

Original Article

'I think one of the ways they will help is to create awareness': primary school teachers' perceptions of cardiovascular diseases in Nigeria

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Abstract: The increasing incidence and prevalence of non-communicable diseases is a major global health concern. Cardiovascular diseases (CVDs) account for the highest percentage of deaths related to non-communicable diseases, and low and middle-income countries (LMIC) face the highest burden of CVDs. Understanding the knowledge and perception of CVDs and their risk factors in an LMIC such as Nigeria may play an important role in cardiovascular health promotion and improvement plans to reduce CVD-related deaths. A qualitative study was conducted using semi-structured interviews to gain an in-depth understanding of some personal and sociocultural views on CVDs and their risk factors. The participants were purposively sampled primary school teachers in South-Eastern Nigeria. Thematic analysis approach was used for data analysis. The study findings include knowledge of heart disease, perceived causes and risk factors of CVDs, spirituality, and the way forward. Overall, the knowledge of CVDs in the setting was found to be related to the psychosocial nature of the participants; the effectiveness of any intervention needs to take these factors into consideration. For example, health policies for CVD health education and awareness should be tailored to address some of the issues of belief, values, and religion, as mentioned in the study.

Keywords: chronic disease/non-communicable disease, culture/health education, health promotion, heart health, qualitative study, risk factors, religion and spirituality, Africa

Introduction

Cardiovascular diseases (CVDs) account for the highest proportion of deaths related to non-communicable diseases, followed by cancer, chronic obstructive pulmonary disease, diabetes and others (1,2). Low and middle-income countries (LMIC) may face the highest burden of CVD, and it is one of the major causes of premature death and disability in sub-Saharan Africa (SSA) (3). Nigeria, with its high poverty rate (4), has a CVD-related mortality rate

that is about 7% (5), and the prevalence rate of this health problem is projected to increase. Lifestyle factors such as alcohol consumption, smoking, and malnutrition may influence the burden of CVDs in the country, and these modifiable risk factors can be better managed to reduce CVD prevalence. Thus, exploring the knowledge and perception of CVDs, and their risk factors, may play an important role in the prevention and control of CVDs in Nigeria. The purpose of this qualitative study was to gain an in-depth understanding of knowledge and

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perceptions of CVDs and their risk factors among primary school teachers in South-Eastern Nigeria.

Background

A meta-analysis revealed that 10% of West Africa's population is obese (6). In addition to tobacco and alcohol consumption, identified as major risk factors of CVDs (7), abuse of these substances increases the risk of other comorbidities of CVDs (8). For example, a cohort prospective study in Cameroon involving 320 adults showed that increase in cardiovascular death was related to alcohol consumption (9). The issue is not gender selective as there is an increasing number of male and female smokers in SSA (10,11).

Socioeconomic factors may be contributors to cardiovascular risk as a result of psychosocial stressors (12). However, a mixed-methods study in Nigeria found that some participants referred to heart disease as a poor man's disease (13). Baum *et al.* (14) identified inadequate housing, potable water, sanitation, overcrowding, and environmental pollution as some of the stressors that predict health status in Sub-Saharan Africa. Some of these reviewed studies focus on the epidemiological risk factors of CVDs. However, in Nigeria, there is the need to gain in-depth understanding on perceptions of CVDs and their risk factors in order to develop effective corresponding health intervention policies.

Poor awareness of stroke was identified among staff and students of Obafemi Awolowo University Teaching Hospital, Ile Ife, Nigeria (15). Using a systematic random sample of 370 participants in a hospital, it was found that 29% did not know that the brain is the organ affected by stroke, 13.8% believed that evil spirits or witchcraft cause stroke, 61.1% preferred to receive medical care for stroke in hospital, and 13% preferred treatment by a spiritual healer (16). This poor knowledge is an indication of the need for more health education on CVDs in Nigerian communities. Moreover, these quantitative studies do not offer in-depth understanding of CVD perceptions.

Darr *et al.*'s (17) qualitative study in the UK found beliefs that genetics, lifestyle choices, and stress cause coronary heart diseases. Beliefs about heart diseases may influence rate of recovery, compliance with medication regime, and likelihood to follow

healthy lifestyle recommendations (18). For example, cultural beliefs and practices (e.g. eating habits, overweight being a sign of prosperity, caring for the family above one's needs) are barriers to improving coronary heart disease prevention in South Asian communities (19). This highlights the need for better knowledge of CVD, the risk factors, and appropriate preventive measures.

Justification for study

A planned health intervention strategy that focuses on the education/training of teachers on CVD and its risk factors may be helpful in addressing the increasing health burden of CVDs in the study setting and Nigeria. More so, teachers can be key agents of change at the grassroots level (20,21), and they have been used in successful health education campaigns (22,23). In a WHO study, teachers in Bangladesh (a developing country like Nigeria) volunteer in health education campaigns geared towards improving family health, child and maternal mortality, water and environmental sanitation, and nutrition (24). In order to determine a health education program for South Eastern Nigeria, qualitative research using teachers will help explore some of the perceptions of CVDs and the sociocultural factors associated with this health problem, hence the rationale for this study. Additionally, this study may add to the body of knowledge on CVD perceptions; specifically, on how knowledge and perception of CVDs may vary among individuals of the same cultural background and educational level.

Methods

The aim of the study was to understand knowledge and perceptions of CVD and its risk factors among primary school teachers in South-Eastern Nigeria. Thus, the study employed a qualitative method of inquiry using semi-structured interviews (25,26). Additionally, the study was underpinned by Symbolic Interactionism (SI) because SI views knowledge and meanings as constructed from individuals' interactions, and considers people as major factors or agents of change. As a result, SI is deemed suitable to understand the perceptions of CVDs by participants who are members of the study setting.

Table 1. Demographic information of study participants.

<i>Participants</i>	<i>Code name</i>	<i>Gender</i>	<i>Marital status</i>	<i>Educational qualification</i>	<i>Years of teaching</i>	<i>Ethnic group</i>	<i>School location</i>	<i>Religion</i>
P1	R1	F	Married	NCE	20	Igbo	Rural	Christian
P2	R2	F	Married	NCE	8	Igbo	Rural	Christian
P3	R3	F	Married	NCE	12	Igbo	Rural	Christian
P4	R4	M	Married	B. ED	29	Igbo	Rural	Christian
P5	U1	F	Married	NCE	23	Igbo	Urban	Christian
P6	U2	F	Married	NCE	12	Igbo	Urban	Christian
P7	U3	F	Widow	NCE	15	Igbo	Urban	Christian
P8	U4	F	Married	B. ED	26	Igbo	Urban	Christian
P9	U5	M	Married	NCE	30	Igbo	Urban	Christian
P10	R5	F	Widow	NCE	11	Igbo	Rural	Christian
P11	R6	M	Married	NCE	17	Igbo	Rural	Christian

Study sample and location

The study used a purposive sampling method, thus, it allowed for deliberate recruitment of persons considered appropriate for inclusion into the study (26). The inclusion criteria were: participants must be actively teaching in a primary school, be an adult, and understand the research question posed. Hence, primary school teachers were recruited from six primary schools in urban (three schools) and rural (three schools) regions of Enugu state, Nigeria. In each school, two teachers were selected. However, the different locations chosen were not for comparative purposes, but aided to cover more teachers from different communities within the state. A total of 11 participants took part in the study: eight women and three men, with ages between 40 and 65 years. All the participants are Christians, with a National Certificate on Education (NCE) or a Bachelors in Education (B.Ed.), and they speak Igbo and English (see Table 1).

Data collection

Prior to the commencement of the interviews, ethical approval was granted by the University of Sunderland Research Committee, UK. Approval was also sought from the heads of the selected schools, and risk of participants' harm from the study was kept to the barest minimum (27). The recruited participants received about US\$10 as honorarium, chose a convenient time and location for the interview, and were allowed to speak in English or

Igbo language. The semi-structured interviews lasted for about one hour, and the lead researcher did the Igbo to English language translations where necessary during the transcription process.

Some of the interview questions were: what do you understand by the term CVDs, and what do you think may be the causes of this health problem? Nonetheless, when a participant made a statement that needed more clarification, further probing was adopted to explore issues that are important to the phenomenon studied (28). The participants were not pressured for answers and they were allowed to stop whenever they felt uncomfortable (29,30). The collected data were safely stored as transcripts with non-identifiers in a password-protected electronic device.

Data analysis

For data analysis, a thematic analytic approach (developing themes from the raw data) guided by the steps suggested by Bryman (29) was followed. They included: (a) transcribing recorded interviews verbatim (done manually); (b) reviewing the transcripts together with the field notes to identify vital points in the data analyzed such as overlapping or unique points, and certain expressions (e.g. metaphors); (c) focusing the analysis to reflect the purpose of the research, hence, identification of main codes; (d) grouping similar codes into themes; (e) identifying themes that are central and have more applicability; (f) all themes were examined and pattern of connections (e.g. similar or contrasting

views) between themes were identified in order to group themes together to produce major themes. The thematic analytical steps mentioned were iterative, and, to ensure credibility of the study, we employed some strategies. First, a member check was conducted to ensure the major themes aligned with the participants' views. Second, the data collection and analysis processes were noted and documented. Third, findings were also compared with existing knowledge in the literature. The data analysis process was conducted manually.

Findings

The four major themes identified were: knowledge of heart disease, perceived causes and risk factors of CVDs, spirituality, and the way forward.

Knowledge of heart disease

This theme describes the knowledge of CVD from exploring what CVD means to the respondents, how common they perceive it to be, and their ability to describe the symptoms. For example, one of the participants gave the following response to a question about what she thought was the most challenging health issue in her community:

The most common disease we suffer here in Enugu is malaria, but in most cases, you hear people die abruptly and when they are taken to the hospital to check the cause of their death, people say it's heart attack or heart failure . . . we don't even know how the heart failure starts and how to control it (U3).

Another participant described how the curiosity about heart diseases from some members of the community comes after a person who may seem healthy dies abruptly. The participant mentioned:

So, when the person [deceased] is diagnosed maybe through autopsy it will be said that the person died of a heart attack . . . then many people started asking what is this heart attack (R4)?

The sample showed varied but little knowledge of heart disease. Additionally, most of the participants lacked the basic knowledge of early symptoms of

any type of heart disease. One of the participants could not distinguish that heart disease is different from increased blood pressure. However, all the participants agreed that any adult may be at risk of having heart disease. As mentioned: 'Anybody can get heart disease as long as life is concerned, anybody that has life and is a human being and has a heart can develop heart disease' (U2).

Perceived causes and risk factors of CVDs

The sample, while describing their views of heart disease and its causes, described who they think is at high risk of developing heart disease. One of the participants explained what he thinks are the possible causes of heart disease:

. . . I know that to my own understanding that many things can cause it; one is thinking, thinking can cause heart attack, then malfunctioning age [older age] because I know that as one advances in age the heart beat goes faster. So, another one is something like . . . the types of food people eat . . . alcohol consumption . . . could cause heart attack (R4).

Some of the participants mentioned a change in the type of food they consume. A participant (U1) believed increasing consumption of fruits and vegetables is key to better heart health and preventing CVDs. According to her, the experience her family had with heart disease made them more careful: 'This has affected the whole family as everyone is more cautious about what they eat'. Interestingly, another participant was more concerned about maintaining her psychological wellbeing as a way to prevent CVDs. She described:

I don't allow people to annoy me like I abstain from getting angry, and over-thinking. Most times I think about my children, and not on how they will succeed in life (R3).

Most of the respondents believe that heart diseases can be inherited and if it is not in your family history, you will likely not have any CVD incidence. For example, a participant (U1) mentioned: 'I don't think so, because there are some diseases which are said that goes in lineage'.

Furthermore, economic hardship, and lack of social amenities were some of the recurrent themes identified from the described experiences and perceptions of the participants. For example, lack of money to eat healthily was identified by one of the participants as a barrier to good cardiac health. She (U1) described: 'When you go to the market you will see the price so at times capital [money] will be a barrier . . .' They also pointed out that poor salary and pension incomes by the government are barriers to adopting a healthy lifestyle:

What I see as a barrier is still lack of fund like money because our salary is very poor. Before you pay your children's school fees, do one thing or the other, you will see that you are left with nothing and you will resort to thinking how to make ends meet. So, it will give you much stress and thinking and one will over work one's self (U3).

Although the sample did not complain of absolute poverty, they talked about not having enough money for medical check-ups that can help detect heart disease on time, pay for medications, and access to other appropriate medical care:

There is no hospital that you will go to for whatever kind of check-up that they will tell you that it is free and because of that money people are dodging . . . just like the one [deceased] that happened few days ago down there [pointing at a place], if that lady had gone to the hospital for a check-up maybe her death would have been prevented (R5).

Some of the participants explained that because of lack of money, people have resorted to patronising local untrained drug vendors instead of seeking for appropriate medical services from health professionals and hospitals. A person's heart condition may worsen without funds to seek professional medical help and according to one of the participants:

This will result in the disease to develop too much, which will result that by then a medical doctor cannot do anything again when he/she is taken to the hospital (R2).

Spirituality

This theme refers to the views that mystical, and especially diabolic activities are associated with

heart diseases. The theme emerged from participants' belief that some types of disease like stroke and heart attack can be sent paranormally through occult incantations and charms from an enemy or an evil person (witch/wizard). This is one of the participants description of what causes heart disease:

Hmmm as it regards to stroke, it is believed that people can drop it [charm/poison] for others, and that some get it through stepping on it as poison kept for them by their enemies (R2).

The question of if heart disease can be sent mystically was probed further and another participant (U4) responded: 'Nothing is impossible in this world now oh! I don't know how they do it, they may call the person's name or something and the thing [heart disease] will just affect him/her'. However, some of the participants dismissed the possibility of a heart attack resulting from spiritual attack:

I don't think it could be possible because ignorance is a disease. We ignore certain things which we have to look into . . . suspecting one another to be the cause of our problem instead of looking for a solution to our problem and some people don't even visit the hospital to check themselves (U2).

Another respondent gave her response based on her faith. She believes that heart disease can be sent to someone but religious interventions can help save the person. She explained: 'Some of these diseases can go through deliverance, and the affected person will be free which shows that it is demon that causes some of the diseases' (U3).

Religious belief manifests in some of the participants' statements when they describe their risk of getting a heart disease. Specifically, prayer and faith were identified as a protection against heart disease. A participant described what she does frequently to reduce her risk of having a heart disease:

. . .there is nothing extraordinary that I do apart from putting it in prayers, anytime I pray, I do ask God to prevent any form of diseases for me, be it heart or any other diseases (R2).

The way forward

The participants may not have shown adequate knowledge and awareness of CVD but their suggestions on how to improve the health of the members of their community emphasizes the role of teachers in health promotion. In addition to basic amenities, providing access to healthcare was suggested by one of the participants:

My suggestion is that there is supposed to be doctors inside villages to see, for the health and wellbeing of the women and men inside the villages who are farmers and do not have good education (R5).

Some of the participants suggested that creating awareness in the media and training of teachers by the government will help to bring about more knowledge of heart diseases and how to prevent them in the community:

I think one of the ways they will help is to create awareness; some of these people are suffering these diseases because they don't know anything about it, the cost and how they can even prevent it when it comes . . . if you people will do it in a way that teachers will be trained, organize a seminar for them so that they will be aware of all these things, then we will carry them to the pupils and the pupils will take it to their parents at home (U5).

When the participants were probed to know if there has been any form of awareness campaign, workshop or seminar in their school on heart diseases or any other non-communicable disease, the answer was 'no' among the teachers in the rural primary schools. This was a rural school teacher's response to the question: 'No, since I came here I have never seen [awareness campaigns], is only the immunization people that come once in a while to immunize the children' (R6). One of the participants (U3), an urban school teacher, stated that health educators come to their schools not necessarily to educate them but to market their products.

Discussion

Our study highlights issues of poor knowledge of CVDs, perceived risk factors and causes, and the use

of spirituality to make sense of the symptoms. The poor knowledge of CVD identified in our study is similar to other quantitative studies conducted in Nigeria (15,16). Most of the study participants believed that anybody can have a heart disease irrespective of gender and this appears to differ from the findings of other studies in developed countries (31–33) that found CVDs to be viewed as diseases of men. Although our study found that poor lifestyles (e.g. smoking and drinking) are viewed as CVD risk factors, these lifestyles are attributed more to men than women and cause men to be viewed as more at risk than women (32).

Similar to other studies in the UK and Ghana (17,34), the study participants think that people with family history of heart disease are those who are most at risk of having heart disease. Another risk factor that most participants in our study emphasized was age (18), but they could not provide any explanation. Consequently, attributing heart diseases as a normal part of aging may negatively influence uptake of a healthy lifestyle in older age.

Participants in our study believe that psychological factors (e.g. emotional distress), unhealthy lifestyle choices, and physical stress can cause CVDs and these findings are in line with other studies (12,35–37). Similar to findings of studies involving people from South East Asia, our study identified affordability of a healthy lifestyle as a major issue (17,19). Adults in the study setting may struggle to provide for their families while in poverty. Thus, there may be no funds reserved to support healthier living, emphasizing that lack of financial resources is a major barrier to better health outcomes. It is also possible that the participants saw the study as an opportunity to complain about their poor salary incomes from the government and how this may be impacting their health. This was not explored further as it is beyond the scope of the study.

The study shows a strong influence of religion/faith on understanding CVDs in the study setting. For example, participants' suspicions of witchcraft as the cause of CVDs highlights the poor level of CVD knowledge and awareness, and how meanings are constructed in the setting studied (16). Furthermore, unlike those in urban areas, participants in rural areas believe that diseases can be sent through mystical means. Cultural beliefs and spirituality may also influence health-seeking behaviours of individuals.

This influence is also seen in some of the study participants' (Christians) preference of a spiritual healer over an orthodox medical practitioner. These views offer insight on the influence of spirituality and religion on perceptions of diseases and require further exploration.

In terms of health intervention, the study supports some of the participants' recommendations such as: increasing health awareness campaigns in the study setting, posting more health workers to remote villages for community health education, and the government should make health and social services more accessible. Why do these participants' views matter? School teachers are ideal for health interventions in a community (38), especially if we consider their significant ability to influence the health and wellbeing of young people through education (39). School teachers can be useful health promoters when health information is broken-down to them in a way that seems educationally and culturally meaningful (40). Thus, these teachers/participants, when properly educated on CVD-related issues, can help disseminate health information about CVDs to their students and other community members. The planned next step in the study is a focus group discussion including community health workers in the study setting. This is to explore what, in their views, are the barriers to successful CVD health education in their communities.

Limitation of the study

This study is not generalizable. Also, the translation of the Igbo part of the interviews to English may have resulted in missing some key nuances in communication, but this was overcome because the lead researcher is proficient in Igbo. In terms of the study strengths, the findings from this study may help to understand some issues (e.g. beliefs, lifestyle, awareness) to be considered before implementing a health promotion strategy in Nigeria.

Conclusion

CVD may be one of the biggest national health challenges in Nigeria, but the country's high focus on communicable diseases leaves little room for addressing this rapidly increasing public health burden. Our qualitative study offers an in-depth understanding of the knowledge and perception of

CVD and its risk factors among teachers. Overall, the participants' poor knowledge of CVD and its risk factors offers insight into the level of CVD awareness in a typical Nigerian community. Considering the implications of the study in relation to practice and education, it may help health practitioners to understand some of the issues associated with CVDs, and to develop better health promotion strategies.

Declaration of conflicting interest

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References

1. Murray J, Vos T, Lozano R. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* 2012; 380: 2197–2223.
2. World Health Organization. 65th World Health Assembly closes with new global health measures [Internet]. Geneva: WHO; 2013 [cited 2019 June 9]. Available from: https://www.who.int/mediacentre/news/releases/2012/wha65_closes_20120526/en/.
3. World Health Organization. Prevention of cardiovascular disease [Internet]. WHO; 2007 [cited 2019 June 9]. Available from: https://www.who.int/cardiovascular_diseases/guidelines/PocketGL.ENGLISH.AFR-D-E.rev1.pdf.
4. World Bank. Poverty & equity data portal [Internet]. World Bank; 2019 [cited 2019 June 9]. Available from: <http://povertydata.worldbank.org/poverty/country/NGA>.
5. World Health Organization. The global burden of disease: 2004 update [Internet]. Geneva: WHO; 2014 [cited 2019 June 9]. Available from: https://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/.
6. Abubakari R, Lauder W, Agyemang C, Jones M, Kirk A, Bhopal S. Prevalence and time trends in obesity among adult West African populations: a meta-analysis. *Obesity Rev*. 2009; 9: 297–311.
7. Laabes E, Thacher T, Okeahialam B. Risk factors for heart failure in adult Nigerians. *Acta Cardiol*. 2008; 63: 437–443.
8. Ormel J, Von Korff M, Burger H, Scott K, Demyttenaere K, Huang Y, et al. Mental disorders

- among persons with heart disease—results from World Mental Health surveys. *Gen Hosp Psychiatry*. 2007; 29: 325–334.
9. Kengne A, Awah P. Classical cardiovascular risk factors and all-cause mortality in rural Cameroon. *Qjm*. 2008; 102: 209–215.
 10. Townsend L, Flisher J, Gilreath T, King G. A systematic literature review of tobacco use among adults 15 years and older in sub-Saharan Africa. *Drug Alcohol Depend*. 2006; 84: 14–27.
 11. Verdier F, Fourcade L. Changes in cardiovascular risk factors in developing countries. *J Med Trop*. 2007; 67: 552–558.
 12. Assah F, Ekelund U, Brage S, Corder K, Wright A, Mbanya J, et al. Predicting physical activity energy expenditure using accelerometry in adults from sub-Saharan Africa. *Obesity*. 2009; 17: 1588–1595.
 13. Osamor PE, Owumi BE. Complementary and alternative medicine in the management of hypertension in an urban Nigerian community. *BMC Complementary and Altern Med*. 2010; 10.
 14. Baum A, Garofalo J, Yali A. Socioeconomic status and chronic stress: does stress account for SES effects on health? *Ann N Y Acad Sci*. 1999; 896: 131–144.
 15. Adebimpe O, Matthew O, Adesola A, Morenikeji A, Marufat O. Awareness of risk factors and warning signs of stroke in a Nigeria university. *J Stroke Cerebrovasc Dis*. 2013; 23: 749–758.
 16. Akinyemi R, Ogah O, Ogundipe R, Oyesola O, Oyadoke A, Ogunlana M, et al. Knowledge and perception of stroke amongst hospital workers in an African community. *Eur J Neurol*. 2009; 16: 998–1003.
 17. Darr A, Astin F, Atkin K. Causal attributions, lifestyle change, and coronary heart disease: illness beliefs of patients of South Asian and European origin living in the United Kingdom. *Heart Lung*. 2008; 37: 91–104.
 18. Yu-Ping L, Spilsbury K, Furze G, Lewin R. Exploring misconceptions or potentially maladaptive beliefs about coronary heart disease and their relationship with coping behaviours among Taiwanese cardiac patients. *Divers Equal Health Care*. 2009; 6: 97.
 19. Netto G, McCloughan L, Bhatnagar A. Effective heart disease prevention: lessons from a qualitative study of user perspectives in Bangladeshi, Indian and Pakistani communities. *Public Health*. 2007; 121: 177–186.
 20. Brown A, Haylock D. *Professional Issues for Primary Teachers*. London: SAGE; 2014.
 21. Chaudhury N, Hammer J, Kremer M, Muralidharan K, Rogers F. Missing in action: teacher and health worker absence in developing countries. *J Econ Perspect*. 2006; 20: 91–116.
 22. Marks R. Schools and health education. *Health Educ*. 2008; 109: 4–8.
 23. Mirowsky J, Ross CE. Education, learned effectiveness and health. *Lond Rev Educ*. 2005; 3: 205–220.
 24. World Health Organization. *Health promotion in developing countries. Briefing book to the Sundsvall Conference on Supportive Environments* [Internet]. Geneva: WHO; 1991 [cited 2019 Sept 9]. Available from: https://apps.who.int/iris/bitstream/handle/10665/61377/WHO_HED_91.1_eng.pdf?sequence=1&isAllowed=y
 25. Silverman D. *Interpreting Qualitative Data*. 4th ed. London: SAGE; 2011.
 26. Bowling A. *Research Methods in Health: Investigating Health and Health Service*. Buckingham, PA: Open University Press; 2009.
 27. DiClemente R, Crosby R, Salazar L. *Research Methods in Health Promotion*. San Francisco: Jossey-Bass; 2006.
 28. Smith JA, Flowers P, Larkin M. *Interpretative Phenomenology Analysis: Theory, Methods, Research*. London: SAGE; 2009.
 29. Bryman A. *Social Research Methods*. 4th ed. Oxford: Oxford University Press; 2012.
 30. Denscombe M. *Ground Rules for Good Research: A 10 Point Guide for Social Researchers*. Buckingham: Open University Press; 2010.
 31. Emslie C, Hunt K, Watt G. Invisible women? The importance of gender in lay beliefs about heart problems. *Sociol Health Illn*. 2001; 23: 203–233.
 32. Hammond J, Salamonson Y, Davidson P, Everett B, Andrew S. Why do women underestimate the risk of cardiac disease? A literature review. *Aust Crit Care*. 2007; 20: 53–59.
 33. Hart P. Women's perceptions of coronary heart disease. *J Cardiovasc Nurs*. 2005; 20: 170–176.
 34. Donkor E, Owolabi M, Bampoh P, Aspelund T, Gudnason V. Community awareness of stroke in Accra, Ghana. *BMC Public Health*. 2014; 14: 196.
 35. Gholizadeh L, DiGiacomo M, Salamonson Y, Davidson P. Stressors influencing middle eastern women's perceptions of the risk of cardiovascular disease: a focus group study. *Health Care Women Int*. 2011; 32: 723–745.
 36. Mendis S. The contribution of the Framingham Heart Study to the prevention of cardiovascular disease: a global perspective. *Prog Cardiovasc Dis*. 2010; 53: 10–14.
 37. Taylor K, Adedokun A, Awobusuyi O, Adeniran P, Onyia E, Ogedegbe G. Explanatory models of hypertension among Nigerian patients at a University Teaching Hospital. *Ethn Health*. 2012; 17: 615–629.
 38. St-Leger L, Young I. Creating the document 'Promoting health in schools: from evidence to action'. *Glob Health Promot*. 2009; 16: 69–71.
 39. Byrne J, Speller V, Dewhirst S, Roderick P, Almond P, Grace M, Memon A. Health promotion in pre-service teacher education. *Health Educ*. 2012; 112: 525–542.
 40. Jourdan D, Stirling J, Mannix Mcnamara P, Pommier J. The influence of professional factors in determining primary school teachers' commitment to health promotion. *Health Promot Int*. 2011; 26: 302–310.