

Knowledge And Response to DNA Paternity Test Information Among Married Igbo People in Southeast Nigeria

Allen Nnanwuba Adum¹ and Chioma Claribel Efoby¹

¹Department of Mass Communication, Nnamdi Azikiwe University, Awka, Nigeria

Corresponding Author's Email: chioma4efoby@gmail.com

Abstract

This study explored knowledge and responses to DNA paternity test information among married Igbo individuals in Southeast Nigeria, using the Evidential Theory of Belief as a framework. A qualitative approach was adopted, with in-depth interviews conducted with 24 purposively selected participants. Thematic analysis revealed high awareness of paternity testing and a general perception of its value in resolving doubts about paternity. However, participants also recognized its potential to disrupt marriages and negatively affect children. Cultural beliefs around paternity, lineage, and fidelity significantly shaped their views. Despite concerns about possible human errors and fraud, there was strong trust in DNA tests as a reliable means of confirming paternity. The study concluded that responses to paternity test information were deeply influenced by Igbo cultural norms. It recommended that cultural and religious institutions play a proactive role in educating people about paternity issues to support informed decision-making and mitigate potential social consequences.

Keyword: paternity DNA test, paternity fraud, knowledge, response, believability

Introduction

One of the most significant issues facing the marital institution today is paternity fraud. This is a global problem and evidence in recent years reveals a high rate of paternity fraud in Nigeria (Kareem, 2023; Efut & Chiagoziem, 2021 and Ogundipe, Arebi & Usman, 2021). Ogundipe Ogundipe, Arebi and Usman (2021) report that Nigeria ranks second highest in paternity fraud in the world as data show that three out of ten Nigerian men are not biological fathers of their children. Also, a study conducted by the Nigerian Institute of Medical Research (NIMR) found that 27 per cent of paternity tests conducted in Lagos State revealed cases of paternity fraud (Kareem (2023). Similarly, a report published in 2016

indicates that about 30 per cent of men who took DNA tests in Nigeria to determine paternity discovered they were not the biological fathers of their children (Simwa, 2023).

The crisis of trust bedeviling the matrimonial institution is evident in the fact that majority of DNA tests performed in Nigeria is for determination of paternity. Data from a leading test centre in Lagos state show that over 89 percent of tests were for purpose of determining real biological father. Secondly, majority of this number obtained this test not for legal or immigration purpose but for personal reasons (Kareem, 2023). Before the advent of modernity, determination of paternity was not a problem for Igbo people who routinely relied on community recognition, oral history, and customs to establish fatherhood. These methods are deeply rooted in communal bonds and often involve the participation of elders and other community members (Onyekwelu, 2021). However, the advent of modern paternity testing, especially DNA investigation, which provides concrete and scientifically verifiable evidence of parentage, introduces a new dimension to the Igbo marriage dynamics (Uchendu & Odokuma, 2015).

The increasing accessibility and affordability of DNA paternity test in Nigeria is potentially making reliance on science to establish biological fatherhood more prevalent (Ogundipe et al., 2021) including in the Southeast, raising questions about how individuals, particularly married couples, perceive and accept the information provided by these tests (Onyekwelu, 2021). Importantly, though paternity testing is a scientific procedure, the acceptance and interpretation of its results are deeply influenced by cultural, social, and psychological factors, creating a complex interplay between science and human behaviour (Azoury, Mrad, Mansour, Ibrahim, Rjeily & Schmit, 2021; Ejele & Nwauche, 2004). This point deserves attention as it is crucial for our understanding of the impact of a scientific phenomenon like paternity testing (Azoury et al., 2004).

In Southeast Nigeria, home to the Igbo people, this intersection of science and culture is particularly significant when it comes to issues of marriage, childbearing and paternity, which are all very sensitive aspects of their cultural heritage (Isidienu, 2015). The Igbos have a diverse cultural heritage that shapes their social, familial, and marital dynamics, and

which potentially influences how they approach issues related to paternity fraud and paternity test, both individually and communally (Onyekwelu, 2021; Uchendu & Odokuma, 2015). Within the Igbo culture, the importance of lineage, family continuity, and the inheritance of ancestral legacies are paramount (Isidienu, 2015). These values are deeply intertwined with the concept of paternity. The acknowledgment of a child's biological father holds great significance, not only within the context of individual families but also in the broader communal and societal framework. In this cultural context, paternity is intricately linked to notions of lineage, inheritance, and societal recognition. A child is considered the embodiment of the family's past and the bridge to its future, carrying the legacy of ancestors. The identity of the biological father plays a central role in determining these connections and the child's place within the community (Urama, 2021). Furthermore, the traditional Igbo worldview, deeply rooted in Igbo cosmology, which includes beliefs about reincarnation and the transmigration of souls, accepts the notion that an ancestor may return in the form of a new family member, further complicating the concept of biological parentage (Madu, 2020).

While paternity test helps to resolve issues surrounding individuals' parentage, this has equally given rise to concern regarding the psychological and social impact of its results on married people and their children. Kareem (2023), for instance, observes that the psychological trauma that ensues when a husband, through DNA test, discovers that the children they have known is not biologically theirs is only "better imagined." The writer further notes that this "ugly development has ruined so many marriages and homes with its adverse consequences on the society at large" (p.2). Thus, some persons are of the view that paternity test should be discouraged given the immense trauma it brings to families (Abubakar, 2022; Muanya & Ezea, 2018). Ogundipe et al. (2021) note that there are many documented cases in Nigeria where outcomes of DNA test have led to family crises and in many cases ended up in the breakup of such families. The authors aver that in many of such cases, individuals, including children, are left damaged for life.

The foregoing raises the question as to how people, especially couples, perceive DNA test. Psychologically, people may tend to avoid realities that upset their peace of mind (Bran &

Vaidis, 2020; Cooper, 2019), thus they may perceive DNA test for purpose of determining paternity something to be avoided. Many men have been found to so much dread being in a situation where paternity of their child will be subjected to investigation knowing the grave implication of having a negative outcome. On the other hand, many women may find such investigation which tends to question their sexual fidelity uncomfortable (Akinkahunsi, 2019). In fact, as noted by Kareem (2023), the dilemma of DNA test for determining paternity lies in the fact that any decision to undergo such test is usually born out of crisis of trust, and even when such test proves paternity to be true, many women will remain hurt by the very fact that they were suspected in the first place. This situation will potentially harm cordiality in relationship and could ultimately damage it.

Furthermore, despite the highly sophisticated accuracy associated with the science of DNA paternity investigation, there is also the reality that such test may return inaccurate results when not properly done (Simwa, 2023; Muanya & Ezea, 2018). This fact may affect believability of the information emanating from such test. There also exists the possibility that one's knowledge that medical diagnosis sometimes returns inaccurate findings is a powerful factor leading to doubt of information resulting from such test (Dahm & Crock, 2021). If this is so, it remains to be seen how much married people would believe paternity test information. This is also given the psychological tendency of individuals to sometimes deny information that they find unsettling (Bran & Vaidis, 2020; Cooper, 2019), and any such test has the possibility of coming out with such information.

Against this backdrop, this study explored knowledge and response to DNA paternity test information among married Igbos in Southeast Nigeria. It focused on the issues of culture, understanding, and beliefs that underpin the way paternity test results are received and interpreted within the context of marriage. This may be of help in gaining some insight into the possible implications of paternity test.

Statement of the Problem

Paternity testing has become a subject of intense public discussion and debate in Nigeria given its grave consequences for individuals and families (Kareem, 2023; Ogundipe et al.,

2021; Efut & Chiagoziem, 2021; Ajonumah & Dublin-Green, 2019). This concern continues to grow as increasing access to DNA paternity test progressively reveals the high rate of paternity fraud in the country (Kareem, 2023; Efut & Chiagoziem, 2021; Ogundipe et al., 2021). Within the cultural context of Igbos of Southeast Nigeria, paternity test introduces a complex and multifaceted challenge that warrants careful examination. While paternity tests offer scientifically verifiable evidence of biological parentage, their acceptance and interpretation within the broader framework of Igbo culture are profoundly influenced by cultural norms, beliefs, and social dynamics. This raises the question as to how people would perceive such test and results emanating from it. This question is reinforced by the fact paternity testing is fraught with tension and risk, given its grave implications for trust and family (Kareem, 2023; Efut & Chiagoziem, 2021). Thus, it remains to be seen how married people may respond to the information (i.e. result) arising from this sort of medical investigation.

Furthermore, paternity testing potentially creates a problem of believability. Psychology has shown that when people are confronted with unpleasant realities or prospect of such, they may activate the defence mechanism of denial to manage the mental crisis. This is captured in the Cognitive Dissonance Theory (Bran & Vaidis, 2020; Cooper, 2019). Consequently, there is possibility that married people may doubt the correctness of information that may emanate from DNA paternity test. This believability problem may be heightened by the knowledge of the fact that no medical diagnosis is perfect including DNA test which has been shown to at times return wrong results as a result of human error (Simwa, 2023; Muanya & Ezea, 2018). This possibility of error is heightened by the rare phenomenon in which individuals, known as “chimeras”, have at least two different sets of genes, which can result in a false negative result if their reproductive tissue has a different genetic make-up from the tissue sampled for the test” (Ogundipe et al., 2021, p.4). Paternity test also poses a serious dilemma for couples given the far-reaching implications of results (information) it may return. It often activates anxiety, tension and other intense emotional reactions as couples face prospects of life-changing ramifications of positive or negative paternity test result (Azoury et al., 2021). And given the deep significance of paternity for succession, inheritance, identity, and social worth within the context of Igbo culture

(Urama, 2021; Isidienu, 2015), there is a significance possibility that paternity test information would potentially trigger strong emotional response, not just from the couples but also from other concerned persons.

Furthermore, in Igbo society, gender dynamics plays a significant role in shaping the texture of the marriage and family institution as well as the relationships among people within this institution. This makes it quite likely that this gender dynamics may influence responses of couples to DNA paternity test information. This is more so given that proven or disproven paternity would entail different experiences and implications for men and women in the light of the differences in gender roles in Igbo society (Bourne et al., 2023).

Objectives of the Study

The study evaluated knowledge and response to DNA paternity test information among married Igbo people in southeast Nigeria. The specific objectives were as follows:

1. To find out the extent of knowledge about DNA paternity test information among married Igbo people in Southeast Nigeria.
2. To find out the perception of DNA paternity test information among married Igbo people in Southeast Nigeria.
3. To ascertain how Igbo culture influenced perception of DNA paternity test information among married Igbo people in Southeast Nigeria.
4. To assess the extent of believability of DNA paternity test information among married Igbo people in Southeast Nigeria.
5. To investigate how gender dynamics may have likely influenced how married Igbo men and women in Southeast Nigeria perceived DNA paternity test information.

Literature Review

Paternity in Igbo Cultural Context

Paternity in Igbo land holds deep cultural significance, reflecting a patriarchal society. Traditionally, lineage is traced through the father, emphasizing the importance of paternity (Onyekwelu, 2021). This patrilineal orientation of lineage tends to give primacy to fatherhood over motherhood (Asikaogu, 2018). The paternal bias of Igbo cultural worldview reflects in many aspects of their culture including family naming, inheritance, and monarchy among others (Ejikeme, 2020; Asikaogu, 2018). One Igbo proverb goes “*onye agwara na obu nne ya muru ya abughi mkpari ka akpariri ya, mana onye agwara na obu nna ya muru ya bu ugwu ka akwanyeere ya*,” which literary translates to “it does not amount to insult to describe one as a child of their mother, but then it is an honour to describe one as a child of their father.” In other words, while motherhood is not despised, fatherhood is honoured. This proverb, like many similar others, clearly underline the pre-eminence of fatherhood in Igbo cultural worldview (Madu, 2020).

Madu (2020) observes that in the traditional Igbo society, what matters is one’s patrilineal line; it is from the paternal ancestry that one acquires their identity. This, according to the author, is the reason the Igbo would always ask “who is your father?” in a bid to not only find out your root, but at times also to establish your social status. Thus, it would not ordinarily matter whether one’s mother is a legally married spouse or a mere concubine, once the fatherhood is established, the person is taken as “a son [or daughter] of the soil” (Madu, 2020, p.109). The place of paternity within the Igbo cultural space is so strong that persons described as “having no father” (illegitimate children) routinely face stigmatization (Asikaogu, 2018). This stigma, according to Asikaogu (2018), has its source in the absence of a father figure that will validate the person as *nwa ala* (son or daughter of the land).

However, modern influences and legal systems have also impacted perceptions of paternity, leading to evolving dynamics within Igbo families. For instance, the ascendancy of human rights and civil liberties has been having some weakening effect on stigmatization of persons on the basis of unknown or disputed fatherhood. Thus, there is an emerging cultural change vis-à-vis paternity culture, not just in Igbo land, but in Africa as a whole (Omeire et al., 2015).

Paternity Fraud in the Igbo Socio-Cultural Context

The way paternity fraud is perceived within the Igbo socio-cultural context is shaped by how paternity itself is viewed and approached by the people. In Igbo culture, any child born to a man by his wife belongs to him irrespective of the fact that such child may have been biologically fathered by another (Onyekwelu, 2021; Madu, 2020). The implication is that paternity fraud as commonly understood today was not so much an issue in Igbo traditional society.

It has been observed that the changing idea of marital fidelity has had a defining influence on the idea of paternity fraud in today's Igbo society. Before now, married men were known to keep concubines without the culture openly forbidding this. In some communities in Anambra state, married men and women were permitted to have lovers outside their matrimonial roof in a practice known as *"agiri"*. The implication was that many men had children born to them under another man's roofs. Nobody went out to investigate the true paternity of the children as the cultural norms accommodated this sort of situation being that any child born under a man's roof was his irrespective of who the biological father may have been (Madu, 2020; Uchendu & Odokuma, 2015).

The overall implication of the foregoing for our understanding of paternity fraud is that it is a culturally constructed phenomenon, shaped by a people's worldview as it relates to marriage and childbearing. Thus, it is an idea which nature is subject to change from time to time as may be dictated by the changing cultural landscape of a people (Uchendu & Odokuma, 2015). It is based on this thinking that Onyekwelu (2020) contends that the clamour for DNA test on the paternity of one's kids may not always go down well with older generation Igbos and even Nigerians of other ethnicities who might consider such as unnecessary given their cultural worldview that once a man is duly married to a woman, any child born by that woman is his child.

Knowledge and Response to Paternity Test Information

There is obviously growing awareness and knowledge about paternity test globally including in Nigeria. Such awareness and knowledge obviously have implications to how people perceive and respond to issues related paternity fraud and paternity testing (Chin & Tham, 2020; Haan, Freeman, Fraser, Waller, Sanderson, Rahman, Side, Gessler & Lanceley 2017). Scholars have identified several factors influencing awareness and knowledge of paternity test information among the public. Among these factors is media portrayal which does not only publicise issues related to paternity testing, but also plays a crucial role in shaping public perception in relation to those issues. Television shows, news articles, and social media contribute to the dissemination of information about paternity testing, influencing public awareness (Haan et al., 2017; Uchendu & Odokuma, 2015; Nordin, Björk & Berglund, 2004).

Another factor is legal and social trends. Legal cases involving paternity disputes often receive public attention, shedding light on the significance of paternity testing. Social trends, such as changing family structures, also contribute to an increased awareness of the need for paternity verification (Adegbite, 2016). In Nigeria, legal disputes involving paternity disputes have become rife in recent years (Kareem, 2023; Ogundipe et al, 2021; Adegbite, 2016), and such development would very likely affect public awareness and knowledge of issues of paternity testing. Medical industry practices are another factor influencing public awareness and knowledge of paternity testing. As the medical industry integrates genetic testing into routine healthcare, individuals may encounter paternity testing options during routine medical consultations, contributing to heightened awareness (Ogundipe et al, 2021; Chin & Tham, 2020). In Nigeria today, DNA paternity testing services are becoming increasingly available, accessible and affordable. In a city Lagos, more DNA test centres have been springing up in recent years (Kareem, 2023), and their activities potentially increase public awareness and knowledge of paternity testing.

Importantly, growing public awareness of paternity testing is potentially having some social impact among the people. One instance of such impact is on family dynamics as increased awareness of these tests may lead to increased instances of paternity disputes, potentially straining relationships within families. Moreover, the revelation of unexpected

results can reshape the understanding of familial ties, prompting emotional and psychological consequences for those involved (Efut, 2021).

Just like every other social phenomenon, paternity testing is an object of social perception. It is a phenomenon that is subject to interpretations by individuals as conditioned by both internal and external factors. Cultural and societal factors related to marital and family norms and values play an important role in shaping perceptions about paternity testing. Different cultures and societies have varying views on DNA and genetics, which can impact their acceptance and understanding of this information (Azoury et al., 2021). There is copious evidence in literature that cultural and social beliefs play a significant role in shaping attitudes towards paternity testing. In some societies, questioning paternity may be considered taboo, leading to hesitancy or resistance in embracing the technology. Thus, ethical and moral elements of a people's culture are critical to how they understand and respond to paternity testing. Hence, it is the opinion of experts that understanding and respecting diverse cultural perspectives is crucial in fostering a nuanced discourse on the belief in paternity testing (Haga et al., 2013).

Cultural products from the media influence tend to influence public perception of paternity testing. Bourne et al. (2023) observe that portrayals of DNA in popular culture, such as crime dramas and documentaries, can affect how people view DNA paternity testing, often exaggerating its capabilities and accuracy. The point being made is that the media, as a cultural institution, are implicated in the shaping of a people's cultural dispositions, which in turn tend to influence their perception of paternity testing (Haga et al., 2013).

Gender dynamics plays a crucial role in shaping societal norms, expectations, and perceptions of paternity testing. The perception of paternity testing is often influenced by deep-seated gender biases, societal expectations, and cultural norms. For one, the fact that we are talking about "paternity fraud" and "paternity testing" and not "maternity fraud" and "maternity testing" reveals the gender bias of the phenomenon in question. Evidently, this bias is largely due to the patriarchal nature of marriage and patrilineal orientation of familial succession (Madu, 2020).

Theoretical Review

This study was anchored on the Evidential Theory of Belief. Also known as Evidentialism, it is an epistemological perspective that holds that a person feels justified to believe something if there is sufficient evidence to believe it. The central idea of the theory has been framed thus: “Person *S* feels justified in believing proposition *p* at time *t* if and only if *S*’s evidence for *p* at *t* supports believing *p*” (Conee & Feldman, 2004, p.87). In other words, an individual would feel satisfied holding a particular belief when he/she considers the available evidence as sufficient to support the belief. Stated differently, people seek for what has been termed “epistemic justification” – justification to hold a belief. This is a feeling of believing justifiably or reasonably; a sense of satisfaction that one is correct in his/her belief and not in error (Feldman & Conee, 2001). This theory has its origin in the philosophy of mind and was pioneered by Richard Feldman and Earl Conee in 1979. They defined evidentialism as referring to a state of being satisfied about one’s “doxastic attitudes” which include belief, disbelief, and suspension of judgment – because of one’s conviction that these attitudes are based on evidence. Therefore, the Evidential Theory of Belief is not just an explanation about how individuals justify their beliefs, but also about how they justify their disbelief and withholding of belief (Conee & Feldman, 2004).

Importantly, the Evidential Theory of Belief is not concerned about the correctness of a belief held by someone; rather its focus is on whether the holder of the belief feels justified to hold the belief. Secondly, this justification must be anchored on the person’s conviction that available evidence justifies the belief; in other words, the conviction that one is believing for a good evidential reason (Haack, 1999). As such there are four components in this theory, according to Haack (1999):

- ❖ **Subject:** This refers to the person holding a particular belief. He/she is the human agency capable of believing, disbelieving or withholding belief (uncertainty). Thus, a father may believe or disbelieve that he is the biological father of a child, or he may withhold believing, meaning he is uncertain of what the true situation is.
- ❖ **Object:** This is the object of belief. It is what is believed, disbelieved or in regard to which belief is withheld. An example will be the paternity of a child.

- ❖ **Evidence:** This is the situation that is prompting belief, disbelief, or withholding of belief. Examples of such situation include a child's physical semblance or not with the father, DNA test result etc.
- ❖ **Justification:** This implies one's persuasion that he/she is justified to hold a belief based on available evidence. It refers to one's satisfaction that evidence justifies his/her belief.

Thus, a subject (a human person) may believe, disbelieve, or withhold believe about something or a situation (object) based on a what he/she believes is a verifiable state of affairs (evidence), and may conclude that this state of affairs is a sufficient reason for the belief, disbelief, or withholding of belief (justification). This encapsulates the postulation of the Evidential Theory of Belief (Haack, 1999).

Therefore, the Evidential Theory of Belief explains why people usually take steps to justify the basis of their belief through seeking evidence to support the belief. This justification, according to Feldman (1998), is crucial for one's mental balance and peace of mind. Thus, one may feel disturbed and restless if they are not satisfied within themselves that what they believe is evidentially justifiable. The foregoing helps to theoretically situate married people's perception of belief of DNA paternity test information. Such perception will be a product of both individual (psychological) disposition and social (sociological) factors such as norms, values and beliefs around paternity among Igbo people. This perception may then influence their belief in relation to paternity test result.

Method

This study adopted a qualitative approach involving use of in-depth interviews (IDI) to collect data. The study area was the Southeast geopolitical zone of Nigeria comprising five states of Abia, Anambra, Ebonyi, Enugu and Imo. The population was married Igbo people resident in South-East geopolitical zone of Nigeria from whom 24 participants were purposively selected. The descriptive thematic method was applied for data analysis. This

involved critical reading of the IDI transcripts to identify relevant emerging themes under which the analysis is to be done. Thereafter, both the quantitative and qualitative data were read and interpreted together to generate the findings of the study.

Data Analysis and Discussion

Demographic Description of In-Depth Interview (IDI) Participants

In line with the purposive selection approach as described above, the IDI participants were selected based on (a) sex i.e. 12 males and 12 females; (b) age i.e. six participants from each of the predetermined age brackets (18 – 18 years; 29 – 39 years; 40 – 50 years; and above 50 years), and (c) educational qualifications i.e. six participants from each of the predetermined categories (Basic Education; OND/NCE/Pre-degree Diploma; First Degree/HND; and Postgraduate Qualification).

Knowledge of DNA Paternity Test Information

Responses of the participants regarding their understanding (knowledge) of DNA paternity test information generally revealed that they all have some idea of what DNA paternity test is and the implication of the information (test result) emanating from it. However, some of the participants exhibited deeper knowledge of this phenomenon than others. Participant 13 stated:

I think based on what we have heard, DNA paternity test is the most reliable way of determining paternity. I am aware paternity can be established through blood group and genotype testing, that is depending on the traits of the parents and those of the child. But then I DNA test is the most certain way of doing this (Female, 38yrs)

Participant 3 said, “I know that DNA paternity test shows either a positive or negative result, and that a positive result indicates that there is biological relationship while a negative result shows there is not” (Male, 43yrs). Similarly, Participant 11 stated, “I know that a DNA test compares the genetic markers of the father and child to determine paternity. It’s said to be over 99 per cent accurate if done correctly” (Male, 38yrs). Participant 17 likewise knew that the correctness of the DNA paternity information is

dependent on how properly the test is conducted: “From what I’ve read, a DNA test requires samples like saliva or blood from both the father and child. The results are usually conclusive unless there’s a mistake during the process” (Female, 23yrs).

The above exemplifies how some of the participants were able to show their understanding of the import of information produced by DNA paternity test. This understanding (knowledge) went beyond just knowing that such test helps establish paternity as the participants could say what exact information (from the test) would mean that paternity has been proved or disproved. These participants’ knowledge can therefore be said to transcend mere awareness of what DNA paternity test information is.

However, not all the participants fell under the above category as some admitted that their knowledge was limited; while they are not ignorant of DNA paternity test information, their knowledge of it lacked certain details. For instance, Participant 12 said:

I have been hearing about DNA test and I know it to be used for checking whether a child belongs to someone. I have read about couples who went for the test and discovered that there is no blood relationship between the child and the supposed father. This is just what I know about this (Male, 54yrs).

Similarly, Participant 9 admitted:

I understand it to be a medical test that helps people to resolve issues of biological relationship between a child and a man. Through it people can discover the truth about who is the real father of a child. I have not gone for such a test before and have never seen the result and don’t know how it looks, so may not even understand the information there if it is presented to me (Male, 40yrs).

In the same vein, Participant 20 said, “I have heard of DNA test but don’t know exactly how they work. I think it involves examining the child and the man to see if they are related by blood. I know it has something to do with genetics, but I’m not sure how accurate it is or

how the results are determined” (Female, 49yrs). Participant 23 said she had only heard about DNA paternity test on radio programmes but doesn’t “fully understand the process or how trustworthy it is” (Female, 50yrs). In the same vein, Participant 2 admitted not to “know much about the specifics,” but believes “the test can prove if a child is yours or not.” According to him, he would require “someone to explain the process to me” (Male, 50yrs). Participant 8 admitted:

I know DNA tests exist to confirm paternity, but I don’t know the technical details. I’ve only heard people talk about it in passing. I do not know exactly how the result is read, but I know that through it, blood relationship can be known (Male, 38 yrs).

Emerging from these responses is the fact that the participants had a general understanding of DNA paternity test information – they understand that information produced by such tests helps to establish blood relationship between a child and the supposed parent. However, while some of them knew that a positive result implies there is blood relationship while a negative one shows otherwise, others did not have this specific insight. Admittedly, being that DNA test is a technical scientific area, ordinary members of the public may not understand the technical intricacies of what it is and the information (test result) that emanates from it. Thus, it is understandable that while all the participants showed that they had the basic idea that this sort of medical examination helps in establishing blood relationship, not all were able to say more than that.

In all, the above quantitative and qualitative data indicate that there was high knowledge of DNA paternity test information among married people in Southeast Nigeria. In other words, they generally have understanding of what DNA test information is i.e. the implication of the information embodied by the test result.

This high knowledge can be attributed to the fact that DNA paternity testing has in recent years been gaining popularity in Nigeria (Abeebllahi & Abdul-rahim, 2022; Kareem, 2023) with several high-profile cases of discovery of paternity fraud through it being reported both in the conventional and social media (Adebayo, 2023; George, 2023). Conventional

and social media reports are noted in literature as a contributory factor to public awareness and knowledge of issues related to DNA paternity test (Haan et al., 2017; Uchendu & Odokuma, 2015; Nordin et al., 2004).

Perception of DNA Paternity Test Information

The respondents generally perceived DNA paternity test information as something that has some practical value for couples in certain circumstances. Participant 14 said, “I think paternity test, if it can be procured, is absolutely necessary when there is dispute over paternity so that all the parties know where they stand” (Female, 29 yrs). For Participant 1, the trauma of paternity fraud makes DNA paternity test information necessity. According to him, “the affected parties can be mentally affected. DNA test will then become necessary to resolve issues and give everyone rest of mind” (Male, 42 yrs). Participant 16, however, saw beyond paternity fraud:

It is not just about paternity fraud, there may be cases like rape where a woman may not be very certain as to by whom she got pregnant – her husband or the rapist. In that case, DNA paternity test will become necessary for resolving the issues so that the couple will have rest of mind (Female, 40 yrs).

But then, the participants were keen to express their fear as to possible backlash of DNA paternity test information. Participant 18 stated:

I think DNA tests can bring peace of mind when there are doubts about paternity. But then asking for such in a marriage might signal mistrust, which could harm the relationship more than any truth it reveals. That is the dilemma I am seeing there. It is quite risky, you will certainly see the beginning but may never foresee the end (Female, 46 yrs).

Participant 5 was categorical that while DNA paternity test information is desirable in cases of doubted paternity, the risk is “so much”. According to him, in “our culture, it can break families, even if it confirms paternity: (Male, 53 yrs). Similarly, Participant 24 submitted:

It's necessary in cases of doubt, but the fear of consequences keeps people from going for it. For instance, what happens to the child if the test shows a negative result? It could ruin their sense of belonging. Definitely, I'm not against it, but I believe it should only be done when absolutely necessary. If not, one may just be opening a Pandora's box. You might get more than you bargained for, and not everyone is ready for the truth (Female, 27 yrs).

One recurring point in the participants' perception of risk in DNA paternity test information is the possible adverse effect it could have on the emotional wellbeing of the parties as well as on mutual trust and cordiality between partners. For instance, Participant 7 submitted:

DNA tests are desirable for medical or legal purposes, but for the particular individuals going for them, they definitely come with the risk of emotional devastation. It's quite delicate and should be approached with care. It is a very risky thing because, depending on how the result turns out, the ending may be very traumatic for those involved (Male, 35yrs).

There was also the suggestion by some of the participants to the effect that the risk is not just about whether the paternity test information would prove or disprove paternity but is also about how seeking for such information impacts how the couple see each other. For instance, Participant 13 stated, "If my husband asked me for a DNA test, I'd wonder if someone was influencing him or planting doubts. It could bring unnecessary conflict into our home" (Female, 28yrs). Similarly, Participant 17 noted, "It is good to know the truth about who owns a child, but a DNA test feels like an insult. If my husband asked for it, I will feel hurt because that is simply saying that he does not trust me" (Female, 23yrs). Also, Participant 20 considered it "a risky conversation to have with your husband." She, however, admitted that given the imperfections humans, situations that make paternity test information imperative will continue to occur inevitably. According to her, "it is hence

a risk but one we must live with” (Female, 49yrs). While agreeing with above sentiments, Participant 1 believed social stigma is an important source of this risk:

It is better to address doubts about paternity as soon as this can be done. But then our society stigmatizes both the man who asks for the proof and the woman in question. Paternity test, in my view, is still being seen as a means of catching a thief as against clearing doubts. I am not against the test itself; it is just the intent behind it. Once it is done with mutual agreement, I see nothing wrong with it, but if not, it may result in irreparable damage to trust (Male, 42yrs).

In all, it can be stated that the participants’ perception is such that appreciates DNA paternity test information as important for resolving issues of doubted paternity but at the same time cautious of its risk. Stated differently, they appreciate paternity test information as something that becomes imperative in certain circumstances, albeit still embodying some risk for the parties involved. So, their perception can be said to be defined by ambivalence as they reckon with both the necessity of DNA paternity test information and the possible threats emanating from it.

Nonetheless, the preponderant opinion, based on the above data, was that DNA paternity test information is necessary under certain circumstances where issues of paternity need resolving, but that seeking for this information comes with its inherent risks to the parties involved. This also largely reflects the views of the IDI participants who, however, added that the wellbeing of the child regarding whom DNA paternity test is conducted is also at risk. Stated differently, while married people in Southeast Nigeria perceived DNA paternity test information as important for achieving certainty in situations of doubted paternity, they equally saw it as presenting some significant risk for the marital union of the parties as well as welfare of the child in question.

Previous studies like Turney, Gilding, Critchley, Shields, Bakacs and Butler (2003) and Azoury et al. (2021) similarly reported that married persons perceive considerable risk in DNA paternity test even though they also view it as necessary in certain circumstances. In

fact, literature evidence generally point to the fact that risk evaluation is a recurring influential factor in how people approach DNA paternity test (Bourne, Tuller, Munroe, Hartley, Ford, Fallah... & Meikle, 2023; Rahma, Elsheik, Ali, Elbarazi, Patrinos, Ahmed, Al Maskari, 2020). Thus, while no related Nigerian study was found by the researcher for comparison, the agreement of this finding with those of the above foreign literature is instructive.

Influence of Culture on Perception of DNA Paternity Test Information

Marriage and paternity, being rooted in culture, cannot be appreciated outside a given cultural space where they occur. Hence, the participants were asked to relate their perception of DNA paternity test information to their Igbo cultural orientation. Instructively, they were quick to point out that within the Igbo cultural context, DNA test information may be seen as indeed unnecessary in view of the practice that recognizes a man as the father of any child born by his legitimate wife irrespective of whether he was responsible for the pregnancy or not. According to Participant 12, "In our culture, the child belongs to the man as long as he has paid the bride price and accepted the child. Going ahead to do a DNA test might challenge this traditional belief and create unnecessary conflicts" (Male, 54yrs). Also, Participant 5 observed, "In Igbo land, we say that 'nwa bu nwa' (a child is a child), so a man does not ordinarily reject a child born under his roof, so the need for biological proof may not be so much there" (Male, 53yrs). In a similar vein, Participant 23 noted that "In our culture, once a man accepts a child as his, the community recognizes that child as part of his lineage. Bringing in a DNA test might disrupt this understanding" (Female, 50yrs).

The participants also mentioned the high regard for family bond and lineage as a determining factor in how DNA paternity test information may be perceived. They observed that revelations from such information may threaten these strongly held values. For instance, Participant 20 noted that the idea of family lineage is sacred in Igbo land, and that DNA paternity test information may cause a serious disruption here, "as family unity and solidarity may be upset" (Female, 49yrs). Participant 1 contributed:

Our emphasis on communal living as Igbo people means that any issue like ... [negative DNA paternity test result] can quickly become

public knowledge, bringing shame to both families involved. This is why someone like me would discourage DNA tests being that it is better to maintain peace in the family than to dig up truths that could destroy it (Male, 42yrs).

Another cultural issue mentioned by the participants was the Igbos' high regard for a woman's marital fidelity. They were of the opinion that DNA paternity information may expose both women and their husbands to stigmatization if it reveals infidelity. Participant 3 submitted:

A woman is seen as a precious jewel who should preserve her purity, whether married or not. So, when she is exposed as a cheat in marriage, it becomes a source of shame for her and her husband because when a man's partner cheats it is a dishonor to her husband who should share her with no man (Male, 43yrs).

Agreeing, Participant 18 observed:

Igbo culture places high value on family and lineage. A DNA test might be seen as an attack on the woman's integrity and the family's reputation. Among the Igbo, questioning paternity can be seen as disrespectful to the woman and her family. It's not just about the test; it's about the implications for relationships between families (Female, 46yrs).

Many of the participants toed this line of thought, emphasizing that Igbo culture places so much value on family and marital unions. This factor tends to increase the risk perception of the participants regarding DNA paternity test information

In other words, the above beliefs and practices in Igbo culture tended to influence how the respondents viewed paternity test information. Instructively, this largely echoes the points made by the IDI participants in this regard. Thus, it can be stated that Igbo cultural beliefs

about paternity, bloodline succession and marital fidelity influenced the perception of DNA paternity test information among married people in Southeast Nigeria.

The above finding can be viewed against the backdrop of literature evidence which indicates that cultural and societal factors have an overwhelming influence on how people perceive DNA and genetics, which can impact their acceptance and understanding of this information (Azoury et al., 2021; Haga, Barry, Mills, Ginsburg, Svetkey, Sullivan & Willard, 2013). Ejele and Nwauche (2004), however, argued that since culture is dynamic and not static, the changing cultural norms in regard to marriage and family among Igbos appear to be altering people's perception about paternity fraud and paternity test.

Believability of DNA Paternity Test Information

On the believability of DNA paternity test information, the participants generally expressed their trust in the reliability of the results. Participant 19 stated, "I believe DNA tests are accurate because they're based on science. And since it is scientific, I have no reason to doubt the results" (Female, 26yrs). Observable from the answers of the participants is the fact that their trust of DNA paternity test information stems basically from the trust they have in scientific information generally. For instance, Participant 11, argued:

We normally believe what science tells us such as when lab test shows we have malaria, when we are given drugs to take to cure ailments or when we take vaccines against diseases. We do all these because we believe in the credibility of science and not because we know what scientists know. So, in the same way, we cannot begin to necessarily question the result of DNA test unless there is something unusual about the test in question (Male, 38yrs).

Participant 4 said, "I fully trust the results because science doesn't lie. If the test says I'm not the father, then that's the truth, even if it's hard to accept" (Male, 33). Similarly, Participant 24 noted her trust in DNA paternity test information since "it is known to work, it has been demonstrated as giving accurate results that have helped people resolve paternity issues" (Female, 27yrs). Some other participants employed words like "reliable",

“accuracy”, “credible”, and “dependable” in describing their trust of DNA paternity test information.

The foregoing clearly indicates the participants’ readiness to belief DNA paternity test information. Nonetheless, some of the participants were not oblivious of the possibility of human errors that may compromise trust of DNA paternity test information. Participant 7 submitted, “The test itself is trustworthy, but I’m cautious about human errors in handling or interpreting the results” (Male, 35yrs). Participant 11 is, however, outright skeptical: “I’m skeptical of DNA tests because I have heard stories of swapped samples or documentation errors. I think I would always need a second test to be sure” (Female, 38yrs). This sentiment was echoed by Participant 3: “DNA tests are not infallible. If the result doesn’t match my expectations, I would want a second test at some other place before making any decisions” (Male, 43yrs). According to Participant 6, “while the science is sound, I don’t fully trust the results because there’s always room for mistakes because it is humans that are handling the process” (Male, 52yrs).

The possibility of malpractices was also raised by the participants as likely affecting trust in DNA paternity test information. Participant 11 said:

DNA testing is reliable, but it’s important to ensure the samples are not tampered with. I have read about a case where one of the parties colluded with someone in the lab to tamper with samples in order to influence result. If something like this is possible, then one has to apply some caution in approaching DNA test results (Male, 38yrs).

Participant 21 similarly stated, “I worry about the possibility of fraud. Someone with malicious intent could try to manipulate the results to cause problems in my family” (Female, 25yrs). For Participant 18, she doubtlessly had not mistrust of DNA paternity test information basically, but her fear was possible influence of corruption. According to her, “In our environment where so much corruption exists, I wouldn’t put blind faith in just one test result, I may always seek another opinion” (Female, 46yrs).

In all, the foregoing indicates that the participants trust DNA paternity test information as a scientific phenomenon. However, this trust is also cautious of the interference of human imperfections which may compromise the reliability of the results. Stated differently, they did not doubt the efficacy of DNA test as a means of proving paternity, but were, however, conscious of external factors that can distort credibility of test information.

Data from the IDI similarly revealed high trust of DNA paternity test information as a true confirmation of paternity by the participants. They did not believe issues like the facility of test, perceived competence of the test and their prior conviction about a child's paternity would be of influence on their trust of this. However, some of the participants pointed out that possible human errors and fraud can affect their trust of such information. Therefore, it can be stated that there was high degree of trust of DNA paternity test information as true means of confirming paternity among married people in Awka, but that they were also conscious of the possible effect of human error and fraud on the accuracy of such information.

Influence of Gender Dynamics on Perception of DNA Paternity Test Information

Among the cultural factors that may influence people's perception of DNA paternity test information is gender, hence the participants were invited to air their opinions on how their gender role may have influence the way they viewed this phenomenon.

One factor that emerged prominently from the male participants was the pride associated with masculinity in Igbo culture. Participant 3 submitted:

As a man who is considering having a DNA test, you should also consider what that may mean for your standing as a man especially in your community. If the result doesn't go in your favour, people might begin to question your manhood because being able to father a child is so much valued among our people. A man who isn't able to do so is not considered a man. This may be a wrong way of reasoning but that is the reality (Male, 34yrs).

Participant 6 also concurred, “If the result shows I’m not the father, it would be a big blow to my identity and pride as an Igbo man. Our culture places so much importance on lineage, so I would feel betrayed and humiliated” (Male, 52yrs).

Some other participants emphasized this point. It was their view that its possible implication for a man’s pride makes DNA paternity test information all the more a risky venture for men. Few of the participants mentioned the sense of loss a man would feel discovering he had spent a lot on the upkeep of a child that is not his. They observed that a key component of men’s role in Igbo land is funding a child’s training, a responsibility that includes feeding, education, and others, and that no man would feel happy labouring to do all this only to observe that the said child is not his. Participant 11 said,

This is a big risk in going for paternity test; a man will feel shortchanged, he will feel cheated and defrauded. It is different when a person chooses on his own to train a child of another, but once he does it on the false belief that the child is his, then trauma will set in once the error is discovered (Male, 38yrs).

Similarly, Participant 12 contributed, “The ... financial aspect also matters. In our culture, paying for a child’s education and other aspects of upbringing is tied to paternity; the father is the breadwinner. So, a negative [DNA paternity test] result would complicate issues for the spending man” (Male, 58yrs).

For the female participants, the implication of DNA paternity information to their image as wives who should be faithful to their husbands also mattered. They appreciated the fact that Igbo society placed greater emphasis on wife’s chastity as against that of the man, and which they saw as exposing the woman to greater stigmatisation than a man would experience in the event of an unfavourable test result. Participant 16 stated:

If the test shows my husband is not the father [of my child], I will face condemnation from both his family and mine as well as from outsiders. This is because in Igbo culture, a woman’s honour is tied

to her fidelity, and she is expected to guard this without compromise (Female, 40yrs).

Similarly, Participant 24 observed,

As a woman, I feel the idea of a DNA test is like putting me on trial because if the result shows the child doesn't belong to my husband, then I am ruined no matter whatever excuses I may have to make. Our culture doesn't forgive cheating by a wife, it is treated as an abomination (Female, 27yrs).

Some of the Participant observed that their position as a woman keeps them at risk of losing their marriage because of such unfavourable DNA paternity test information. Participant 22 said,

The result may affect my marriage. If the test is negative, I am likely to be sent back to my family in disgrace, and my children may lose their inheritance rights. But then even if the result confirms paternity, I will still feel hurt and offended that my husband doubted my fidelity enough to request the test (Female, 29yrs).

Participant 18 also spoke about lineage and inheritance, observing that it is the woman who would have to bear the burden of training a child whose presumed patrilineal root has been disproved. According to her, "If the result proves the child does not belong to my husband, I would be left to worry about my child's future. In Igbo culture, a child without a recognized father may face discrimination and rejection within the extended family" (Female, 46yrs). As observed by Emeka-Nwobia (2021), the stakes are quite high for women in terms of discovery of paternity fraud given the premium placed on feminine chastity in Igbo culture.

The above, in all, shows that cultural sentiments about gender roles tended to influence the respondents' perception of DNA test information. Similarly, the male IDI participants mentioned that they were concerned about the implication of negative DNA paternity test

information on their desire to maintain their patrilineal blood line and their image as a man who is culturally expected to be potent and fertile, while their female counterparts were also concerned about the implication of this for their public image as a woman who is expected to maintain her chastity. Thus, it can be stated that gender roles as related to male fertility and feminine chastity influenced perception of DNA paternity test information among married people in Southeast Nigeria. The foregoing echoes the finding by Turney, Gilding, Critchley, Shields, Bakacs and Butler (2003) that perception of paternity fraud and paternity test is gendered on the part of both men and women in Australia. Findings by Bourne et al. (2023) and Abeebllahi et al. (2022) all point to influence of gender role on how individuals perceive issues of paternity fraud and paternity test.

Conclusion

Based on the findings of this study, it can be concluded that the response of married people in Southeast Nigeria to DNA paternity test information is rooted in the cultural dynamics of the Igbo ethnic group. In other words, the way they see and possibly behave towards such information would be a function of the norms, beliefs and other elements that define the cultural space of that ethnic group. This is in line with the sociological understanding of how humans relate with technological phenomena (Leonard, 2012) – which DNA paternity test information is part of. Incidentally, while the researcher could not find related local studies, similar studies elsewhere have made similar findings as the present research. This is especially in regard to the influence of cultural forces on how people perceive DNA and genetics, which can impact their acceptance and understanding of DNA paternity test information (Azoury et al., 2021; Haga et al., 2013) as well as the role of gender on how individuals perceive issues of paternity fraud and paternity test (Turney et al., 2003; Bourne et al., 2023; Abeebllahi & Abdul-rahim, 2022).

Furthermore, the high level of believability of DNA paternity test information found among married people in Southeast Nigeria can, based on the Evidential Theory of Belief, be linked to their trust in science as an evidence-based endeavour. This conclusion is clear from the submissions of the IDI participants who described their belief of DNA paternity test information as stemming from their knowledge that it is a generally accepted scientific

procedure in the mould of other medical procedures like disease diagnosis and treatment. Hence, based on the foregoing, it can be stated that the results of this study validate the position of the Evidential Theory of belief.

Recommendations

Against the backdrop of the findings of this study, the following recommendations are made:

1. Given the influence of culture on the response of married people in Southeast to DNA paternity test information, cultural institutions (including religious institutions that join people in marriage) should take up the challenge of enlightening people on issues related to paternity fraud and paternity test. This is crucial given the far-reaching and lasting consequences that may befall parties when they take wrong decisions in this regard.
2. Due to the mental trauma and related issues that may arise from DNA test information as a result of cultural beliefs (as found by the study), hospitals and other facilities offering DNA tests may have to integrate counseling as part of their testing protocol, just as obtained with HIV testing. Such counseling may come before testing as a way of preparing the parties for the outcome and after testing as a way of helping them cope with any possible negative outcome.
3. Against the backdrop of the finding that married people in Southeast Nigeria perceive human error and fraud as possibly compromising the accuracy of DNA paternity test information, there may be need to ensure strict guidelines for operation of DNA test centres in the country, and if such already exists, they should be publicized for sake of transparency and for strengthening public trust in this science. This is quite significant at this time DNA test centres are springing up in the country in their numbers (Kareem, 2023).

References

- Abeebllahi, O. I. & Abdul-rahim, A. (2022). Marital infidelity and paternity dispute in Nigeria: An Islamic perspective. *Essence of Sharia*, 5, 1 – 17.
- Abubakar, S. (2002, September 6). Africans detest paternity test over marital peace – Prof. Nwuba, *Vanguard*. <https://www.vanguardngr.com/2022/09/africans-detest-paternity-test-over-marital-peace-prof-nwuba/>
- Adegbite, A. (2016). The Nigerian legal framework on the use of DNA in the resolution of child paternity dispute. *Leeds University Law Journal*, 1(2), 216 – 224.
- Akinkahunsi, T. (2019, May 18), Would you be in support of men carrying out DNA tests on their children? *The Punch*. <https://punchng.com/would-you-be-in-support-of-men-carrying-out-dna-tests-on-their-children/>
- Asikaogu, J. (2018). Igbo cultural values and the effect of globalization: A critical analysis. *ARCN International Journal of Social Sciences and Humanities*, 12(2), 42 – 51
- Azoury, M., Mrad, F. A. Mansour, I., Ibrahim, J.-N., Rjeily, Z.A. & Schmit, G. (2021). Perception of the general public towards the ethical and legal issues surrounding DNA paternity testing in Lebanon. *Ethics, Medicine and Public Health*, 17, 109 – 121. <https://doi.org/10.1016/j.jemep.2021.100640>.
- Bellis, M. A., Hughes, K., Hughes, S. & Ashton, J. R. (2017). Measuring paternal discrepancy and its public health consequences. *J Epidemiol Community Health*, 59(9), 749–54.
- Bourne, P., Bailey, S., Tuller, J., Munroe, S., Hartley, J., Ford, K., Fallah, J., Campbell, C., Foster, C., McLean, C., Muchee, T. & Meikle, A. (2023). The male's perspective on paternity fraud in Jamaica during the post-COVID-19 era. https://www.researchgate.net/publication/367678493_The_Male's_Perspective_on_Paternity_Fraud_in_Jamaica_during_the_Post-COVID-19_Era
- Bran, A., Vaidis, D. C. (2020). On the characteristics of the cognitive dissonance state: Exploration within the pleasure arousal dominance model. *Psychol Belg.*, 60(1), 86 – 102. DOI: 10.5334/pb.517.
- Chin, J. J., Tham, H. W. (2020). Knowledge, awareness, and perception of genetic testing for hereditary disorders among Malaysians in Klang Valley. *Front Genet.*, 11(5), 422 – 431. DOI: 10.3389/fgene.2020.512582. PMID: 33343613; PMCID: PMC7744680.
- Cooper, J. (2019). Cognitive dissonance: Where we've been and where we're going. *International Review of Social Psychology*, 32(1), 332 – 341. <https://doi.org/10.5334/irsp.277>

- Dahm, M, (2021). Crock C9 communication of uncertainty, diagnosis and trust. *BMJ Open*, 11, 111 – 118. DOI: 10.1136/bmjopen-2021-QHRN.9
- Efut, M. R. (2021). Paternity fraud: Examining its causes, tort of deceit and victims' compensation. *Global Scientific Journal*, 9(12). 544 – 359. www.globalscientificjournal.com
- Ejele, O. A. & Nwauche, C. A. (2004), Determination of paternity disputes in the Niger Delta region of Nigeria. *Nigerian Postgraduate Medical Journal* 11(3), 187 – 189. https://journals.lww.com/npmj/abstract/2004/11030/determination_of_paternity_disputes_in_the_niger.4.aspx
- Ejikeme, J. (2020). Igbo cultural values: The issue of globalization. *Ogbazuluobodo: University of Nigeria Journal of Multidisciplinary Studies*, 1(2), 111 – 122.
- Emeka-Nwobia, N. (2021). Understanding gender complementarity in Igbo society: The role of Umuada and Umuonna in peacebuilding. *Essay for the Social Science Research Council* (SSRC). <https://www.kujenga-amani.ssrc.org/2021/07/21/understanding-gender-complementarity-in-igbo-society-the-role-of-umuadaand->
- Feldman, R. (1998). Having evidence. In D. Austin (Ed.), *Philosophical analysis* (pp.83 – 104). Kluwer Academic Publishers.
- Haack, S. (1993). *Evidence and inquiry: Towards reconstruction in epistemology*. Blackwell Publishers.
- Hann, K. E. J., Freeman, M., Fraser, L., Waller, J., Sanderson, S. C., Rahman, B., Side, L., Gessler, S. & Lanceley, A. (2017). PROMISE study team. Awareness, knowledge, perceptions, and attitudes towards genetic testing for cancer risk among ethnic minority groups: A systematic review. *BMC Public Health*, 17(1), 503 – 516, DOI: 10.1186/s12889-017-4375-8.
- Isidien, I. C. (2015). The family as the bedrock of Igbo traditional society. *MEL - Journal of Modern European Languages and Literatures*, 4, 111 – 128.
- Kareem, I. A. (2023, September 17). Paternity fraud in Nigeria... unveiling the hidden truth. *The Guardian*. <https://guardian.ng/life/on-the-cover/paternity-fraud-in-nigeria-unveiling-the-unhidden-truth/>
- Madu A.A. (2000). *Omenala Igbo: "We the people of Igbo land."* Bookmarc's Houston.
- Muanya, C & Ezea, S. (2018, June 23). Challenges and effects of paternity test on marriages, *The Guardian*. <https://guardian.ng/saturday-magazine/challenges-and-effects-of-paternity-test-on-marriages/>

- Nordin, K., Björk, J. & Berglund, G. (2004). Factors influencing intention to obtain a genetic test for a hereditary disease in an affected group and in the general public. *Prev Med.* 39(6), 1107 – 1114. DOI: 10.1016/j.ypmed.2004.04.021.
- Ogundipe, S., Arebi, Y. & Usman, E, (2021, January 10). Nigeria ranks 2nd highest in paternity fraud in the world...Three out of ten Nigerian men are not biological fathers of their children... *Vanguard*. <https://www.vanguardngr.com/2021/01/nigeria-ranks-2nd-highest-in-paternity-fraud-in-the-world/>
- Okafor, E, E, (2019). Marital perception in Igbo traditional society in early female-authored Igbo novel, Ada Meniru's Nwaeze. *Interdisciplinary Journal of African & Asian Studies*, 5(1), 23 – 49.
- Onyekwelu, E. (2021, January 4). Paternity Fraud, Modernity and a Certain Igbo Culture. *Pilot News*. Retrieved from <https://www.westafricanpilotnews.com/2021/01/04/paternity-fraud-modernity-and-a-certain-igbo-culture/>
- Rahma, A. T., Elsheik, M., Ali, B. R., Elbarazi, I., Patrinos, G. P., Ahmed, L. A., Al Maskari, F. (2020). Knowledge, attitudes, and perceived barriers toward genetic testing and pharmacogenomics among healthcare workers in the United Arab Emirates: A cross-sectional study. *J Pers Med.*, 10(4), 216 – 224. DOI: 10.3390/jpm10040216.
- Simwa, L. Z. A. (2023). What is the cost of a DNA test in Nigerian hospitals? A comprehensive guide. <https://www.legit.ng/1135555-cost-dna-test-nigeria-hospital.html>
- Turney, L. & Gilding, M., Critchley, C., Shields, P., Bakacs, L. & Butler, K. (2003). DNA paternity testing: Public perceptions and the influence of gender. *Australian Journal of Emerging Technologies and Society*, 1(1), 21 – 37. <https://researchnow.flinders.edu.au/en/publications/dna-paternity-testing-public-perceptions-and-the-influence-of-gen>
- Uchendu, J. O. & Odokuma, E. I. (2015). Cases of paternity discrepancy in a Nigerian tertiary hospital. *International Journal of Forensic Medical Investigation*, (1)1, 15 – 17.
- Urama, E. N. (2021) Offspring's experiences and paternity crisis: Creative writers and same-sex marriage in Igbo culture, *Journal of Contemporary African Studies*, 39(2), 185 – 198. DOI: 10.1080/02589001.2020.1754361