



UvA-DARE (Digital Academic Repository)

Orthodox or traditional medicine? Private or public healthcare?

Exploring treatment pathways for occupational health problems among informal automobile artisans

Afolabi, F.J.; De Beer, P.; Haafkens, J.A.

DOI

[10.1016/j.socscimed.2020.113510](https://doi.org/10.1016/j.socscimed.2020.113510)

Publication date

2020

Document Version

Final published version

Published in

Social Science & Medicine

License

CC BY

[Link to publication](#)

Citation for published version (APA):

Afolabi, F. J., De Beer, P., & Haafkens, J. A. (2020). Orthodox or traditional medicine? Private or public healthcare? Exploring treatment pathways for occupational health problems among informal automobile artisans. *Social Science & Medicine*, 265, Article 113510. <https://doi.org/10.1016/j.socscimed.2020.113510>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the library of the University of Amsterdam (<https://dare.uva.nl>)



Orthodox or traditional medicine? Private or public healthcare? Exploring treatment pathways for occupational health problems among informal automobile artisans

Funmilayo Juliana Afolabi^{a,b,c,*}, Paul De Beer^{b,c}, Joke A. Haafkens^b

^a Institute for Entrepreneurship and Development Studies (IFEDS), Obafemi Awolowo University, P.M.B. 13 Ile-Ife, Nigeria

^b Amsterdam Institute for Advanced Labour Studies and Hugo Sinzheimer Institute (AIAS-HSI), University of Amsterdam, Nieuwe Achtergracht 166, 1018 WV Amsterdam, Postbus 15966, 1001, NL, Amsterdam, Netherlands

^c Amsterdam Institute for Social Sciences Research (AISSR), University of Amsterdam. Amsterdam Roeterseilandcampus, Nieuwe Achtergracht 166, 1018 WV Amsterdam, Postbus 15718, 1001, NE, Amsterdam, Netherlands

ARTICLE INFO

Keywords:

Healthcare choices
Occupational health
Artisans
Automobile

ABSTRACT

Even though informal workers in developing countries have the most hazardous jobs, there is a sheer neglect for the treatment of their occupational health problems (OHP) in practice and by policies. This qualitative study explored how informal automobile artisans from Nigeria sought care for their OHP. It focused on their choice between orthodox and traditional medicine, between self-care and professional care, and between private and public health-care providers. 43 informal automobile artisans were purposively interviewed. The treatment sought depended on the type, the severity, and the perceived cause of the OHP. The distinction between rational and non-rational explanations of the causes of OHP usually determined the treatment endpoint. The financial means of the artisans and the cost of different treatments were also important factors. The study concluded that in order to develop safer working conditions in the sector, policy makers and artisanal associations should be aware of the considerations that informed the artisans' choices on how to treat OHP.

1. Introduction

Although informal workers in developing countries are highly vulnerable to occupational accidents and diseases (ILO, 2019; Hämäläinen et al., 2017; Wu et al., 2018), they often lack access to adequate healthcare. In Nigeria, 90% of the labour force of 60 million persons work in the informal sector (Awojobi et al., 2014; World Bank, 2020), contributing about 65% of the country's GDP in 2017 (Bank of Industry, 2018). Automobile repair workshops account for almost 40% of informal businesses (National Bureau of Statistics Nigeria, 2010). Most automobile artisans operate at subsistence level, sharing a space with numerous other artisans in ramshackle temporary sheds along major roads. The services they provide include mechanical repairs, panel-beating, vulcanizing, auto electrical repairs, and painting (Baba, 2010). Due to their low income, these artisans mainly use "old fashioned" manual tools rather than electric ones (Sambo et al., 2012). Their daily routines include many activities that put their health at risk, such as the manual lifting of heavy objects, washing hands with fuel, touching

hot surfaces, orally sucking petrol, exposure to dust and chemicals, and working in awkward postures (Johnson et al., 2016; Adejumo et al., 2017; Ojo et al., 2017; Adeyemi et al., 2016).

Adejumo et al. (2017) and Akitunde et al. (2018) reported a high prevalence of occupational health problems (OHPs) among Nigerian automobile artisans, including headaches, tiredness, abdominal pains, cardiovascular, urinary, brain, respiratory, and skin diseases. In different parts of Nigeria, Sambo et al. (2012), Saliu et al. (2015), Elenwo (2018), and Adeyemi et al. (2016) identified burns, bruises and cuts, backaches, joint pains, hernia, musculoskeletal disorders, and hand dermatitis among automobile artisans. However, like most of the poor in Nigeria, informal automobile artisans are not covered by health insurance. Moreover, they have no access to occupational health care services (Omokhiodon, 2009), while the quality of general care services is often insufficient through a lack of facilities, qualified staff, essential equipment and supplies (Samb et al., 2010).

Indeed, Nigeria's state of occupational health and safety is poor (Okojie, 2010; Adeogun and Okafor, 2013). The number of healthcare

* Corresponding author. Institute for Entrepreneurship and Development Studies (IFEDS), Obafemi Awolowo University, P.M.B. 13 Ile-Ife, Nigeria.

E-mail addresses: funmifemifolabi@gmail.com, F.J.Afolabi@uva.nl (F.J. Afolabi), P.T.deBeer@uva.nl (P. De Beer), J.A.Haafkens@uva.nl (J.A. Haafkens).

practitioners trained to recognize and treat work-related diseases is small (Elms et al., 2005; Kalejaiye, 2013). According to Omokhodion (2009), Nigeria had only thirty occupational physicians, mostly engaged by multinational and large national companies and medical schools. Healthcare providers in facilities where informal workers and other ordinary Nigerians seek care are not qualified in the area of OHP. Chemist shops, dispensaries, private general practice clinics, spiritual homes, and traditional herbal healers and hawkers have, over the decades, emerged as low-income workers' primary sources of healthcare services (Asakitikpi, 2019).

Given the high proportion of informal workers, the high prevalence of work-related injuries and diseases among them, and the poor access to affordable formal health care, an important question is how these workers cope with OHP at work. Answering this pertinent question is essential if we want to address existing gaps in healthcare provision and improve health and safety legislation for informal workers in Nigeria (Adeyemo and Smallwood, 2017).

The only available study on the healthcare choices from informal Nigerian artisans, Azuogu et al. (2018), reported that half of the respondents sought medical care from patent and proprietary medicine vendors (PPMVs, also known as 'chemist'). However, this study did not examine the reason for this choice and how OHPs are being treated.

Kroeger (1983) constructed a framework of determinants of the use of healthcare resources in developing countries. He distinguished three sets of explanatory variables:

1. Characteristics of the subjects (or predisposing factors)
2. Characteristics of the health problems and their perception
3. Characteristics of the health services (enabling factors)

The first set includes age, gender, ethnic group, occupation, and social network. Relevant characteristics of health problems are severity, whether they are chronic or acute, the perceived aetiology (a natural or a supernatural cause), and the expected benefits of various treatments (e.g., modern or traditional). Among the health service system's relevant characteristics are its accessibility (proximity), costs, and the (perceived) quality. Kroeger (1983) stresses that health services choices are not mutually exclusive; often, people use various types of health services concurrently or serially. Thus, one can conceive health services choices as a pathway, 'a logical sequence of steps, beginning with the perception and evaluation of symptoms and concluding with the use of different health care facilities' (Kroeger 1983: 148).

The study described in this paper addressed how informal automobile artisans in Nigeria, most of whom have minimal access to the formal healthcare system, make healthcare decisions for treating OHPs. The study focused specifically on their choices for orthodox or traditional medicine, self-care or professional care, and a public or private healthcare provider. Before setting out the empirical method and data used to answer this question, we will give a brief overview of Nigeria's healthcare system.

1.1. Nigeria's healthcare system

According to Asakitikpi (2019), Nigeria's healthcare system consists of public health institutions and private health care providers. The latter include medical practitioners working in privately run clinics, traditional herbal healers and hawkers, spiritual homes and churches, and PPMVs. PPMVs include drug peddlers, licensed pharmacists, and the unqualified and unlicensed chemist shop owners. People often visit PPMVs first for self-care when they experience health problems (Kramer and Janssens, 2017).

The public healthcare sector faces numerous challenges, including inadequate health facilities and structures (shortage of drugs, poor maintenance of buildings and medical equipment) and underfunding (below the World Health Organization (WHO) standard of 15% of the total government budget). Other problems include a lack of trained

health personnel due to brain drain and an overstretching of the available health workers (Omoleke and Taleat, 2017; Obansa and Orimisan, 2013). According to the WHO, with a doctor/patient ratio of 3.8 per 10,000, Nigeria is far below the desirable ratio of 20 per 10,000 (WHO, 2019), resulting in long waiting hours for patients and many preventable fatalities (Omoleke and Taleat, 2017). Moreover, because primary care centres that provide basic medical services to the Nigerian populace are often in an appalling state, patients prefer care from secondary and tertiary facilities (Aregbesola and Khan, 2017). Other challenges include the high fees patients have to pay out of their pockets for these facilities' services.

The desire to create easy access to affordable healthcare for Nigerians informed the decision to introduce the National Health Insurance Scheme (NHIS) by the Federal Ministry of Health in June 2005 (Philips et al., 2019; Asakitikpi, 2019). NHIS covers primary care services but requires cost-sharing of certain more specialized services while excluding others. For example, insured patients pay 10% of the costs of some radiologic investigations and major surgeries while NHIS pays the rest, but NHIS does not cover cosmetic surgery (Philip et al., 2019). Presently, only about 10 percent of the Nigerians are enrolled in NHIS, and they are mainly federal government workers and their dependents (Asakitikpi, 2019; Philip et al., 2019). NHIS was, however, designed to cover all Nigerians and allowed public institutions, private companies with ten or more staff, individuals, communities of 1000 people or more, students, to register for the scheme (Adetiloye, 2020). Individuals who enroll in NHIS pay a fee of N 15,000 (\$ 40, 89) per year. However, most informal artisans and their trade associations are not aware of the NHIS, or they are not willing to participate in it (Bamidele and Adebimpe, 2013; Akinwale et al., 2014). Thus to date, the NHIS has a minimal impact on the accessibility of healthcare among ordinary Nigerian citizens (Michael et al., 2019; Adebisi et al., 2019).

2. Method

This study was an exploratory study using a qualitative inductive research approach. Exploratory research offers relatively plausible and productive way to examine and explain a small fragment of reality (Reiter, 2017). This type of research is important to this study because it can provide an in-depth understanding of why and how artisans make various decisions when seeking healthcare for their OHP. Qualitative methods are most adequate when exploring, describing, and interpreting the personal and social experiences of participants (Smith, 2008). Similarly, in-depth interviews are most appropriate in eliciting comprehensive information from relatively few people as they allow a researcher to deeply explore the participants' feelings and perceptions on a subject of interest (Guion et al., 2006).

2.1. Study location

The study took place at Ile-Ife, Iwo, and Osogbo in Osun State, one of the 36 states in Nigeria with a population of about 3.4 million in 2006. The main language is Yoruba (Sanni, 2010). Osun State has 3 Teaching Hospitals (TH), 6 State Hospitals (SH), 5 General Hospitals (GH), 32 Comprehensive Health Centres (CHC), and 610 Primary Health Centres (PHC). Osun State was chosen because the automobile artisans in this state operated mainly along the roads and not in permanent structured workplaces like those in big cities such as Lagos and Ibadan (Lagos and Oyo States, respectively) (Adejumo et al., 2017). The three selected locations are urban areas in the three administrative zones of the state. Table 1 presents the available health facilities in the study locations.

2.2. Study population

The sampled population is automobile artisans working in small enterprises. We selected artisans from four occupational groups (mechanics, vulcanizers, painters, and panel beaters) and two different

Table 1
Distribution of the health facilities in the study locations.

	Ile-Ife	Iwo	Osogbo
Teaching Hospital	1	1	1
State Hospital	1	–	1
General Hospital	1	–	1
Comprehensive Health Centres	–	–	–
Primary Health Centres	15	22	13
Private Hospitals	24	5	37
Maternity Centres	14	19	31

Source: Ajala et al. (2005)..

positions (master and apprentice). The first criterion was used because these groups constitute the most common occupational groups in the informal automobile repair sector in Nigeria, and they are exposed to different occupational health hazards. The second criterion was used to observe reflections on healthcare from the perspective of experienced workers (masters) and inexperienced workers (apprentices). Almost all automobile artisans in Nigeria belong to a trade association (Adeyemi et al., 2016). We recruited study participants through a referral from the chairmen of the local chapters of their trade associations because a pilot study had shown that access to this study population might be challenging without the consent of the chairmen.

The initial decision was to purposively select five artisans in each professional group in the three study locations (60), but data saturation was reached at 43; this means that after 43 interviews, no new information or themes could be uncovered (Mason, 2010).

2.3. Procedure

The interviews were held between January and March 2017 after a pilot study in July and August 2016. Data from the pilot were analyzed in order to select themes for the interview guide. For instance, the question “what are the challenges you have in accessing health care services” was added to the initial interview guide because this was a theme for the pilot participants.

The interview guide included semi-structured open-ended questions about (i) self-reported health problems among the automobile artisans; (ii) treatment of the health problems; and (iii) reasons for their choice of care. Some examples are: Please, can you tell us the kind of injuries/illnesses one can get from mechanic work? How do vulcanizers (depending on the specialty of the artisan) treat injuries/illnesses they get at work? Why do you show a preference for this kind of care/provider?

We used an interview guide and not open interviews to ensure that 1) the extent and trend of the interview followed the study’s objectives, 2) all relevant themes were raised, and 3) to provide probes when further information was required (Seidman, 2013; Lincoln and Guba, 1985). An expert in the field of African Language and Literature translated the interview guide from English to Yoruba. The researcher collected all data during face-to-face interviews in the native (Yoruba) language, and an assistant took notes for consistency. After each interview, the two researchers immediately wrote field notes to describe the interview context and identify new emerging themes. The transcriptions of the first two interviews were reviewed, and ambiguous responses helped improve questions in subsequent interviews.

The interviews lasted one and a half hours on average, and all took place at the participants’ workplaces. Written informed consent was obtained from the participants after explaining the study’s objectives, and assurance of privacy and confidentiality was given. Ethical clearance for the study was obtained from the Health Research Ethics Committee of the Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria, with HREC no: IPHOAU/12/764.

All interviews were recorded with a digital recorder and transcribed from Yoruba to English to ensure completeness; this was followed by data analysis using MAXQDA 2020 software (Kuckartz, 2007). In the

study, we used MAXQDA to process, order, transcribe, select, and code parts of the transcript relevant to the objectives, and we compare the results at different stages. Two independent researchers reviewed and assessed the selection and coding, and in case of disparity, amendments of the coding schemes were effected to reach consensus between the assessors and the researcher. This extra measure was taken to ensure the coding arrangement’s trustworthiness and the emergent theoretical structure (Lincoln and Guba, 1985). Standard procedures for reporting qualitative studies were adhered to in presenting the results (Tong et al., 2007).

3. Results and analysis of data

This section presents the artisans’ socio-demographic characteristics, the reported OHP, treatment options for OHP, and pathways to care of OHP. Lastly, the overview of the care pathway and a framework for the pathway was presented.

3.1. Socio-demographic characteristics of the participants

The participants were 39 master artisans and 4 apprentices. The latter number was low because most artisans did not have apprentices. All participants were male and religious, 17 practising Christianity, and 26 Islam. 12 were mechanics, 12 panel beaters, 11 vulcanizers, and 8 painters. Half of them (22) had only completed primary education while the others had both technical and secondary education. 25 had over 10 years of working experience, and 36 were above 40 years of age.

3.2. Reported OHP

Together, the participants identified three broad categories of accident-related injuries and six work-related illnesses. Commonly mentioned accident-related injuries were wounds, bruises and cuts (n = 27), burns (n = 23), and injuries to different parts of the body (n = 35), such as eye injury, broken legs/arms, leg injury, head injury, mouth injury, hand injury, and disability. Commonly mentioned work-related illnesses were pains in various parts of the body (n = 16), eye problems (n = 14), malaria (n = 12), general bad health (n = 10), respiratory diseases (n = 9) and stress (n = 9). Participants also distinguished health problems in terms of the severity of the outcome. If the reported health problem did not hinder them from performing their work, it was classified as minor, such as small cuts in the hands or stress. If the reported injury or disease required medical attention, it was classified as major.

3.3. Treatment of OHP

3.3.1. Treatment based on type

According to the artisans, some problems were better treated with orthodox than traditional medicine and vice versa. For instance, illnesses like malaria, pile, and pains were mostly treated with herbal medicine, while health problems such as injuries were assumed better treated with orthodox medicines. However, some artisans said they commenced treatment of illnesses with orthodox medicine believed to give ‘quick’ relief and then completed the treatment with traditional medicines believed to give ‘total’ healing. For example, a vulcanizer reported:

It depends on the type of sickness. If the sickness has to do with an operation, herbal medicine cannot be used. Some sicknesses have nothing to do with injectionherbal medicine can cure them, and you will be okay, while for some sicknesses, you will have to visit the doctor for a diagnosis. (ID15)

Upon further probe for the kind of health problems he was referring to, he said:

In cases like an accident, you know that it is impossible to pour herbal mixture on the injuries. We take such cases to professional doctors to treat, but when we have stomach upset, it might not be taken to the hospital because there are herbs that can cure the upset. (ID15)

A painter also said:

Let us look at it this way, if someone takes paracetamol for malaria, the person will be healed instantly, but malaria will relapse after three days. However if you use 'agbo,' it will flush the malaria away through urine. It is better to start the treatment with modern medicine and later back it up with traditional medicine for permanent healing. (ID6)

Thus, the OHP treatment options depend on whether the OHP is an accident or illness on the one hand; and the perceived efficacy of the medicine on the other hand.

3.3.2. Treatment based on severity

3.3.2.1. Treatment of minor OHP. The participants reported many minor injuries that still allowed them to continue with their work. Injuries like wounds, cuts, and bruises were considered minor, and they were treated by self-application of brake oil, battery water (dilute sulphuric acid solution), mentholated spirit, petrol, and liniments. A mechanic reported:

Often the accidents that occur are things that could be taken care of within the workshop. In the case of bruises, you can put brake oil or iodine to the surface of the injury, and it will dry up. (ID25)

However, continuous bleeding will necessitate further action, such as taking the person to a PPMV or hospital. A painter reported:

We would put brake oil, but if the bleeding continues, he will cover it so that the blood will clot before the victim gets to the hospital. (ID3)

If artisan mistakenly hit himself with a hammer and the place was swollen, they would place an ice block on the spot. In some cases, they would take an analgesic tablet or antibiotics also. A panel beater said:

If it is a minor accident like hitting a hammer on one's hand, the person will treat himself by placing an ice block on the hand so that the pain will go and can also take the Ibuprofen drug. (ID30)

However, a minor wound might become serious because of the delay in treating the wound properly. For instance, a painter recounted the experience of a colleague:

Recently, an accident occurred to a colleague while working at the workshop. He was trying to lift the jack when it fell on his small toe, immediately blood started flowing. He bought paracetamol, ground it into powder, and poured it on the wound. After a week, the leg became very bad. Unknown to him, the leg had been infected with tetanus. He still went on with the self-medication. He bought bandage and plaster to cover the wound. When I met him after 15 days, I advised him to go to the hospital. He later went to Seven day Adventist hospital. When he got to the hospital, he was told the toe would be removed (ID4)

The substances applied to wounds (petrol, battery water, and brake oil) were present in the vehicles they were repairing, so this type of treatment was available for free. Still, they sometimes bought some (cheap) drugs. Furthermore, when asked if they have a first-aid box in their workplace to treat injuries, the majority said they did not, since PPMV and private clinics were easily accessible to the victims. A panel beater reported:

You know we have clinics close to us, so we don't bother to have first-aids; there is one clinic over there. (ID35)

Minor illnesses occurred in the performance of their day-to-day duties. These included general body pains, malaria, and respiratory

illnesses like cough and catarrh. Most of these illnesses were treated at home just as they treated the minor injuries. According to the artisans, it was unnecessary to go to the hospital for minor illnesses because they could take care of them themselves. Self-care usually involved the use of 'agbo' (herbal mixture) or analgesics like paracetamol or phensic and anti-malarial tablets bought at a PPMV.

They usually bought 'agbo' from itinerary herbal hawkers. Some of the artisans claimed they could prepare the mixture themselves. The artisans tended to use traditional medicine for both treatment and prevention of sicknesses, as revealed in the views of a mechanic and a vulcanizer, respectively:

I will take an herbal mixture that I prepare myself anytime I am ill ... There was a time I told my wife that it's as if I have malaria; I told her what to do and completed the process myself. (ID10)

It is better to take herbal medicine to maintain good health and to prevent sickness instead of swallowing pills anyhow. (ID11)

In essence, minor OHPs' treatment involves self-applying substances in the workplace and using herbal mixtures.

3.3.2.2. Treatment of major OHP. When a major accident occurred in the workplace, causing serious injuries, the artisans would apply first aid treatment with substances within their reach before taking the victim to the hospital. They reported applying water, 'ogi' (raw corn starch), and engine oil for major burns. Iodine was applied to major bleeding, while an ice block was placed on the eye before seeking further help. The artisans emphasized the need for a tetanus injection, which they got at either a PPMV or a hospital. A panel beater who experienced a serious burn reported:

After the incident, people around put 'ogi' and engine oil on me....ogi will make the place cool, and it will not allow it to swell. (ID40)

A mechanic with the same experience reported:

When the incident (fire explosion) happened, I was using my mouth to put off the fire, but it was not working, so I started running, not knowing that it will increase the fire. It was a woman nearby that poured water on me to put the fire off. (ID42)

The artisans visited a hospital for a major illness. At times, major illnesses occurred when they delayed treating minor illnesses or after unsuccessful self-medication. The painters recognized some illnesses, such as damage to internal organs, respiratory diseases, and blocked cells, as the cumulative effect of their exposure to hazardous substances. A painter reported:

After a month of spraying and not covering the nose, the individual will start coughing. Then a person's temperature might start getting high, and he will be feeling tired. If such a person gets to the hospital, and a test is carried out on him, he will see that the heart has been seriously affected. (ID4)

These statements show that the artisans had some patterns they followed in treating each health issue. The pathway might have been selected due to their personal experiences with health problems and their knowledge of herbal medicine.

3.3.3. Treatment based on perceived causes

Generally, when an injury occurred at a workplace, the initial response was to use substances available at the workplace and orthodox medicine. Artisans would continue with orthodox medicine when they perceived the cause of their OHP as rational (i.e., biomedical). However, in the case of illnesses, the initial treatment could be either orthodox or traditional medicine. In some cases, the artisans attributed the health problems to preternatural forces. Such cases were treated with traditional medicine after the initial treatment with orthodox medicine,

especially when the health problems defied medical treatment. For instance, a panel beater, who believed that the accident he had was caused by preternatural force, reported that he was discharged from the hospital after three months with informal advice to try traditional means. He commented:

Ah! What happened to me was not natural; it is spiritual; it is the handiwork of the evil people I was admitted to University College Hospital (UCH in Oyo State), and they started treating me; I spent a lot of money there. When it got to a stage, the head of the team that was treating me called me by my name; she said, "uncle X, we have tried our possible best on these eyes but it seems there is nothing we can do about it again, I will advise you try traditional means" When I got back from UCH, I cannot gaze at sunlight; I was going about squeezing my eyes; in fact, if they strike a match where I was, there will be a problem for me. I thank God because that same year, someone directed me to Lokoja. The man said there was a 'baba' (old man) there and that by the mighty power of God, I will receive my healing.He treated me, and I thank God today for everything. (ID41)

In essence, the perceived cause of the health problem determined the kind of care they ended up with.

3.4. Pathway to care

The pathway to care among the artisans refers to the artisans' route into services and care providers in treating OHP (cf. Kroeger 1983). Artisans only sought professional care if they had major illnesses and injuries, whereas minor problems were usually taken care of by the artisans themselves. When an artisan had a major accident at work, the decision on where to take the victim was mostly taken by colleagues or other people present at the time of the incident. The victim would be rushed to any nearby healthcare provider - a PPMV or a hospital (private or public). After the initial treatment, the victim's family would then decide on the next line of action. However, in cases of a major illness, the artisans made the decision themselves, which was influenced by the cost of the treatment and the artisan's financial strength. Though the trade associations sometimes supported members who asked for help in paying part of hospital bills in case of major health problems, this did not seem to affect the individual's decision on where to seek care. Those who had sufficient money would seek orthodox care, while those who did not have enough money would go for traditional care since traditional medicine was perceived to be cheaper than orthodox medicine. According to the latter, you could get traditional medicine as cheap as N50 (€ 0.12). Here is an excerpt from a mechanic:

The challenge we are facing is the lack of funds to buy drugs for treatment. We don't have the confidence to seek medical attention when we are not buoyant, and that is why anyone who did not have money for orthodox medicine will treat himself with traditional herbs. (ID24)

The decision to ask the association for financial help seemed to be a personal affair. For instance, a vulcanizer who had a major accident at work was asked why he did not request the association for support said:

I did not inform the association initiallyThe association offers support for accident victims, but I didn't inform them There is no particular reason; I just decided not to inform them. (ID43)

Moreover, multiple choices of healthcare providers for the same health problem were common. For example, malaria treatment might start with the use of an anti-malaria drug from a PPMV, followed by a visit to a hospital and, if the illness persisted, a herbal mixture for complete healing may be used. The decision to try another provider might be suggested by relatives or colleagues who had experienced such illness before. A vulcanizer surmised:

Someone might have been taking injections severally, and there might not be a visible result; someone else might advise that he go for traditional medicine. (ID9)

Hence, the pathway to care could be influenced by colleagues, family, and friends or an individual decision based on the cost and perceived efficacy of the treatment and his financial strength.

3.4.1. Traditional medicine

A majority of the participants (27) reported using traditional medicine, mainly for illnesses and in keeping healthy. For example, a mechanic reported:

... to avoid back pain and stay healthy, we used to take herbal mixture for 'jedi' [pile]. (ID 29)

However, in some cases, it was used for injuries, such as burns and eye problems. They also used traditional medicine for injuries from accidents that were thought to be caused by preternatural forces. Some of the victims of major accidents reported that their families took them to traditionalists for further care after the initial treatment with orthodox medicine. A panel beater who was hurt by a fire explosion recounted his experience:

I rushed out from under the vehicle crying and asking for help; all the hairs in my body were burnt. I was taken to the hospital and was discharged on the second day. One of my brothers came home and took me to a place in Ondo State for care. The man at Ondo State was a specialist in using traditional methods to heal fire burns ... (ID40)

Furthermore, the use of traditional medicine was encouraged by its availability. Some artisans claimed they could prepare it themselves. They used different types of herbal mixture for different purposes. The mixture was usually consumed with pap in the morning before going to their workplace or at the workplaces. Moreover, some hawkers sold both pap and herbal medicine to them. However, three of the artisans emphasized the need to go to the hospital to diagnose the ailment before using herbal mixtures. The excerpts below represent the view of a mechanic and a panel beater.

The fact is that traditional medicine is close to us; that is why many of us use it. I am using it too. The hawkers used to bring the medicine to our workshops. (ID19)

The best thing is to be aware of what is wrong with your body system. The herbal seller cannot make a diagnosis; likewise, the doctor has to run some tests before he can ascertain what treatment to be administered The concoctions work as well once you know what the problem is. Even if it is high blood pressure, some concoctions can cure it. (ID36)

The foregoing shows that traditional medicine was used both as complementary and alternative medicine. It was complementary when used in addition to the treatment of an illness by orthodox medicine. It was an alternative when it was used because of lack of money to go to the hospital for treatment. Traditional medicine was also used both as explicable and as inexplicable medicine. Explicable traditional medicine is a healing method in which the potency of the medicinal substances are proven scientifically, while inexplicable traditional medicine involves supernatural powers which cannot be investigated scientifically and which does not agree with any known physical theory (Omoleke, 2013). The use of traditional medicine as both explicable and inexplicable medicine indicates the influence of the cultural worldview of the artisans. We conclude that the cost of the treatment as well as the (perceived) effectiveness of the medicine in curing certain ailments, and the perceived causes of the illness influenced the artisans' use of traditional medicine.

3.4.2. PPMVs

Generally, the artisans would visit the PPMVs for minor illnesses.

Only a few of them (7) said a victim of a major injury would be taken to a PPMV for first aid treatment. A vulcanizer reported:

It depends on the severity of the accident; if the victim can still walk and there is a PPMV close to the workplace, we can ask the PPMV to treat the wound for him. (ID12)

A mechanic reported a different reason for going to a PPMV first:

You will end up waiting for long hours before you can see the doctor at the public hospital. One of our boys who went to the General hospital not too long ago collapsed in the queue because he became dizzy. It is good to get treatment first at the PPMV before you go to the hospital where they will take good care of you. (ID24)

Thus, the artisans would visit PPMV for minor illnesses and first aid treatment of major injuries because of public hospitals' bureaucratic structure.

3.4.3. Private hospital

The majority (26) of the artisans expressed a preference for private hospitals compared to public hospitals. Some reasons are the immediate attention they got at private hospitals, and their proximity to the artisans' workplace. Moreover, some doctors were artisans' customers; this gave them access to the doctors outside the hospital setting. The following excerpts are from a mechanic and a panel beater, respectively.

I remember a recent incident; the vehicle fell on one of our apprentice's hands, and we took him to the government hospital. The boy would not have suffered pains so much if we had taken him to a private hospital. We took the boy there around 2:00 pm; they attended to us around 10:30 pm. If we had taken him to a private hospital, they would have attended to him quickly (ID19)

I prefer a private hospital; may God have mercy on us; going to a public hospital is like killing yourself because they will not attend to you on time. But if you go to a private hospital, you will be attended to immediately and survive; you will only have to pay more. (ID41)

Other reasons for preferring a private hospital were that there were more of them around and that they provide better care services, have competent staff, and are not subject to disruption due to the strikes that frequently occur in public hospitals. A painter explained:

You can go to private hospital if you don't want to die young. If you go to the public hospital, they might not have drugs or tell you they have been on strike since three days ago. If you do not want to kill yourself, you will have to go to a private hospital. (ID7)

Thus, factors that influence private hospitals' preference include proximity, immediate attention, and quality service.

3.4.4. Public hospitals

Only seven artisans expressed a preference for a government hospital. They reported that government hospitals were well equipped compared to private hospitals. Therefore, the care was of higher quality, especially in the case of very serious health problems. Some said that the cost was lower compared to the private hospital. However, others, who preferred private hospitals, said that the cost of various tests at the government hospital was at par with private hospitals' cost. A painter and a vulcanizer, respectively, stated:

If you know you really want to treat yourself, it is better to go to public hospitals because they have lots of equipment. The private hospitals are not as equipped as public hospitals. (ID4)

We used to go to the government hospital if the sickness is serious, but the person will be treated at home if it is a minor sickness. (ID18)

Thus, the quality of care, severity of the OHP, better equipment and

cost influence the artisans' decision to use public hospitals.

3.5. Conclusion

Fig. 1 gives an overview of the care pathways and the reasons for choosing particular health care providers for various OHP types among the artisans in this study. The boxes represent the artisans' choices while the arrows represent the reasons for making those choices. The pathway for the treatment for minor injuries and illnesses only includes self-care (using drugs bought at a PPMV or using herbal mixture), while the pathway for major illnesses and injuries may start with self-care but is followed with professional care. Quick action and diagnosis are among the factors that may influence the choice of orthodox medicine, whereas cost, proximity, and efficacy may lead to the choice of traditional medicine. The quality of treatment, better equipment, severity of OHP and cost affected the artisans' choice of a public healthcare provider, while immediate attention, quality of treatment, quick action, and proximity influenced the choice of a private healthcare provider.

4. Discussion and conclusion

4.1. Discussion

This paper addresses a critical gap in the literature on the treatment of OHPs, namely how informal workers in developing countries decide about and choose care, particularly informal automobile artisans in Nigeria. The findings show that the artisans are well involved in managing their health challenges through self-care practices. Minor illnesses (e.g., pains, malaria, headaches) and injuries (wounds and cuts) are the jurisdictions where self-care practices remain dominant. Examples of the reported self-care practices include the application of brake oil, battery water, mentholated spirit, petrol, or liniments on minor wounds. The use of traditional herbal concoctions and self-prescribed drugs was common for handling minor illnesses. Professional care was preferred for injuries. After initial first aid interventions of applying substances like *ogi* and water, victims are taken to the hospital or orthodox caregivers. The preferred pathways are somewhat fluid, as medical pluralism appears dominant among the artisans. There were occasions when traditional healers were patronized simultaneously, along with biomedical practitioners.

4.1.1. Risks of self-care

Self-care practice is sometimes considered a positive sign of active engagement in the recovery process from a disease or illness; this is premised on the condition that individuals make rational choices and possess the ability to engage in practices that can promote health, prevent disease, maintain health, and cope with illness or disability with or without the support of a health worker (WHO, 2020). In this sense, the artisans' reported self-care practices are signs of active engagement in their health and management of injuries, illnesses, and conditions that affect their well-being and productivity. The practice of self-care is, however, not peculiar to informal artisans in Nigeria. Self-treatment is usually the first line of managing many diseases in developing countries (Esan et al., 2018). Nonetheless, the WHO (2020) also warns that some self-care practices might pose risks to those indulging in them. In our study, the use of unconventional substances, such as brake oil or battery water, on injuries as self-care by the artisans is worrisome. Apart from ignorance, these risky practices might be connected to the lack of attention to occupational health hazards in Nigeria (Kalejaiye, 2013). There are indications that access to modern healthcare services is limited among the less privileged like this category of informal artisans in Nigeria (Asakitikpi, 2019). Limited access to modern healthcare services could be worsened by inadequate uptake of the existing NHIS policy among the artisans; which might be connected to a lack of means to pay premiums, inadequate knowledge of the existence and the associated benefits (Akinwale et al., 2014). The chances are that the poor

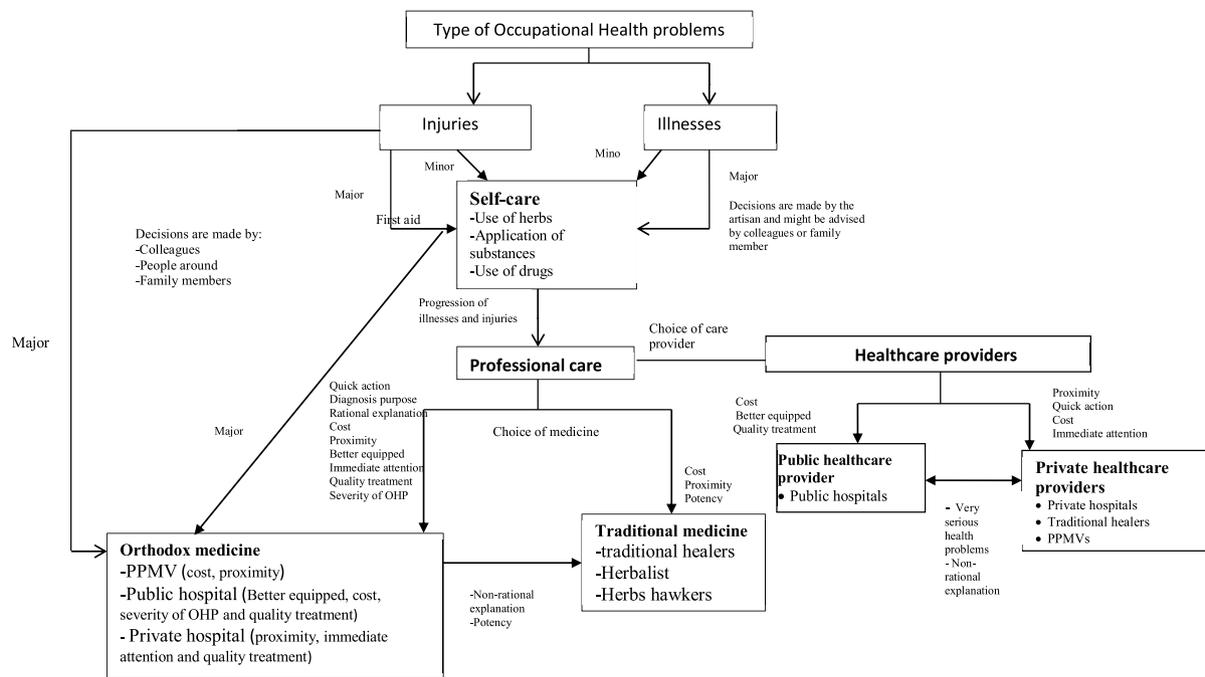


Fig. 1. Patterns of occupational health treatment and choice of healthcare provider among informal automobile artisans in Nigeria.

performance and complaints from existing subscribers of the NHIS might also discourage potential users (Philip et al., 2019). The challenges surrounding NHIS, therefore, suggest the need to revise NHIS policy in order to stimulate the use by (informal) artisans.

4.1.2. Pathways to care

Pathways to care are the routes that the artisans choose in using various health services for treating OHP. In line with Kroeger (1983), this study revealed some determinants of the pathway to healthcare:

- characteristics of the subjects (the artisans)
- characteristics of the disorder (the severity and the perceived cause of the OHP)
- characteristics of the health service (expected costs, proximity, perceived quality of treatment, and potency of the medicine)

Since we studied only one, relatively homogenous group of artisans, we could not establish the role of different socio-demographic characteristics, such as gender or occupation. Moreover, most participants were experienced workers because apprentices were difficult to locate for this study.

An interesting result is that the artisans' causal explanation of OHPs is an important determinant of the kind of treatment they end up with. The relevant distinction here is between rational (natural) and traditional non-rational (personalistic) explanations (Garro, 2000). The rational explanation assumes that illness is only due to impersonal, mechanistic natural causes and can possibly be understood by applying scientific methods. The non-rational explanation is embedded in the cultural or religious worldview that is dominant in the non-western world (Garro, 2000). Although injuries were generally treated with orthodox medicine, traditional medicine was used for injuries that the artisans perceived as been caused by preternatural forces. Therefore, traditional medicine was used as inexplicable medicine, a healing method involving supernatural powers that cannot be investigated scientifically (Omoleke, 2013). This result is in line with previous studies that found that, when an illness is suspected to be caused by preternatural forces, people consult herbalists or diviners to find the root cause and possible solution to the problem (Ezekwesili-Ofilu and Okaka, 2019). It is also common for healthcare providers to advise patients to

seek a solution for an ailment that defies orthodox medicine (Asakitikpi, 2019).

The artisans tended to use traditional medicine as both complementary and alternative medicine. On the one hand, they used it to overcome the high cost of treatment with orthodox medicine. On the other hand, they used it to complement orthodox treatment. The use of herbal mixtures shows that traditional medicine is still relevant in Nigeria, as the artisans believe in its potency to cure some illnesses (Ezekwesili-Ofilu and Okaka, 2019). This belief is in line with Scott-Emuakpor (2010) assertion that traditional medicine is viable in Nigeria. Perhaps, the proliferation of expired and fake drugs in the market reinforced this belief. However, some adverse effects of herbal medicines have been reported especially as it relates to their preparation and inappropriate use (Ezekwesili-Ofilu and Okaka, 2019).

Most artisans showed a preference for private healthcare providers (PPMV, traditional herbs, and private hospitals) above public healthcare. The perceived conditions of the government hospitals led this group to resort to the use of private providers to meet their health needs. The artisans' views on the deplorable state of the public hospitals in Nigeria are in line with what Asakitikpi (2019) reported.

4.2. Conclusion

This study explored the pathways to health services of informal automobile artisans in Osun State, Nigeria, a group with a high risk of occupational health problems but little access to the formal healthcare system. We studied their consideration for choosing between self-care and various types of professional care, orthodox and traditional medicine, and public and private healthcare providers. We found that the distinction between a minor and a major health problem, and between acute and chronic diseases, the perceived cause of the problem (natural or preternatural) and the proximity, cost and perceived effectiveness of the health service are important determinants of the choice they make. Orthodox medicine is perceived to give 'quick' relief from health problems, while traditional medicine is perceived to give 'complete' healing. Traditional medicine is also used for preventive purposes.

In some cases, the artisans make multiple choices of healthcare providers for the same health problem. The pathway to care for an OHP might start with a visit to a PPMV, followed by a hospital visit if the OHP

persists. In case the OHP is perceived as having a natural or rational explanation, the visit to an orthodox medical practitioner will usually end the treatment. In contrast, in the case of a cultural or religious explanation; the pathway may be continued with a visit to a traditional healer.

The poor condition of public healthcare encouraged the use of private healthcare. The precarious situation of the informal automobile artisans, the country's poor healthcare system, and the absence of comprehensive health insurance create significant health hazards for these citizens. They are not well-protected against the daily hazards they encounter in their work; neither do they get the required quality healthcare to promote their full recovery from the injuries and diseases they regularly suffer at their workplace. These factors point to serious shortcomings in Nigeria's current healthcare system in terms of accessibility, costs and quality that should be addressed to improve the health situation of large parts of the population.

The study has practical implications. Firstly, the policy makers and the trade associations can be made aware that the artisans make their own decisions for treating OHPs, including self-treatment, either because of choice or lack of money. Therefore, through association, the artisans need to be educated about the problems associated with the substances they use in self-care. Secondly, it will be worthwhile for the associations to acknowledge the financial barriers to their members' health and safety and negotiate affordable health insurance for these workers.

4.2.1. Strength and limitations of the study

This study's strength is the use of a qualitative interpretive method to understand the pathway to healthcare for OHPs among an understudied occupational group, informal automobile artisans in Nigeria. This study is the first to provide in-depth information about the artisans' choices concerning a particular treatment and healthcare provider. This study's insights may help policymakers improve and reform current healthcare policies to make them more inclusive and create universal health coverage in the country.

However, it is important to note that this is an exploratory qualitative study based on a small sample. Therefore, caution is warranted in generalizing these findings to a wider group of informal workers. Further study could be conducted among other informal workers in Nigeria and other developing countries. Moreover, the study was fully based on the description and recollection of the artisans themselves and may be subject to bias. In future research, the artisans' actual choices and health seeking behaviour may be studied to acquire a more objective description of their pathways to health services.

Credit author statement

Funmilayo Juliana Afolabi designed, performed and reported the study and wrote various drafts and the final version of the paper. Paul de Beer supervised the study at various stages and reviewed and edited various drafts of this paper. Joke Haafkens is co-supervisor of the study and she contributed to its design, various stages of the data-analysis and to the (re) writing of the paper.

Conflict of interest and source of funding

F.J. Afolabi received a grant (#DVC/AC/37A/AFO) from Tertiary Education Trust Fund (TETFUND), Nigeria under Academic Staff training and Development for her Ph.D. studies at University of Amsterdam, Netherlands. TETFUND was not involved in the study design, data collection, analysis, and interpretation or reporting of the data. For the remaining authors, none were declared.

Acknowledgement

Our thanks are extended to the artisans participating in this study

and the two anonymous reviewers for very constructive suggestions. The first author received a grant (#DVC/AC/37A/AFO) from Tertiary Education Trust Fund (TETFUND), Nigeria to conduct this study in the context of a Ph.D. program at the University of Amsterdam, Netherlands.

References

- Adebisi, S.A., Odiachi, J.M., Chikere, N.A., 2019. The National health insurance scheme (NHIS) in Nigeria: has the policy achieved its intended objectives? *Academic J. of economic studies* 5 (3), 97–104.
- Adejumo, M., Olaiya, Y.V., Sridhar, M.K.C., 2017. Blood lead levels among automobile mechanics in a megacity, Lagos, Nigeria. *Int. J. Health Sci.* 5 (2), 17–27.
- Adeogun, B.K., Okafor, C.C., 2013. Occupational health, safety and environment (HSE) trend in Nigeria. *Journal of Environmental Science, Management and Engineering Research* 2 (1), 24–29.
- Adeyemi, H.O., Akinyemi, O.O., Musa, A.I., Ibikunle, B.Q., 2016. Assessment of work-space and work-method designs in Nigeria automobile service and repair industry. *Nigeria Journal of technology (NIJOTECH)* 35, 321–328.
- Adeyemo, O., Smallwood, J., 2017. Impact of occupational health and safety legislation on performance improvement in the Nigerian construction industry. *Procedia Engineering* 196, 785–791.
- Ajala, O.A., Sanni, L., Adeyinka, S.A., 2005. Accessibility to health care facilities: a panacea for sustainable rural development in Osun state southwestern, Nigeria. *J. Hum. Ecol.* 18 (2), 121–128.
- Akintunde, A.A., Oloyede, T.O., Salawu, A.A., 2018. Lung functions abnormalities among auto mechanics in Ogbomosho, Nigeria: clinical correlates and determinants. *Annals of Health Research* 4 (2), 120–130.
- Akinwale, A.A., Shonuga, A., Olusanya, O., 2014. Artisans' reaction to National health insurance scheme in Lagos State, Nigeria. *The Journal of Global Health Care Systems* 4 (1), 1–21.
- Aregbesola, B.S., Khan, S.M., 2017. Determinants of catastrophic health expenditure in Nigeria. *Eur. J. Health Econ.* <https://doi.org/10.1007/s10198-017-0899-1>.
- Asakitikpi, A.E., 2019. Healthcare Coverage and Affordability in Nigeria: an Alternative Model to Equitable Healthcare Delivery [Online First], IntechOpen. <https://doi.org/10.5772/intechopen.85978>. Available from: <https://www.intechopen.com/online-first/healthcare-coverage-and-affordability-in-nigeria-an-alternative-model-to-equitable-healthcare-delive>.
- Awojobi, O.N., Ayakpat, J., Adisa, O.D., 2014. Rebased Nigerian gross domestic product: the role of the informal sector in the development of the Nigerian economy. *Int. Journ. Of Edu and Res* 2 (7), 301–316.
- Azuogu, B.N., Eze, N.C., Azuogu, V.C., Onah, C.K., Ossai, E.N., Agu, A.P., 2018. Appraisal of healthcare-seeking behaviour and prevalence of workplace injury among artisans in automobile site in Abakiliki, Southeast Nigeria. *Niger. Med. J.* 59 (5), 45–49.
- Baba, N.A., 2010. An Analysis of the Location Pattern of Informal Automobile Artisans' Workplaces in Idah, Kogi State. University of Nigeria virtual library. Available from: [http://www.unn.edu.ng/publications/files/images/adams_project_November\[1\].pdf](http://www.unn.edu.ng/publications/files/images/adams_project_November[1].pdf). (Accessed 29 June 2018).
- Bamidele, J.O., Adebimpe, W.O., 2013. Awareness, attitude, and willingness of artisans in Osun State Southwestern Nigeria to participate in community based health insurance. *J. Community Med. Prim. Health Care* 24 (1–2), 1–11.
- Elenwo, E.I., 2018. Occupational hazards and risks of automobile mechanics in port harcourt metropolis, rivers state, Nigeria. *Int. J. Software Eng.* 4, 156–167, 01.
- Elms, J., O'Hara, R., Pickvance, S., 2005. The perceptions of occupational health in primary care. *Soc Occupational Med* (55), 523–527.
- Esan, D.T., Fasoro, A.A., Odesanya, O.E., Esan, T.O., Ojo, E.F., Faeji, C.O., 2018. Assessment of self-medication practices and its associated factors among undergraduates of a Private University in Nigeria. *J. of Env. And Pub Health.* <https://doi.org/10.1155/2018/5439079>.
- Garro, L.C., 2000. Cultural meaning, explanations of illness, and the development of comparative frameworks. *Ethnology* 39 (4), 305–334.
- Hämäläinen, P., Takala, J., Boon, K.T., 2017. Global Estimates of Occupational Accidents and Work Related Illnesses 2017 (XXI World Congress on Safety and Health at Work, Singapore. Workplace Safety and Health Institute.
- ILO, 2019. Safety and Health at the Heart of the Future of Work: Building on 100 Years of Experience. Switzerland, Geneva. (Accessed 10 August 2019).
- Johnson, O.E., Bassey, E.A., 2016. Work habits and health problems of automobile technicians at mechanic village, Uyo, Nigeria. *J. of medicine and medical science* 5 (5), 136–142.
- Kalejaiye, P.O., 2013. Occupational health and safety: issues, challenges and compensation in Nigeria. *Peak Journal of Public health and Management* 1 (2), 16–23.
- Kuckartz, U., 2007. MAXQDA: Professional Software for Qualitative Data Analysis (Berlin:VERBI Software).
- Kramer, B., Janssens, W., 2017. The Financial and Health Diaries: using diaries to improve a health insurance program to better meet health needs in rural Nigeria. *Health Analytics Brief* 4. https://www.pharmaccess.org/wp-content/uploads/2017/05/2017_4.-Using-diaries-to-better-meet-health-needs-in-rural-Nigeria.pdf.
- Kroeger, A., 1983. Anthropological and socio-medical health care research in developing countries. *Soc. Sci. Med.* 17 (3), 147–161.
- Lincoln, Y.S., Guba, E.G., 1985. *Naturalistic Inquiry*. Sage, Beverly Hills, CA.
- Mason, M., 2010. Sample size and saturation in PhD Studies using Qualitative interviews. *Forum QualSozialforschungForumQualSoc Res* 11.

- Michael, G.C., Aliyu, I., Grena, B.A., 2019. Trends and correlates of patient satisfaction with services under the national health insurance scheme of Nigeria: a review. *J. Med. Tropics* 21, 1–5.
- National Bureau of Statistics (Nigeria), 2020. Nigeria National Manpower Stock and Employment Generation. <http://ghdx.healthdata.org/record/nigeria-national-manpower-stock-and-employment-generation-survey-2010>. (Accessed 10 August 2020).
- Obansa, S.A.J., Orimisan, A., 2013. Health care financing in Nigeria: prospect and challenges. *Mediterr. J. Soc. Sci.* 4 (1), 221–236.
- Ojo, T.O., Onayade, A.A., Akinyemi, P.A., Adesanmi, A.J., 2017. Environmental working conditions, lung function, and total serum bile acids of spray painters exposed to organic solvents in Ile-Ife, Nigeria. *Journal of health and pollution* 7 (13), 2–10.
- Okojie, O., 2010. System for reporting occupational diseases in Nigeria. *Afr. Newsl. Occup. Health Saf.* 20 (3), 51–53.
- Omokhiodon, F., 2009. Occupational health in Nigeria. *Occup. Med.* 59, 201.
- Omoleke, I.I., 2013. The relevance of the african traditional medicine (alternative medicine) to health care delivery system in Nigeria. *J. Develop. Area.* 47 (1), 319–338.
- Omoleke, I.I., Taleat, B.A., 2017. Contemporary issues and challenges of health sector in Nigeria. *Res. J. of Health Sci.* 5 (4), 210–216.
- Philip, D.D., Adeyinka, O.P., Christopher, O.I., Innocent, N.O., 2019. Int. J. of development strategies in humanities, management, and social science 9 (1), 218–230.
- Reiter, B., 2017. Theory and methodology of exploratory social science research. *IJSRM. Human* 5 (4), 129–150.
- Saliu, A., Adebayo, O., Kofoworola, O., ogunowo, B., Ismail, A., 2015. Comparative assessment of blood lead levels of automobile technicians in organized and roadside garages in Lagos, Nigeria. *J. of Environmental and Public Health* 2015, 1–9.
- Samb, B., Desai, N., Nishtar, S., Mendis, S., Bekedam, H., Wright, A., et al., 2010. Prevention and management of chronic disease: a litmus test for health-systems strengthening in low-income and middle-income countries. *Lancet* 376, 1785–1797.
- Sambo, M.N., Idris, S.H., Shamang, A., 2012. Determinants of occupational health hazards among roadside automobile mechanics in Zaria, North Western Nigeria. *Borno Med J* 9 (1), 5–9.
- Sanni, L., 2010. Distribution pattern of healthcare facilities in Osun State, Nigeria. *Ethiopian Journal of Environmental Studies and Management* 3 (2), 65–76.
- Seidman, I., 2013. Interviewing as Qualitative Research: a Guide for Researchers in Education and the Social Sciences, fourth ed. Teachers College Press, Columbia University, New York.
- Scott-Emuakpor, A., 2010. The evolution of health care systems in Nigeria: which way forward in the twenty-first century. *Niger. Med. J.* 51 (2), 53–65.
- Smith, J.A., 2008. *Qualitative Psychology: A Practical Guide to Research Methods*, second ed. SAGE Publications.
- Tong, A., Sainsbury, P., Craig, J., 2007. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int. J. Qual. Health Care* 19, 349–357. <https://doi.org/10.1093/intqhc/mzm042>.
- Wu, Y., Schwebel, D.C., Hu, G., 2018. Disparities in unintentional occupational injury mortality between high-income countries and low-and middle-income countries: 1990–2016. *Int. J. Environ. Res. Publ. Health* 15 (10), 2296.
- Adetiloye, D., 2020. <https://dayoadetiloye.com/benefits-national-health-insurance-scheme-nhis-nigeria/>. 6 January 2020.
- Bank of Industry, 2018. Available at: <https://www.boi.ng/wp-content/uploads/2018/05/BOI-Working-Paper-Series-No2-Economic-Development-through-the-Nigerian-Formal-Sector-A-BOI-perspective.pdf>.
- Ezekwesili-Ofilii, J.O., Okaka, A.N.C., 2019. Herbal Medicines in African Traditional Medicine, Herbal Medicine, Philip F. Builders, IntechOpen. <https://doi.org/10.5772/intechopen.80348>. Available from: <https://www.intechopen.com/books/herbal-medicine/herbal-medicines-in-african-traditional-medicine>.
- Guion, L.A., Diehl, D.C., MacDonald, D., 2006. Conducting an in-depth interview. Available at: https://scholar.google.com/scholar?cluster=280902041510959606&hl=en&as_sdt=0.5.17%20February%202020.
- WHO, 2020. Self-care health interventions. Available at: <https://www.who.int/news-room/fact-sheets/detail/self-care-health-interventions>, 19 July 2020.
- WHO, 2019. Available at: https://www.who.int/gho/health_workforce/physicians_density/en/.
- World Bank, 2020. Labour force, total-Nigeria. Available at: <https://data.worldbank.org/indicator/SL.TLF.TOTL.IN?locations=NG>. 15 July 2020.