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Barriers to Effective Genetic Counselling: Exploring Nurses' Knowledge and Cultural Competence in Ghana

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Abstract

Purpose: Despite the increasing prevalence of genetic disorders in sub-Saharan Africa, the provision of effective genetic counselling remains a significant challenge, partly due to the limited knowledge and cultural competence among nursing professionals. This study sought to investigate the barriers to effective genetic counselling among nurses in Ghana, with particular emphasis on examining how nurses' general knowledge of genetic conditions and their cultural competence inform and shape their counselling practices. The research focused on two key healthcare institutions in Accra: The University of Ghana Hospital and the Achimota District Hospital.

Methodology: A quantitative approach using a cross-sectional design was employed. The study targeted 317 registered nurses, from which a sample of 170 was selected through stratified random sampling. Data was collected using an adapted version of the Attitudes Scale for Mental Illness questionnaire. The data were analysed using linear regression analysis.

Findings: The study found that nurses' general knowledge of genetic conditions significantly and positively influences their genetic counselling practices, explaining 10.6% of the variance. Additionally, nurses' cultural experiences were found to have a statistically significant but modest effect (2.8%) on their approach to genetic counselling. These results underscore the importance of enhancing genetic education and cultural competence in nursing to improve the quality of genetic care in Ghana's healthcare system.

Unique Contributions to Theory, Practice, and Policy: This study contributes to the theoretical understanding of how cultural competence intersects with genetic knowledge to influence attitudes and practices in healthcare. It underscores the need for integrating cultural and genetic education into nursing training programs to enhance patient-centred care. From a policy perspective, the findings advocate for developing and implementing policies that support continuous genetic education and culturally competent care within the nursing profession in Ghana and similar contexts.

Keywords: *Genetic Counselling, Nursing Knowledge, Genetic Knowledge, Cultural Competence*

INTRODUCTION

Managing genetic conditions demands a comprehensive approach that integrates cultural sensitivity, professional expertise, and personal empathy (Betzler & Roberts, 2025). Nurses play a pivotal role in the care of patients with genetic conditions, and their effectiveness is influenced by their cultural, professional, and personal experiences (Cao et al., 2025). These experiences shape their attitudes, perceptions, and ultimately, the quality of patient care (Rony et al., 2024).

The importance of cultural competence in nursing, particularly in the context of genetic counselling, has been well documented. Cultural competence encompasses the ability of healthcare professionals to deliver care that is respectful of and responsive to the cultural backgrounds of their patients (He et al., 2024). Moreover, nurses' personal experiences, such as having family members with genetic disorders, often heighten their empathy and understanding when providing genetic counselling (Sandelowsky et al., 2025).

Despite the wealth of global literature emphasising the need for culturally competent genetic counselling, there remains a significant gap in research examining these dynamics within the Ghanaian context. Ghana's multicultural landscape and distinctive healthcare challenges necessitate a context-specific understanding of how nurses' experiences influence their approach to genetic conditions (Grover et al., 2024). Most existing studies are based on Western healthcare settings, limiting their applicability and generalizability to the Ghanaian healthcare system (Amoah et al., 2021).

In Ghana, particularly at institutions like the University of Ghana Hospital and the Achimota District Hospital in Accra, challenges such as limited cultural competence, inadequate professional training in genetics, and unaddressed personal biases among nurses continue to hinder the provision of effective genetic counselling (King-Kuadzi, 2024). These challenges contribute to suboptimal care, poor patient satisfaction, and unfavourable health outcomes (He et al., 2024). If left unaddressed, the consequences could further exacerbate existing healthcare disparities and compromise patient well-being.

While the significance of cultural competence and professional development in genetic care has been acknowledged (He et al., 2024; Beattie et al., 2024), the complex interplay between nurses' cultural, professional, and personal experiences remains underexplored, especially in sub-Saharan Africa (Ndirangu-Mugo, 2025). Understanding this interplay is essential for designing effective interventions that enhance nursing practice and improve patient outcomes (Saputri, 2023).

The study aimed to explore the barriers to effective genetic counselling among nurses in Ghana, with a particular focus on examining the influence of nurses' general knowledge of genetic conditions and their cultural competence on their genetic counselling practices among patients at the University of Ghana Hospital and Achimota District Hospital in Accra. The goal was to investigate barriers to effective genetic counselling and contribute to the development of culturally sensitive and professionally competent nursing practices within the Ghanaian healthcare system.

This research is significant for several reasons. First, it addresses a critical knowledge gap by examining how nurses' cultural experiences influence the management of genetic conditions within Ghana's unique cultural and healthcare context. Second, it contributes to the promotion of culturally competent care, which is essential for reducing health disparities and improving patient outcomes (Godino et al., 2013). Third, the study informs nursing education, policy, and training programs by emphasising the importance of integrating cultural competence and genetics into the curriculum. The research is intended to guide interventions that support mental health and academic achievement (King-Kuadzi, 2025). Lastly, it lays the groundwork for future research and policy development focused on enhancing the role of nurses in the genetic care continuum, particularly in culturally diverse and resource-limited settings such as Ghana.

MATERIALS AND METHODS

Study Design

This study employed a quantitative research approach with a cross-sectional design to examine the relationship between nurses' general knowledge of genetic conditions and their genetic counselling practices. The study also explored how cultural experiences influenced these practices. This design was appropriate for obtaining a snapshot of the current situation across different healthcare facilities in a defined period (Cresswell, 2024).

Study Population and Sampling

The study population comprised 317 registered nurses working in two major healthcare institutions in Accra, Ghana, the University of Ghana Hospital and Achimota District Hospital. A sample size of 170 nurses was selected using a stratified random sampling technique, which allowed for proportionate representation across various nursing specialities and levels of healthcare delivery (Faridi et al., 2025). Stratification ensured the sample adequately reflected the diversity of professional experiences and clinical settings within the broader population (Dewitt et al., 2024).

Ethical Consideration

Ethical approval for the study was obtained from the Institutional Review Board (IRB) of the University of Cape Coast (UCC). Informed consent was obtained from all participants before data collection. The anonymity and confidentiality of participants were ensured through the use of self-administered anonymous questionnaires. The study adhered strictly to ethical guidelines as outlined by the World Medical Association (2013).

Data Collection and Instruments

Data collection was carried out using a structured and adapted questionnaire based on the Attitudes Scale for Mental Illness (ASMI), comprising 34 items (King-Kuadzi, 2024). The instrument was subjected to expert review and pilot testing, confirming its content validity and reliability with a Cronbach's alpha (α) of 0.80. The questionnaires were distributed directly to the participants, and a 100% response rate was achieved. Data were analysed using Statistical Package for Social

Sciences (SPSS), version 26, and linear regression analysis was used to explore relationships among the variables.

RESULTS

Hypothesis One

H1: There is a statistically significant relationship between nurses' general knowledge of genetic conditions and their practices in genetic counselling.

To test this hypothesis, a simple linear regression analysis was conducted to determine whether nurses' general knowledge of genetic conditions significantly predicts their genetic counselling practices.

Table 1

Linear Regression on the Relationship Between Nurses' General Knowledge and Genetic Counselling Practices

Variables	B	R^2	SE B	β	T	P
Constant	2.078	.106	.267		7.790	.000
Genetic Counselling	.337		.076	.325	4.460	.000

Note. $p < .05$; N = 170; F (1, 168) = 19.890

Interpretation of Results

The regression model was statistically significant, F (1,168) = 19.890, $p < .001$, indicating that general knowledge of genetic conditions significantly predicts nurses' practices in genetic counselling. The regression coefficient (B = .337) and standardised beta (β = .325) suggest a positive relationship, meaning that as nurses' general knowledge of genetic conditions increases, their practice in genetic counselling also improves. The R^2 value of 0.106 indicates that 10.6% of the variance in genetic counselling practices is explained by nurses' general knowledge of genetic conditions. This suggests a modest but meaningful contribution of knowledge to counselling behaviour.

Therefore, the null hypothesis (H_0) is rejected, and it is concluded that there is a significant positive relationship between nurses' general knowledge of genetic conditions and their practices in genetic counselling.

Hypothesis Two

H1: There is a statistically significant relationship between nurses' cultural experiences and their approaches to genetic counselling.

A linear regression model was calculated to determine the impact of nurses' cultural experiences on genetic counselling approaches.

Table 1

Linear Regression on the impact of nurses' cultural experiences on genetic counselling approaches

Variables	B	R^2	SE B	B	T	P
Constant	2.661	.028	.290		9.174	.000
Genetic Counselling Approaches	.180		.082	.166	2.189	.030

Note. p<.05; N=170 ; F= 4.790; df= (1,168)

Interpretation of Results

Linear regression analysis was conducted to examine the impact of nurses' cultural experiences on their genetic counselling approaches.

The overall model was statistically significant, F (1, 168) = 4.790, p = .030, indicating that nurses' cultural experiences significantly predict their genetic counselling approaches. The R^2 = .028, meaning that approximately 2.8% of the variance in genetic counselling approaches can be explained by nurses' cultural experiences. While this is a small effect size, it is statistically meaningful. The unstandardised regression coefficient (B = .180) suggests that for each unit increase in nurses' cultural experience, there is a .18 unit increase in the use of culturally sensitive genetic counselling approaches. The standardised coefficient (β = .166) shows a small to moderate positive relationship. The t-value (2.189**)** with p = .030 confirms that the predictor (cultural experiences) makes a statistically significant contribution to the model.

Discussion of results

Hypothesis One

H1: There is a statistically significant relationship between nurses' general knowledge of genetic conditions and their practices in genetic counselling.

These findings are consistent with previous research. For instance, King-Kuadzi (2024) found that insufficient genetics training in nursing programs can hinder effective practice in genomics-based healthcare. Similarly, Godino et al. (2013) reported that although some nurses believe genetic counselling should not fall within their scope of practice, others recognise its importance. In their

study, 62% of Italian nurses and midwives surveyed felt they should not be involved in providing genetic healthcare, while 82% believed it was not relevant to their role.

However, research by Chaplin et al. (2008) and also by Kivirand et al. (2021) emphasises the need for targeted in-service training**.** This would equip nurses with the competencies needed to meet the genetic counselling needs of individuals with genetic conditions. (Chaplin et al., 2008) further reinforced the idea that proper training can enhance nurses' effectiveness in delivering holistic and integrated care.

Hypothesis Two

HI: Cultural experiences have a statistically significant influence on nurses' approaches to genetic counselling.

The results of the regression analysis affirmed Hypothesis Two, revealing a statistically significant relationship between nurses' cultural experiences and their approaches to genetic counselling. The standardised beta coefficient ($\beta = .166$, $p = .030$) indicated that cultural experiences are a positive and significant predictor of how nurses engage in genetic counselling. Although the R^2 value (.028) suggests that cultural experiences explain a modest 2.8% of the variance in genetic counselling approaches, the significance of the relationship confirms the influence of cultural factors on clinical practice.

This finding is consistent with a growing body of literature that acknowledges the central role of culture in shaping healthcare delivery, particularly in genetics-related services. Culture not only influences nurses' attitudes and beliefs but also shapes how they interpret patient narratives, communicate sensitive genetic information, and integrate traditional health beliefs into counselling frameworks.

For instance, Matthews & Van Wyk (2018), in a South African context, found that nurses' cultural backgrounds strongly influenced their attitudes toward genetic counselling for sickle cell disease. Similar findings were reported by Galadanci et al. (2023) in Nigeria, where cultural norms impacted nurses' decision-making processes and their receptiveness to genetic screening and counselling interventions. These studies echo the idea that health professionals do not operate in a cultural vacuum, and their personal and professional backgrounds inevitably inform their practice.

In the Ghanaian context, the relevance of cultural experiences is even more pronounced, given the deep integration of traditional beliefs and practices into healthcare. Jecker & Atuire (2022) observed that Ghanaian nurses often had to navigate tensions between biomedical explanations of genetic disorders and patients' spiritual or cultural interpretations. Kaihlanen et al. (2019) also highlighted that nurses who demonstrated cultural competence were better able to build rapport, reduce stigma, and tailor genetic counselling to suit clients' sociocultural expectations.

Furthermore, these results support recommendations from studies such as that of Abera et al. (2024), which advocate for the inclusion of cultural competence training in nursing education and

professional development programs. This is especially crucial in genetic counselling, where discussions often involve inherited conditions, potential stigma, reproductive decisions, and family dynamics, which are deeply embedded in cultural worldviews.

This finding implies that nurses' cultural competence should be viewed as a critical skill, rather than a peripheral consideration, in the delivery of genetic services. It also emphasises the need for policy makers and curriculum developers to integrate cultural sensitivity and ethnocultural frameworks into genetics and genomics training modules for nurses.

In sum, the study affirms that cultural experiences significantly shape nurses' approaches to genetic counselling, and addressing this dimension is essential for the effective delivery of genomics-based healthcare, particularly in diverse and culturally rich settings like Ghana.

Implications in Practice

The findings of this study have important implications for nursing education, professional development, and healthcare delivery. First, the statistically significant relationship between nurses' general knowledge of genetic conditions and their genetic counselling practices suggests that increasing nurses' genetic literacy can directly enhance the quality and effectiveness of genetic counselling services. This underscores the need to integrate robust genetics content into nursing curricula and offer regular in-service training and continuous professional development focused on genomics and genetic counselling.

Second, the study reveals that nurses' cultural experiences significantly influence their approaches to genetic counselling. This implies that cultural competence is not just an ethical imperative but a practical necessity in delivering patient-centred genetic services. Nurses who are culturally attuned are better positioned to communicate complex genetic information, reduce stigma, and align their counselling practices with patients' values and beliefs. Healthcare institutions must therefore recognise and support cultural competence as a core clinical skill, particularly in multicultural and diverse settings like Ghana.

Summary

1. Hypothesis One confirmed a statistically significant positive relationship between nurses' general knowledge of genetic conditions and their practices in genetic counselling ($\beta = .325$, $p < .001$). Knowledge accounted for 10.6% of the variance in counselling practices.
2. Hypothesis Two demonstrated a statistically significant, albeit modest, relationship between nurses' cultural experiences and their approaches to genetic counselling ($\beta = .166$, $p = .030$), with cultural experience explaining 2.8% of the variance.

These findings highlight that both cognitive (knowledge-based) and experiential (cultural) dimensions significantly shape nurses' competencies in genetic counselling.

Recommendations

1. Curriculum Enhancement: Nursing training institutions should incorporate comprehensive modules on genetics, genomics, and genetic counselling, tailored to the local context and disease burden, such as sickle cell disease.
2. Cultural Competence Training: Professional development programs must include cultural competence and sensitivity training, with an emphasis on how cultural beliefs impact genetic health behaviours and counselling dynamics.
3. Policy Development: Health policy-makers should develop national guidelines on genetic counselling that integrate cultural responsiveness and ethical considerations into practice standards.
4. Interdisciplinary Collaboration: Nurses should be encouraged to work collaboratively with genetic counsellors, psychologists, and cultural mediators to provide holistic and context-sensitive care.

Future Research Directions

1. Longitudinal Studies: Future research should explore how changes in knowledge and cultural competence over time affect nurses' genetic counselling practices.
2. Qualitative Exploration: In-depth qualitative studies can provide richer insights into how cultural beliefs and experiences influence nurses' counselling styles and decision-making processes.
3. Comparative Studies: Comparative research between urban and rural healthcare settings or across different regions in Ghana could help identify context-specific challenges and strengths in genetic counselling.
4. Patient Perspectives: Incorporating patients' perspectives could help validate whether culturally sensitive counselling practices meet their expectations and improve genetic health outcomes.

Conclusion

This study provides empirical evidence that both general knowledge of genetic conditions and cultural experiences significantly influence nurses' genetic counselling practices and approaches. While knowledge equips nurses with the factual and procedural competence necessary for counselling, cultural experience enriches their ability to communicate, empathise, and tailor care to the sociocultural realities of their clients. In a culturally diverse context like Ghana, effective genetic counselling must therefore be grounded in both scientific knowledge and cultural understanding. Enhancing these dimensions through education, training, and policy reforms is crucial for strengthening nursing practice and improving genetic healthcare outcomes.

List of Abbreviations

CPD – Continuing Professional Development

IRB – Institutional Review Board

ASMI – Attitudes Scale for Mental Illness

SPSS – Statistical Package for the Social Sciences

UCC – University of Cape Coast

REFERENCES

Abera, W., Daba, A. K., Gebre, B. B., Ashagere, M., Yeheyis, T., Addisu, D., Amlaku, T., Tadesse, F., & Samuel, T. (2024). Knowledge and attitude toward geriatric nursing care and associated factors among nurses working at hospitals in Hawassa City, Ethiopia, 2022. *Frontiers in Medicine*, *11*. https://doi.org/10.3389/fmed.2024.1284845

Amoah, P. A., Nyamekye, K. A., & Owusu-Addo, E. (2021). A multidimensional study of public satisfaction with the healthcare system: A mixed-method inquiry in Ghana. *BMC Health Services Research*, *21*(1), 1320. https://doi.org/10.1186/s12913-021-07288-1

Beattie, J. M., Castiello ,Teresa, & and Jaarsma, T. (2024). The Importance of Cultural Awareness in the Management of Heart Failure: A Narrative Review. *Vascular Health and Risk Management*, *20*, 109–123. https://doi.org/10.2147/VHRM.S392636

Betzler, R. J., & Roberts, J. (2025). Communicating Genetic Information: An Empathy-based Framework. -*The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine*, *50*(1), 57–73. https://doi.org/10.1093/jmp/jhae036

Cao, Y., Gao, Y., Chappell, K., & Zhou, W. (2025). Factors affecting nurses' genetic nursing competency: A systematic review. *Nurse Education in Practice*, *84*, 104304. https://doi.org/10.1016/j.nepr.2025.104304

Chaplin, E., O'Hara, J., Holt, G., Hardy, S., & Bouras, N. (2008). MHiLD: A model of specialist mental health services for people with learning disabilities. *Advances in Mental Health and Learning Disabilities*, *2*(4), 46–50. https://doi.org/10.1108/17530180200800039

Cresswell, H. (2024). A Qualitative Phenomenological Study Examining The Experiences Of Substance Use Disorder Clients Engaging in Adventure Therapy. *Dissertations*. https://digitalcommons.nl.edu/diss/807

Dewitt, B., Persson, J., & Wallin, A. (2024). Perceptions of Clinical Experience and Scientific Evidence in Medical Decision Making: A Survey of a Stratified Random Sample of Swedish Health Care Professionals. *Medical Decision Making*, *44*(3), 335–345. https://doi.org/10.1177/0272989X241234318

Faridi, K., Mohamadi, M. A., Mehri, S., & Dadkhah, B. (2025). Assessing the relationship between happiness and professional autonomy among clinical nurses: An analytical cross-sectional study. *BMC Nursing*, *24*, 320. https://doi.org/10.1186/s12912-025-02989-y

Galadanci, A. A., Estepp, J. H., Khan, H., Farouk, Z. L., Caroll, Y., Hodges, J., Yarima, S., Ibrahim, U. A., Idris, I. M., Gambo, A., Hussaini, N., Mukaddas, A., DeBaun, M. R., & Galadanci, N. A. (2023). Barriers and Facilitators of Premarital Genetic Counseling for Sickle Cell Disease in Northern Nigeria. *Journal of Pediatric Hematology/Oncology*, *45*(6), e716. https://doi.org/10.1097/MPH.0000000000002702

Godino, L., Turchetti, D., & Skirton, H. (2013). Genetic counseling: A survey to explore knowledge and attitudes of Italian nurses and midwives. *Nursing & Health Sciences*, *15*(1), 15–21. https://doi.org/10.1111/j.1442-2018.2012.00708.x

Grover, S., Court, L., Amoo-Mitchual, S., Longo, J., Rodin, D., Scott, A. A., Lievens, Y., Yap, M. L., Abdel-Wahab, M., Lee, P., Harsdorf, E., Khader, J., Jia, X., Dosanjh, M., Elzawawy, A., Ige, T., Pomper, M., Pistenmaa, D., Hardenbergh, P., … Coleman, C. N. (2024). Global Workforce and Access: Demand, Education, Quality. *Seminars in Radiation Oncology*, *34*(4), 477–493. https://doi.org/10.1016/j.semradonc.2024.07.003

He, X., Mao, Y., Cao, H., Li, L., Wu, Y., & Yang, H. (2024). Factors influencing the development of nursing professionalism: A descriptive qualitative study. *BMC Nursing*, *23*(1), 283. https://doi.org/10.1186/s12912-024-01945-6

Jecker, N. S., & Atuire, C. (2022). Bioethics in Africa: A contextually enlightened analysis of three cases. *Developing World Bioethics*, *22*(2), 112–122. https://doi.org/10.1111/dewb.12324

Kaihlanen, A.-M., Hietapakka, L., & Heponiemi, T. (2019). Increasing cultural awareness: Qualitative study of nurses' perceptions about cultural competence training. *BMC Nursing*, *18*(1), 38. https://doi.org/10.1186/s12912-019-0363-x

King-Kuadzi, K. E. (2024). Impact of nurses' cultural, professional and personal experiences on genetic conditions of patients. *International Journal of Applied Research*, *10*(11), 352–357. https://dx.doi.org/10.22271/allresearch.2024.v10.i11f.12183

King-Kuadzi, K. E. (2025). Relationship between Trauma Exposure and Psychological Resilience among University Students in Ghana: A Quantitative Analysis. *Journal of Advanced Psychology*, *7*(2), 1–17. https://doi.org/10.47941/japsy.2682

Kivirand, T., Leijen, Ä., Lepp, L., & Tammemäe, T. (2021). Designing and Implementing an In-Service Training Course for School Teams on Inclusive Education: Reflections from Participants. *Education Sciences*, *11*(4), Article 4. https://doi.org/10.3390/educsci11040166

Matthews, M., & Van Wyk, J. (2018). Towards a culturally competent health professional: A South African case study. *BMC Medical Education*, *18*(1), 112. https://doi.org/10.1186/s12909-018-1187-1

Ndirangu-Mugo, E. (2025). Psychological Safety: Nurses' Experiences and Leadership Roles in Sub-Saharan Africa. *Nurse Leader*, *23*(1), 82–86. https://doi.org/10.1016/j.mnl.2024.10.012

Rony, M. K. K., Numan, S. Md., Johra, F. tuj, Akter, K., Akter, F., Debnath, M., Mondal, S., Wahiduzzaman, Md., Das, M., Ullah, M., Rahman, M. H., Das Bala, S., & Parvin, Mst. R. (2024). Perceptions and attitudes of nurse practitioners toward artificial intelligence adoption in health care. *Health Science Reports*, *7*(8), e70006. https://doi.org/10.1002/hsr2.70006

Sandelowsky, S. A., McEwen, A., Russell, J., Boggs, K., Junek, R., Ellaway, C., Selvanathan, A., Farrar, M. A., & Bhattacharya, K. (2025). An Explorative Qualitative Study of the Role of a Genetic Counsellor to Parents Receiving a Diagnosis After a Positive Newborn Bloodspot Screening. *International Journal of Neonatal Screening*, *11*(2), Article 2. https://doi.org/10.3390/ijns11020032

Saputri, C. A. (2023). The Role of Nursing Interventions in Patient Satisfaction and Outcomes. *Advances in Healthcare Research*, *1*(2), Article 2. https://doi.org/10.60079/ahr.v1i2.359

World Medical Association. (2013). Declaration of Helsinki: Ethical principles for medical research involving human subjects. *Journal of the American Medical Association*, *310*(20), 2191-2194.