Zahid²⁹ in coping with infertility among Kuwaiti women based on their cultural perspective, said that some attributed the cause of

their infertility to supernatural causes such as witchcraft, evil spirits or God's retribution. Though spiritual explanations to life challenges seem to be more common in certain societies, in other studies³⁰, these explanations are universal and one's failure to admit it is due to their limited or unfamiliarity with the theoretical thinking of their own culture. For instance, though some Western societies may vehemently disagree with this assertion, it could be because they have transcended the stage of spiritistic to factual explanations. Nonetheless, residues of spiritistic explanation remain a basic part of their mental makeup and are deeply rooted in the philosophical thoughts of many contemporary Westerners including philosophers and scientists. Consequently, it should not be overemphasized that only certain societies or groups of people associate life challenges to supernatural powers. Therefore, societies should consciously and critically assess the traditional beliefs, enhance those that serves them and abandon those that oppress the less privileged and favours the influential people. Additionally, the unvaluable traditional beliefs should be replaced with grounded knowledge for the betterment of society.

Furthermore, it was believed that nutrition also contributed to infertility. This is corroborated in studies^{29,31}. Sharma and colleagues have established that nutrition has a great impact on infertility because certain foods and vitamins have a great impact on reproductive health. In this current study, the herbalists stated nutrition or diet contributed or caused infertility. The herbalists added that people eat unhealthy foods or unbalanced diet and mostly ignored vegetables and consumed lots of sugar. Moreover, two of the herbalists said that from their experience and observation, women with swollen feet experienced infertility more. According to them, those symptoms give them an idea on how to treat such patients.

In terms of lifestyle behaviours, they also believed that excessive smoking and drinking of alcohol could cause infertility. This finding is also in line with³¹⁻³² which states that excessive smoking and drinking causes infertility. However, the herbalists explicitly concluded smoking causes low sperm count. This is possibly because some men usually smoke in sub-Saharan Africa. This is consistent in a study by³³. They observed that

certain lifestyles are gendered, and smoking was more common among men.

The type of clothing men wear is seen to contribute to infertility. According to the herbalists, the nylon panties men wear generate heat and can reduce sperm production and this is in line with some studies³⁴. In their study on lifestyle factors and reproductive health in taking control of infertility, they concluded that type of clothing men wear affects their reproductive health. Moreover, in other studies, Jung³⁵, has established that tight-fitting underwear by men increases scrotal temperatures affecting semen quality.

In addition, it was also observed that recurring abortions were dangerous and had the possibility of causing bruises or sores in the womb leading to infertility. They stated that, these challenges mostly occur when women indulge in illegal abortions. This is also consistent with studies by Tabong and Adongo³⁶ in a qualitative study exploring the social meaning of infertility and childbearing in Northern Ghana.

Most of the herbalists stated irregular menstrual cycles, hormonal imbalances and untreated candidiasis caused infertility. This is consistent with studies by Rashid and colleagues³⁷ in their study on hormonal imbalance of primary women with infertility. They established that hormonal imbalance in women cause infertility. In addition, in some studies³⁸ hormones contribute significantly to the reproductive health in women. Furthermore, Roupa and colleagues³⁹ have also revealed that menstrual irregularities cause infertility which is in line with the current study. Untreated or poorly treated candidiasis was also found to cause damages to the womb leading to infertility. This is also in line with studies by Pellati and colleagues⁴⁰ investigating on genital tract infections and infertility. They concluded that infectious agents could impair reproduction in humans.

In addition to physical explanations which were in line with orthodox medicine, the herbalists resorted to traditional African beliefs referring to spirits. According to the herbalists, ancestral or generational curse in a family could cause infertility. They explained that it happens when some grandparents seek assistance from a deity, for example, for riches. Consequently, out of gratitude,

the deity or the family may decide that girls born into their family in some generations to come, should be childless or be married to that deity. As such these women may have to seek spiritual assistance, else may never bear children.

Some herbalists also believed that some childlessness was due to spiritual marriage; that is being married to a spirit. This they told happens to both men and women. In the case of the women, the spirits out of jealousy may prevent them from bearing children or even getting pregnant. However, according to one herbalist and a naturopath, though spiritual causes to infertility may exist, it is negligible. He explained that though married and unmarried couples may feel they had had sex without any physical contact with anyone, it is because of sexual starvation and or a physiological need. He explained that some entities which are known as incubus and succubus are responsible for that. Incubus are male entities who have sex with the women and succubus have sex with the men. Furthermore, he stated that some women feel, think, and believe they cannot get sexually aroused on their own. Hence, when that occurs, they feel a spirit is responsible.

It is noteworthy that though most people, including herbalists claim everyone is born to procreate, some herbalists have refuted this notion. To them, not everyone is here on earth to have children. They buttressed their point by saying that, though some women may be medically and spiritually fit, they cannot simply get pregnant. All in all, the findings show that the herbalists are aware of medical knowledge of the causes of infertility. In addition, though some still relied on spiritual causes to infertility, some refuted the assertion. In several studies in Africa, infertility has been linked to spiritual causes such as curses and witchcraft^{41,36}. Though the herbalists mostly associated infertility with biomedical causes, majority of them entangled the causes with supernatural or spiritual causes. Some emphasized that infertility can be caused by lifestyle or be a natural occurrence. Since most of the herbalists interviewed were mostly old and held strongly onto the culture and traditions of their respective communities, it was expected that they were likely to associate infertility to spirits.

Ethical approval and consent to participate

The Ethics Committees of the Universities of Eastern Finland and Ghana (Humanities section) granted approval. Verbal and written consent was available for participants however, all the herbalists gave a verbal consent irrespective of their level of education. The researcher translated the consent form into participants' preferred languages. The specific locations of the participants were Tafo, Walewale and Sakaman in the Ashanti, North-East and Greater Accra regions respectively. The study was approved by the Ethics Committees for the Humanities, University of Ghana (ECH 015/ 17-18), and the University of Eastern Finland Committee on Research Ethics (statement 21/2017).

Conclusion

From the findings, there are some known causes of infertility which can be prevented. For example, diet, or nutrition, excessive smoking and alcohol consumption including illegal abortions. This calls for education and sensitization in various communities. People especially women should be encouraged to pay attention to their reproductive health issues and once a while access reproductive healthcare. Again, it is in the interest of government to offer support to herbalists to acquire new skills via training programmes. Herbalists should be regulated, monitored and, especially those in the rural areas, trained periodically on the current discoveries of the causes of infertility. Lastly, some of the older, conservative traditional herbalists seem to reproduce the superstitious and malignant beliefs about infertility. Nonetheless, these explanations are deeply rooted within societies and consequently within people irrespective of their backgrounds. Therefore, a gradual process of dissociating such explanations is pertinent and essential. For example, due to the influential, central, and authoritative position of herbalists in the communities, they can be educated on the need to provide research-based explanations to life challenges such as infertility. This will empower them to rise above those entrenched beliefs to reduce stigma associated with infertility and women with infertility.

Recommendations

Further studies are required in this field to access the in-depth knowledge of these local health care professionals. This is because their knowledge, which is as old as human race, is largely undocumented. If we can understand their modes of assessment especially in the area of infertility, several cases may be treated. Moreover, since they are more observant, some of their observations and feedbacks can be evaluated to better appreciate the aetiology of infertility.

Future studies should explore how traditional herbalists come to know the use and treatment efficacy of herbs and their possible side effects. This will help future generations to build on the knowledge to treat other health conditions.

Authors' contributions

DOB led the study, designed, collected data, and drafted the manuscript. VH helped to design the study and participated in writing the manuscript. Both authors read and approved the final manuscript.

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Availability of data and materials

The data are not publicly available because they contain information that could compromise research participant privacy/consent.

Competing interests

The authors declare that they have no competing interests.

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