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Genotype Identification Messages and Family Dynamics in Ibadan South-West, Nigeria: Impact and Emerging Challenges

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ABSTRACT

Background: Family sustainability is profoundly shaped by health communication and the interpretation of genetic information. In Nigeria, where genotype identification is critical for preventing hereditary conditions such as sickle cell disease, genotype-related messages significantly influence family relationships and decision-making. Despite growing awareness of genotype testing, limited research has examined how these messages affect family communication patterns, relational dynamics, and interpretation challenges.

Objective: This study examined the impact and emerging challenges of genotype identification messages on family dynamics in Ibadan South-West, Nigeria.

Method: This study integrates Family Communication Patterns Theory and Framing Theory to examine genotype messages within Nigerian family contexts. The study collected data through the Family Health Survey administered to 422 respondents using cluster and convenience sampling and interview with a healthcare practitioner. Quantitative data were analysed using SPSS with descriptive statistics and linear regression analysis, while qualitative data were thematically analysed and triangulated with survey findings.

Results: The study found out that genotype identification messages substantially improved family communication (87.2%), facilitated informed health decision-making (95.2%), and strengthened emotional bonds (81.5%). However, critical challenges emerged, including lack of understanding (24.4%), communication barriers (19.7%), stigmatisation (19.2%), and fear of discrimination (14.9%).

Conclusion: Genotype identification messages strengthen family relationships in Ibadan South-West, Nigeria, but families need better support to overcome persistent barriers. Culturally appropriate framing, combined with open communication is essential for strengthening family bonds and promoting informed health choices.

Unique Contribution: This study moves beyond awareness studies to examine family communication dynamics around genotype messages in Nigeria, providing evidence-based recommendations for culturally sensitive genetic counselling infrastructure.

Key Recommendation: Nigeria must build comprehensive genetic counselling infrastructure, including accessible counselling services, healthcare professionals trained in empathetic genetic communication, and culturally sensitive educational materials that address stigma.

Keywords: Genotype Identification, Health Communication, Sickle Cell Disease, Family Communication Patterns Theory

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INTRODUCTION

Communication is central to human society, shaping values, behaviours, and the sustainability of families and communities. Within families, communication significantly influences health behaviours, decision-making, and lifestyle choices (Muoneke & Nwafor, 2024; Nsude & Nwafor**,** 2016). How families share and discuss health information and the collective decisions they make profoundly impact the health behaviours adopted by individual members. Research has established that family communication patterns strongly influence health behaviours, including adherence to medical advice, adoption of healthy lifestyle practices, and effective disease management (Rosland et al., 2012; Thomas & Hovick, 2021). Positive and supportive family communication therefore serves as a foundation for health promotion and overall well-being.

However, deeper understanding is needed of the mechanisms through which family communication shapes individual health behaviours. How families share information, communicate, and make decisions directly affects their health outcomes. Different communication styles, whether open, supportive, or restrictive, shape how health information is interpreted and acted upon (Thomas & Hovick, 2021; Aligwe et al., 2017). Exploring these dynamics helps explain why some families more successfully adopt healthy behaviours than others and identifies pathways for improving health communication to support better outcomes.
The intersection of health communication and genotype identification has become increasingly significant in Nigeria due to the high prevalence of sickle cell disease (SCD) and other hereditary conditions. Although awareness of personal genotype has improved, misconceptions about its implications remain widespread (Adeyemi et al., 2009; Ezenwosu et al., 2015). Recent studies continue to document gaps in parental knowledge about sickle cell disease and genetic inheritance patterns, highlighting persistent challenges in effective health communication (Adegoke et al., 2022; Oron et al., 2023). This reveals gaps not only in knowledge but also in how genetic information is communicated and understood within families.

Beyond awareness, the acceptance and practical application of genotype identification in family decision-making remain uneven across Nigerian communities. Recent studies show that while awareness levels may be moderate, practical application of genotype information in family decisions is often limited. In Abuja, for example, Olaniyan et al. (2024) found low awareness of new born screening for SCD but high willingness to act when families were adequately informed. Similarly, Maduka and Okubor (2023) reported low uptake of preconception genotype screening in South-South Nigeria, highlighting the need for better-targeted communication strategies supporting informed marital and reproductive decisions. These studies suggest that communication gaps, rather than lack of awareness, often reduce the effectiveness of genotype identification programmes.

Genetic counselling and family-based communication are therefore critical for bridging these gaps. Evidence demonstrates that structured counselling helps families understand inheritance patterns, dispel misconceptions, and make more informed health decisions (Adeyemi et al., 2009; Nwafor et al., 2022). More recent research confirms that genetic counselling significantly influences reproductive decision-making among couples with sickle cell trait (Oron et al., 2023). Broader studies on family health communication in Nigeria indicate that family dynamics

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strongly shape children's health attitudes and practices, extending beyond genetics to behaviors such as disease prevention and lifestyle choices (Edet et al., 2024; Ezenwosu et al., 2015). Studies such as Adegoke et al. (2022), Maduka and Okubor (2023), Hezekiah et al. (2024), Oron et al. (2023), Wogu et al. (2019) and Adeyemi et al. (2009) focused on awareness levels, screening uptake, genetic counselling effectiveness, and reproductive decision-making. None of these studies have, however, examined how genotype identification messages specifically affect family relationships and communication dynamics within Nigerian households. Therefore, this research attempted to fill this knowledge gap by investigating the impacts and emerging challenges of genotype identification messages on family dynamics in Ibadan South-West, Nigeria.

THEORETICAL FRAMEWORK

Based on the nature of this study, two interrelated theories were adopted. They are Family Communication Patterns Theory (FCPT) and Framing Theory. These theories are relevant because they jointly explain how communication, both within families and through media, shapes understanding, interaction, and decision-making around sensitive health topics such as genotype compatibility and hereditary risks.

Family Communication Patterns Theory (FCPT), developed by McLeod and Chaffee and refined by Koerner and Fitzpatrick (2002), classifies family communication along two dimensions: conversation orientation and conformity orientation. Families high in conversation orientation encourage open, supportive dialogue, enabling members to freely discuss sensitive health matters such as genotype identification and compatibility. Conversely, families high in conformity orientation emphasize parental authority and uniformity, which may restrict discussions and create silence around health topics. Research suggests that conversation oriented families are more resilient and better equipped to handle health related discussions, while conformity oriented families often experience communication breakdowns and emotional strain (Koerner & Fitzpatrick, 2006; Ledbetter, 2009). In this study, FCPT explains how family communication orientations influence the reception, interpretation, and application of genotype identification messages, thereby shaping family relationships and decision-making patterns.

Framing Theory, introduced by Goffman (1974) and advanced by Entman (1993), posits that the way messages are framed through selection, emphasis, and presentation significantly influences how audiences interpret and respond to information. In the context of this study, Framing Theory explains how genotype identification messages are constructed and presented in media, whether as preventive health interventions, moral imperatives, or emotional appeals, and how these frames shape family responses, perceptions, and health decisions. This theory also illuminates the emerging challenges associated with genotype messaging, including misinformation, stigma, fear, and misunderstanding within family contexts.

Together, FCPT and Framing Theory provide a dual analytical lens. While FCPT explains the internal dynamics of family discussions and how communication styles shape responses to health information, Framing Theory reveals how external media framing influences family discourse, interpretation, and decision-making concerning genotype identification. This integrated

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framework enabled a comprehensive examination of how genotype identification messages shape, challenge, and transform family dynamics in Ibadan South-West.

RESEARCH QUESTIONS

The following research questions were formulated:

i. What are the impacts of genotype identification messages on family dynamics in Ibadan South-West, Nigeria?

ii. What emerging challenges do families face in interpreting and responding to genotype identification messages in Ibadan South-West, Nigeria?

METHODOLOGY

The research design adopted for this study was mixed-methods approach, combining a descriptive survey with a key informant interview. The rationale for the adoption of this design is that it helps to accurately describe the impacts and challenges of genotype identification messages on family dynamics while providing deeper contextual understanding through healthcare professionals' perspectives. Cluster sampling and convenience sampling techniques were used to select four residential areas: Jericho, Gate, Oke-Ado, and Ring Road, located in different parts of Ibadan South-West Local Government. These areas were purposively selected based on geographic distribution and duration of establishment.

The Taro Yamane (1967) statistical formula was used to determine the sample size for this study. The sample size for this study was 440. It was derived using the population of 404,600 residents provided by the National Population Commission of Nigeria (2022) in Ibadan South-West Local Government area. To account for potential non-response and incomplete questionnaires, an additional 10% was included. Out of 440 copies of the questionnaire distributed to the four selected residential areas, 422 were retrieved and analysed using Statistical Packages for Social Sciences (SPSS). Additionally, one healthcare professional specialising in genetics and family medicine was purposively selected for a key informant interview.

Two instruments were utilised: (1) the Family Health Survey (FHS), a self-developed structured questionnaire comprising demographic information (Section A) and questions on genotype identification messages and family dynamics (Section B); and (2) the Health Practitioner Insight Interview (HPII) guide, a semi-structured interview protocol exploring the healthcare professional perspectives on genotype communication and family dynamics. To ensure the research instrument's validity, a rigorous evaluation of both face and content validity was conducted through collaborative review by the researcher, supervisor, and data analyst. A pilot study involving 50 families in Ibadan South-East Local Government assessed instrument reliability, yielding a Cronbach's alpha coefficient of 0.80, indicating satisfactory internal consistency (Reliability ≥ 0.80). The key informant interview was conducted in May 2024, audio-recorded with participant consent, and transcribed verbatim. Qualitative data were analysed thematically to identify key patterns in healthcare professional perspective, which were then integrated with quantitative findings to provide comprehensive insights into the research questions.

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RESULTS

This section presents the analysis based on data collected from 422 participants regarding the impacts and emerging challenges of genotype identification messages on family dynamics in Ibadan South-West, Nigeria.

Demographic Data Analysis

Table 1: Gender of Respondents

Gender	Frequency	Percentage
Male	219	51.9
Female	203	48.1
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 1 presents the demographic distribution of respondents in the selected population for this study. The data indicate that 219 (51.9%) respondents are male, while 203 (48.1%) respondents are female, suggesting relatively balanced gender representation among survey participants.

Table 2: Age of Respondents

Age	Frequency	Percentage
Under 18	11	2.6
18-30 years	46	10.9
31-45 years	83	19.7
46-60 years	212	50.2
Above 60	70	16.6
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 2 presents the age distribution of respondents in the selected population for this study. The data gathered showed that the largest group of respondents, 212 (50.2%), is between the ages of 46 and 60, representing mature family decision-makers.

Table 3: Educational Level of Respondents

Educational Level	Frequency	Percentage
Less than High School	26	6.2
High School Graduate	30	7.1
College/Associate Degree	5	1.2
Bachelor's Degree	316	74.9
Master's Degree	43	10.2
Doctorate/Ph.D.	2	0.4
Total	**422**	**100.0**

Source: Field Survey, 2024.

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Table 3 above reveals the educational level of respondents. It can be seen that the respondents are highly educated with 316 respondents (74.9%) holding Bachelor's Degrees. This suggests a population capable of processing health information.

Table 4: Occupation of Respondents

Occupation	Frequency	Percentage
Employed	207	49.1
Unemployed	22	5.2
Students	41	9.7
Business Owners	152	36.0
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 4 presents the occupation status of respondents in the selected population for this study. The data gathered showed that a dominant majority (49.1%) of the respondents are employed individuals, followed by business owners (36%), (9.7%) are students and 5.2% of the respondents are unemployed.

Table 5: Family Structure of Respondents

Family Structure	Frequency	Percentage
Nuclear	339	80.3
Extended	67	15.9
Blended	16	3.8
Total	**422**	**100.0**

Source: Field Survey, 2024.

The data presented in table 5 above shows that an overwhelming majority (80.3%) of the respondents identified as nuclear families, aligning with contemporary Nigerian urban family patterns.

Research Question One: What are the impacts of genotype identification messages on family dynamics in Ibadan South-West, Nigeria?

Table 6: Impact of Genotype Identification Messages on Family Well-being

Response Category	Frequency	Percentage
Very significant impact	177	41.9
Significant impact	142	33.6
Moderate impact	53	12.6
Little impact	32	7.5
No impact	18	4.3
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 6 reveals the extent to which genotype identification messages contribute to promoting family well-being. A substantial proportion, comprising 177 respondents (41.9%), reported a very significant impact, indicating a profound influence on family well-being. Additionally, 142

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respondents (33.6%) reported a significant impact. This combined total of 319 respondents (75.5%) reporting either very significant or significant impact highlights the importance of genotype identification messages in promoting family well-being.

Table 7: Impact of Genotype Identification Messages on Family Health Communication

Response Category	Frequency	Percentage
Improved significantly	121	28.7
Improved somewhat	247	58.5
No impact	39	9.2
Worsened somewhat	11	2.6
Worsened significantly	4	0.9
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 7 reveals the impact of genotype identification on communication within families regarding health issues. A significant majority reported an improvement in communication, with 121 (28.7%) stating it improved significantly and 247 (58.5%) saying it improved somewhat. This is followed by 39 respondents (9.2%) who reported no impact. In contrast, only 15 respondents (3.5%) reported a worsening of communication. These data indicates a highly positive effect of genotype identification on family communication regarding health issues, with 87.2% of respondents reporting an improvement.

Table 8: Specific Family Dynamics Affected by Genotype Identification Messages

Family Dynamic Area	Frequency	Percentage
Decision-making process	115	27.3
Communication patterns	104	24.7
Support systems and emotional support	93	22.1
Emotional connection and bonding	69	16.4
Financial planning and resource allocation	22	5.2
Conflict resolution	12	2.9
Long-term planning and goal setting	7	1.7
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 8 reveals the specific family dynamics most affected by genotype identification messages. A significant majority, comprising 115 respondents (27.3%), reported changes in decision-making process, and 104 respondents (24.7%) reported changes in communication patterns. This is followed by 93 respondents (22.1%) who reported changes in support systems and emotional support. These data indicate that genotype identification profoundly impacts family relationships, with the majority of respondents reporting changes in communication and decision-making processes.

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Table 9: Impact of Genotype Identification Messages on Shared Family Identity and Connection

Response Category	Frequency	Percentage
Strongly agree	188	44.5
Agree	156	37.0
Neutral	32	7.6
Disagree	44	10.4
Strongly disagree	2	0.5
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 9 reveals the impact of genotype identification on the sense of shared identity and connection within families. An overwhelming majority, comprising 344 respondents (81.5%), reported a positive influence, with 188 (44.5%) strongly agreeing and 156 (37.0%) agreeing that genotype identification has strengthened their sense of shared identity and connection. These data suggest that genotype identification has fostered a deeper sense of family bonding and shared identity among the majority of respondents.

In addressing the first research question, the study explored participants' perceptions of the impacts of genotype identification messages on family dynamics. The findings, as presented in Tables 6-9, reveal an overwhelmingly positive perception of the contribution of genotype identification messages to family dynamics. A significant majority of respondents reported considerable impacts on promoting family well-being (Table 6), improved communication regarding health issues (Table 7), changes in decision-making processes and communication patterns (Table 8), and strengthened shared identity and connection (Table 9). These findings collectively suggest that genotype identification messages play a vital role in enhancing family dynamics, supporting the notion that they have a positive impact on family functioning.

Research Question Two: What emerging challenges do families face in interpreting and responding to genotype identification messages in Ibadan South-West, Nigeria?

Table 10: Challenges in Integrating Genotype Identification Messages

Challenge	Frequency	Percentage
Lack of understanding	103	24.4
Communication barriers	83	19.7
Stigmatization	81	19.2
Fear of discrimination	63	14.9
Emotional distress	39	9.2
Privacy concerns	36	8.5
Cultural and religious beliefs	12	2.9
Ethical considerations	5	1.2
Total	**422**	**100.0**

Source: Field Survey, 2024.

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Table 10 reveals the challenges associated with integrating health communication and genotype identification in family units. A significant majority, comprising 103 respondents (24.4%), reported lack of understanding as a major challenge. This is followed by 83 respondents (19.7%) who cited communication barriers, and 81 respondents (19.2%) who reported stigmatization. These data indicate that families face considerable challenges in understanding and communicating genetic information, with a dominance of lack of understanding and communication barriers.

Table 11: Participant Recommendations for Improving Genotype Communication

Recommendation	Frequency	Percentage
Involve healthcare professionals in family check-ups	132	31.3
Utilize digital platforms and social media	109	25.8
Increase accessibility to genetic counselling	94	22.3
Provide more educational resources	57	13.5
Promote community workshops on genetics	30	7.1
Total	**422**	**100.0**

Source: Field Survey, 2024.

Table 11 reveals strategies for improving health communication to better integrate genotype identification within family units. A significant majority, comprising 132 respondents (31.3%), suggest involving healthcare professionals in regular family health check-ups to discuss genotypes. This is followed by 109 respondents (25.8%) who recommend utilizing digital platforms and social media to spread awareness, and 94 respondents (22.3%) who advocate for increased accessibility to genetic counselling services.

Thematic Analysis of Key Informant Interview

The key informant interview with the healthcare professional revealed three major themes regarding genotype identification messages and family dynamics:

Theme 1: Lack of Clear Understanding of Genetic Messages

The healthcare professional emphasized that many families receive genotype results without comprehending their practical implications. While families know the genotype letters (AA, AS, SS), they often fail to deeply understand the inheritance patterns. For example, couples who are both AS may not realize their children face a 25% risk of sickle cell disease. The message is delivered, but not clearly understood. This finding directly aligns with the 24.4% of respondents who identified lack of understanding as a primary challenge (Table 10).

Theme 2: Persistent Stigmatization

Stigma emerged as a deeply rooted barrier transcending educational levels. The healthcare professional observed that even educated families treat sickle cell trait as shameful, with parents concealing genotype information from extended family. Young adults particularly fear disclosure during marriage negotiations, anticipating rejection based on AS status. This creates a culture of silence undermining informed decision-making. This corresponds with the 19.2% of respondents reporting stigmatization as a major challenge (Table 10).

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Theme 3: Cultural Beliefs - Abiku and Ogbanje

A significant cultural barrier identified was traditional beliefs in 'abiku' (Yoruba) and 'ogbanje' (Igbo) - spiritual concepts explaining recurrent child loss. The healthcare professional noted that many families interpret sickle cell disease through these spiritual frameworks rather than genetic explanations. Some families view genetic counselling as Western medicine attempting to override cultural understanding, perceiving hereditary conditions as spiritual curses rather than preventable genetic issues.

While only 2.9% of respondents explicitly cited cultural beliefs as challenges (Table 10), this may under-represent true prevalence due to reluctance to acknowledge traditional beliefs in formal surveys.

These three interconnected themes reveal that lack of understanding is compounded by stigma, which discourages open communication, while cultural beliefs provide alternative explanatory frameworks competing with biomedical genetic information.

In addressing the second research question, both quantitative and qualitative data revealed significant challenges in integrating genotype identification messages within family units. Respondents identified lack of understanding (24.4%), communication barriers (19.7%), and stigmatization (19.2%) as the most prevalent challenges (Table 6). The thematic analysis corroborated these findings and revealed an additional cultural dimension: traditional beliefs in 'abiku' and 'ogbanje' that compete with biomedical explanations.

The healthcare professional advocated for integrating genetic communication into routine clinical practice, providing training for healthcare providers, and developing patient-centred educational resources. Participants proposed several strategies for improvement (Table 7), with emphasis on involving healthcare professionals in regular family health check-ups (31.3%) and utilising digital platforms (25.8%). The integration of quantitative and qualitative findings demonstrates that while challenges exist, families recognize the need for better support systems and are willing to engage with improved communication strategies.

DISCUSSION

This research examined the impacts and emerging challenges of genotype identification messages on family dynamics in Ibadan South-West, Nigeria. The findings from the collated data are discussed and related to the theories and previous studies on the variables of this research. The demographic information provided by respondents showed relatively balanced gender representation among survey participants. The largest age group was between 46 and 60 years, representing mature family decision-makers. The data revealed a highly educated population, with 74.9% holding Bachelor's Degrees, suggesting a population capable of processing health information. The dominance of nuclear family structures (80.3%) aligns with contemporary Nigerian urban family patterns.

Findings from research question one revealed that genotype identification messages have considerable positive impacts on family dynamics in Ibadan South-West. Three-quarters of participants (75.5%) reported significant or very significant impacts on family well-being,

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consistent with studies demonstrating that genetic information improves health awareness and motivates health-promoting behaviours (Adegoke et al., 2022; Oron et al., 2023). The 87.2% improvement in family health communication observed in this study exceeds rates reported in some international contexts, potentially reflecting the heightened importance of family communication in Nigerian collectivist culture (Edet et al., 2024). That decision-making processes and communication patterns were the most affected family dynamics aligns with Family Communication Patterns Theory, which posits that health information processing depends on family communication orientations (Koerner & Fitzpatrick, 2002, 2006). Families with conversation-oriented communication styles likely integrated genotype information more effectively into decision-making. The strengthening of shared family identity reported by 81.5% of participants demonstrates that genotype information, by highlighting biological connections and shared health risks, can enhance family cohesion (Rosland et al., 2012).

Findings from research question two show that despite positive impacts, considerable challenges persist. The most frequently reported challenge, lack of understanding (24.4%), underscores the complexity of genetic information and the insufficient support families receive in interpreting it. The healthcare professional interviewed provided crucial insight into this challenge:

> What I observe in my practice is that families come for genotype testing, they get their results, but many leave without truly understanding what it means. They know the letters, AA, AS, SS, but don't really understand the inheritance patterns. A couple might both be AS and not realize their children have a 25% chance of having sickle cell disease.

This reveals that messages are given but not clearly understood. This finding corroborates recent Nigerian research demonstrating continued knowledge gaps despite increased awareness of genotype testing (Adegoke et al., 2022; Maduka & Okubor, 2023).
Communication barriers (19.7%) and stigmatisation (19.2%) were nearly equally prevalent, highlighting the interrelated nature of these challenges. Stigmatization around genetic conditions, particularly sickle cell disease, remains deeply embedded in Nigerian cultural contexts (Ezenwosu et al., 2015). The healthcare professional emphasized the persistence of this stigma:

> Even educated families, like lawyers, doctors, professors, still treat sickle cell trait as something shameful. Parents hide their children's genotype status from extended family. Even Young people are afraid to disclose they're AS because they fear being rejected in marriage negotiations.

This reveals that stigma operates across all educational levels and is reinforced through community and family pressures, particularly around marriage decisions. A critical cultural dimension emerged from the interview.

> In Yoruba culture, we have the concept of 'abiku' , which in the Igbo culture, is called 'ogbanje.' Many families believe that sickle cell disease and repeated child loss are spiritual problems, and not genetic ones. When we try to explain genotype and inheritance patterns, some families see it as Western medicine trying to override their cultural understanding.

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While only 2.9% of respondents explicitly cited cultural beliefs as challenges, the healthcare professional's observation suggests this may be under-reported due to social desirability bias. The challenges identified in this study illustrate the importance of message framing, consistent with Framing Theory (Entman, 1993; Goffman, 1974). The predominantly positive reception of genotype identification messages suggests that when framed as empowering health information, they resonate positively with families. However, effective framing must also engage with traditional belief systems rather than dismissing them.

Several limitations merit consideration. First, the cross-sectional design precludes causal inferences about relationships between genotype messages and family dynamics. Second, convenience sampling may have produced a sample with higher education levels than the general population. Third, self-reported data may reflect social desirability bias, particularly regarding cultural beliefs. Fourth, the single healthcare professional interview limits generalizability. Future research should employ longitudinal designs, include multiple healthcare professional perspectives, explore cultural beliefs through ethnographic methods, and examine experiences across diverse socio-economic groups.

CONCLUSION

Based on the results of this study, the conclusion is that genotype identification messages strengthen family relationships in Ibadan South-West, Nigeria, but families urgently need better support to overcome persistent barriers. The evidence is clear: 87.2% of families experienced improved communication and 81.5% agreed that genotype identification strengthened their sense of shared identity and connection. This proves that genetic information, rather than dividing families, actually brings them together around shared health concerns and collective decision-making. The study therefore concludes that genotype messages are beneficial for Nigerian families.

However, this positive picture is incomplete. Nearly one-quarter of families (24.4%) still don't understand genetic information properly, almost one-fifth face communication barriers (19.7%) or experience stigmatization (19.2%). The study concludes that these challenges exist not because families reject genetic information, but because they lack adequate support in interpreting and using it. Even highly educated families struggle without proper genetic counselling and culturally appropriate health communication.

The final conclusion is that Nigeria must move beyond awareness campaigns to build comprehensive genetic counselling infrastructure. Families have demonstrated they want this information and can benefit from it. What they need now is accessible counselling services, healthcare professionals trained in empathetic genetic communication, and culturally sensitive educational materials that address stigma directly. Without these supports, the potential of genotype identification to improve family health and strengthen family bonds will remain only partially realised.

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RECOMMENDATIONS

The following recommendations are made to healthcare professionals, policy-makers, and stakeholders in charge of health communication and genetic counselling at the local, state, and federal government levels in Nigerian society:

1. One of the findings of this study is that genotype identification messages considerably improve family communication. Hence, it is recommended that healthcare facilities should integrate genotype discussions into routine family health check-ups rather than treating genetic counselling as a separate, specialized service accessed only during crises.
2. One of the findings of this study is that lack of understanding is a major challenge. It is recommended that policy-makers should invest in training genetic counsellors and establishing accessible genetic counselling services, particularly in under-served areas, to address the widespread lack of understanding reported by families.
3. The findings show that stigmatization and fear of discrimination are notable challenges. It is therefore recommended that health communication practitioners should develop genotype education materials that reflect Nigerian cultural values, address stigmatization directly, and frame genetic information as empowering rather than deterministic.
4. The healthcare professional emphasized the need for empathy and cultural sensitivity in genetic communication. It is recommended that medical and nursing education programs should strengthen training on genetic communication, emphasizing empathy, cultural sensitivity, and family-centered approaches.
5. It is also recommended that community-based interventions should create safe spaces for families to discuss genetic health openly, reducing stigmatization and normalizing genetic information as part of family health planning. This could include community workshops, support groups, and public awareness campaigns.

Ethical clearance

Ethical consent was sought and obtained from the participants used in this study. They were made to understand that the exercise was purely for academic purposes, and their participation was voluntary. The study protocol adhered to ethical guidelines for research involving human subjects.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Authors' Contributions

Ayomide Samuel Odupe conceived the study, including the research design and theoretical framework. He also collated the data and conducted fieldwork in Ibadan South-West and aslo drafted the initial manuscript. Babafemi Jacobs handled the statistical analysis and interpretation using SPSS. All authors have critically reviewed and approved the final draft, and are responsible for the content and similarity index of the manuscript.

Data availability statement

The datasets on which conclusions were made for this study are available on reasonable request.

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