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PSYCHOLOGISTS'ATTITUDES TOWARD GENETIC COUNSELLING SESSIONS: A COMPARATIVE STUDY

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ABSTRACT

Psychologists' views on genetic counselling differ according to their comprehension of the genetic determinants affecting mental health. Certain psychologists seek to incorporate genetic counselling into therapeutic practices, while others express doubts stemming from insufficient experience or ethical considerations. This quantitative study examined psychologists' opinions towards genetic counselling and the variations based on several parameters through a comparative methodology. A comparison survey was undertaken with 537 psychotherapy professionals to gather data on their demographic factors and attitudes. The average score for psychologists' attitudes towards genetic counselling was elevated (249.01), with the highest score recorded in the dimension of cases appropriate for referral (46.28), followed by awareness of genetic counselling (44.50) and attitudes towards genetic counselling (43.15). The minimum score recorded for performance was 12.89. No notable sex variations were observed regarding the attitudes. Nevertheless, females had more favourable sentiments in the initial component (Awareness of Genetic Counselling). No significant variations were seen based on the employment; nevertheless, psychologists in psychiatric institutions achieved higher ratings than their counterparts in educational settings. Participants with over 10 years of experience had significantly higher scores in the second dimension (Genetic Factors), favouring mental health hospital professionals over clinic and school workers. Only the second, eighth, and ninth dimensions (Genetic Factors, Performance Scope, and Testable Cases) exhibited substantial changes attributable to experience compared to those with lesser experience. Furthermore, individuals with over 50 monthly visitors achieved superior scores on the initial dimension. Clinical and counselling psychologists demonstrated greater positive sentiments in the first, second, and eighth domains compared to educational psychologists. No disparities depending on residence were identified across the parameters and overall scores. Recognising the significance of genetic counselling services for mental health enables individuals and their families to comprehend potential genetic risks and their implications, so facilitating informed decision-making about mental well-being.

KEYWORDS: Psychologists; Genetic Counseling; Attitudes; Comparative Survey.

1. INTRODUCTION

The practice of counselling individuals regarding hereditary features commenced in the early 20th century, shortly after William Bateson introduced the word "genetics" to characterise the nascent medical and biological exploration of heredity (Sitaula et al., 2023). Initially linked to social reforms via the emergence of eugenics, genetics resulted in grave repercussions, including sterilisation legislation in the U.S. and the euthanasia of individuals deemed "genetically defective" in Germany during the 1930s. These historical occurrences influenced the contemporary "non-directive" methodology in genetic counselling, underscoring the persistent ethical dilemmas associated with genetic intervention (Wessels et al., 2024). Genetic counselling encompasses the psychological and social intricacies associated with genetic disorders. Genetic problems account for 40% of childhood mortality and 5%–10% of paediatric hospitalisations, whereas 25% of cancer patients endure significant anguish, anxiety, or depression. Principal psychosocial considerations in genetic counselling encompass cancer risk management, familial dynamics, child-related issues, and emotional difficulties. Psychologists play a vital role in delivering direct treatments, offering consulting, providing training, and researching psychological issues. Psychological and behavioural theories are being incorporated into genetic counselling methods (DeBortoli et al., 2025). Genetic counselling integrates genetics and psychology to assist people and families in coping with the psychosocial ramifications of genetic disorders. This interdisciplinary domain has expanded significantly, with the global count of genetic counsellors rising from fewer than 7,000 in 2018 to more than 10,000 in 2023 (Sitaula et al., 2023). Booke et al. (2020) discovered that 85% of psychologists believed genetic counselling for psychiatric problems may benefit patients, although only 30% felt sufficiently equipped to address genetic variables. These findings underscored the necessity to enhance education and training in psychological genetics.

Genetic counselling is crucial in healthcare for evaluating and conveying genetic risks, facilitating early detection and prevention, particularly as 5%–10% of all malignancies are hereditary (Phung & Fang, 2025). Research demonstrates that genetic counselling markedly alleviates patients' anxiety, with one study indicating a 30% decrease in anxiety scores post-counselling sessions. Psychological disorders affect a significant segment of the global population and include various conditions such as major depressive disorder, bipolar disorder, schizophrenia, and obsessive–compulsive disorder (Paulsen, 2023).The aetiology of psychological diseases is predominantly misconstrued by those affected, their families, and healthcare professionals. Research indicates that a minimum of fifty percent of patients with psychological problems and their relatives overestimate the genetic influence on their conditions (Garcia, 2022).

Progress in comprehending the genetic determinants of psychological diseases has illuminated their significant influence on the emergence of specific mental health conditions (Marks, 2020).The increasing knowledge highlights the significance of genetic counselling, which aids individuals and families in comprehending hereditary risks and their ramifications, so facilitating educated mental health decisions. Genetic counsellors frequently consult with people experiencing mental diseases or their relatives impacted by these disorders; the mental illness may or may not be the principal motivation for seeking counselling (Workman, 2023). Therefore, genetic counsellors must be prepared to handle issues pertaining to psychiatric problems throughout their routine patient encounters (Booke et al., 2020). Genetic counselling for psychological diseases has significant opportunities for advancement.

1.1. Genetic Counselling

Genetic counselling is a burgeoning discipline that integrates genetic and psychological assistance to tackle mental health issues. It elucidates the genetic foundations of health issues, evaluates risks, and provides recommendations for genetic testing. Studies indicate that genetic counselling significantly improves the mental health and understanding of patients and their families (Morris et al., 2021).It assists individuals in comprehending and adjusting to the physical, psychological, and familial implications of hereditary factors in disorders. The essential elements of counselling encompass analysing family and medical histories to evaluate disease risk; informing patients about inheritance, testing, management, prevention, and available resources; and facilitating educated decision-making and adaptability to risks or health situations. Genetic counselling is regarded as a therapeutic interaction with the possibility for psychological intervention, offering knowledge and support to families impacted by genetically driven illnesses. While typically linked to distinct hereditary patterns, it can also pertain to psychological problems like schizophrenia. As public knowledge of genetics' influence on mental health

grows, referrals for genetic counselling in these circumstances are anticipated to rise. Psychological genetic counselling alleviates worry regarding probable diseases and provides tailored advice based on an individual's genetic profile, rendering it a crucial element of holistic mental healthcare. The objectives of genetic counselling encompass the prevention of birth abnormalities and genetic disorders, alongside enhancing psychological well-being by assisting clients in adapting to a genetic condition or its associated risks. Although both objectives emphasise prioritising clients' autonomy in reproductive choices, the first specifically aims to mitigate the effects of genetic abnormalities. The disparities in emphasis may stem from the training of healthcare providers, societal viewpoints, or institutional agendas (Biesecker, 2001; Booke et al., 2020; Sitaula et al., 2023; Zhong et al., 2021).

1.2. Psychological Genetic Counsellors

Genetic counselling has expanded internationally, with practitioners rising from 7,000 in 28 countries in 2018 to over 10,250 in 45 countries by 2023. In the United States, the quantity of certified counsellors increased from 1,155 in 1999 to 5,629 in 2021, having doubled since 2010, with forecasts indicating a further 100% growth over the subsequent decade (Maxwell et al., 2025). The Bureau of Labour Statistics forecasted a 21% rise in genetic counsellor employment from 2019 to 2029, significantly exceeding the average growth rate for all professions. This expansion is driven by the increasing incorporation of genetic testing into standard medical practice (Cook et al., 2025).

Genetic counsellors are essential for genomic care, collaborating with physicians and specialists to evaluate family histories, analyse inheritance patterns, estimate disease risks, guide genetic testing choices, and interpret test results within the context of family dynamics (Ormond et al., 2024; Schaaf, 2021). Notwithstanding these advantages, genetic counselling for mental health is still underutilised. A survey conducted in Austria revealed that merely 8% of persons pursued counselling, with the percentage significantly lower among those with mental problems, underscoring the disparity between the significance and actual utilisation of counselling services (Aschauer et al., 2024).

The psychological or psychotherapy viewpoint supports the use of genetic counselling into therapeutic methodologies. Medical professionals acknowledge that the information conveyed during genetic counselling is not devoid of emotional implications; it may jeopardise people' self-esteem and elicit sadness or emotional turmoil in families impacted by genetic disorders (Nevin et al., 2022; Zhong et al., 2021). Psychological factors, including marital difficulties, personality characteristics, and belief systems, may influence genetic counselling. Genetic counsellors assist persons with mental health disorders by clarifying myths, promoting help-seeking behaviour, and empowering patients to manage their problems effectively. Research has shown the efficacy of genetic counselling in psychological contexts, with beneficial outcomes in patient empowerment and knowledge; over 90% of individuals with mental health illnesses and their families express a preference for genetic counselling services. (Roulston et al., 2024)

Psychological genetic counsellors instruct patients, evaluate risks, analyse test results, and elucidate the genetic ramifications. They offer emotional support, facilitate decision-making, organise assessments, and link patients to resources. Furthermore, they investigate gene-behavior relationships and the heritability of traits, incorporating their findings into clinical practice. Genetic counsellors aid in clinical development, deliver patient care, promote psychosocial adaptability, and assist in decision-making via counselling, team consultations, training, and research. Their incorporation into specialised genetic centres has been beneficial and has been positively received by patients. (Scheinberg et al., 2021)

A 2015 study by Schaa et al. examined the collaboration between psychologists and genetic counsellors in paediatric contexts. The qualitative study, comprising interviews with 40 experts, demonstrated that psychologists appreciate genetic counsellors' proficiency in elucidating intricate genetic information to patients' families. A study conducted by Ranjan et al. (2022) revealed that 56.2% of families expressed interest in prenatal genetic testing for psychological genetics, while more than half of the clinical practitioners (56.3%) endorsed its recommendation. Booke et al. (2020) revealed that 90.3% of genetic counsellors advocated for the provision of psychological genetic counselling. Moreover, Monaco et al. (2009) discovered that genetic counsellors frequently exhibit reluctance to address mental health concerns, fearing that their interventions may not be advantageous in the realm of psychiatric problems. Peay and McInerney (2002) investigated the necessity for practicing genetic counsellors to handle mental health difficulties and discovered that respondents felt inadequately equipped to tackle these issues, with merely 22% having broached mental health concerns with

patients. Girod et al. (2022) A review of 30 papers (2015–2023) underscored the essential role of psychologists in alleviating the psychological effects of genetic test outcomes and facilitating decision-making in cancer treatment, hence highlighting the necessity of incorporating psychological assistance within oncology genetic counselling. Rowlatt et al. (2022) conducted a mixed-methods study with 20 interviews with 180 psychologists, revealing worries about the psychological effects of direct-to-consumer genetic testing. A cross-cultural analysis of Japan and the United States emphasised the cultural factors affecting perceptions of genetic counselling (Warren, 2020).

1.3. Hypotheses

- A comparative study was conducted to identify psychologists' attitudes toward genetic counseling sessions.
- Statistically significant differences exist at the 0.05 level in psychologists' attitudes toward genetic counseling sessions based on the variables of gender, experience, place of residence, specialization, and the number of visiting patients.

2. MATERIALS AND METHODS

2.1. Stage 1: Design and Construction of the Instrument

A descriptive comparative method was employed to evaluate psychologists' attitudes regarding genetic counselling sessions with the Psychologists' Attitudes Towards Genetic Counselling Sessions Scale. The participants' views and demographic variations were examined while facilitating prompt data collection without longitudinal surveillance.

2.1.1. Participants

The research involved a survey of 537 psychologists employed at educational institutions, clinics, counselling centres, hospitals, and corporations in Jordan and Saudi Arabia. The participants were randomly chosen and requested to complete an electronic survey through Google Forms, provided they met the criteria of consent, expertise in psychology, and understanding of the study aims. A total of 278 participants (51.8%) originated from Jordan, while 259 participants (48.2%) came from Saudi Arabia. The sample consisted of 267 males (49.7%) and 270 females (50.3%). In terms of their psychological specialisation, 223 (41.5%) focused on clinical psychology, 241 (44.9%) on counselling psychology, and 73 (13.6%) on educational psychology. Concerning their experience, 170 individuals (31.7%) possessed over 10 years of experience, whereas 251 individuals (46.7%) had less than 5 years of experience. A total of 177 volunteers (48.2%) managed over 50 patients monthly, while 147 (51.8%) attended to fewer than 20 patients monthly. Table 1 delineates the demographic information of the participants, providing an in-depth insight of their attributes.

Participation in the study was wholly voluntary. All participants were mandated to (1) furnish informed consent for their involvement in the study and comprehensively grasp its aims and stipulations; (2) verify their status as active users of diverse social media platforms; (3) be assured that the information they supplied would be kept confidential and utilised solely for research purposes. An exhaustive elucidation of the study's prerequisites and potential hazards linked to participation was presented, underscoring the participants' entitlement to withdraw.

Table 1: Participants' Demographic Information and Characteristics.

Category	Frequency	Percentage
Gender		
Male	267	49.7
Females	270	50.3
Workplace		
School	79	14.7
Psychological clinic	244	45.4
Organization	101	18.8
Hospital	113	21.0
Specialization		
Counseling psychology	241	44.9
Clinical psychology	223	41.5
Educational psychology	73	13.6
Experience		
Less than 5 years	251	46.7
5–10 years	116	21.6
More than 10 years	170	31.7
Number of patients per month		
Less than 20 patients	147	27.4
21–50 patients	213	39.7
More than 50 visitors	177	33.0
Residence		
Hashemite Kingdom of Jordan	278	51.8
Kingdom of Saudi Arabia	259	48.2

2.1.2. Instrument

The questionnaire comprised several sections, each targeting different aspects

Demographic information This section gathered fundamental information regarding the respondents, encompassing their gender, specialisation, monthly patient count, experience, workplace, and domicile.
Psychologists' Attitudes Toward Genetic Counseling Scale The scale, modified from Kassam et al. [42], **consists of 60 items distributed across 9 dimensions** awareness of genetic counselling (Items 1–11), genetic factors associated with specific symptoms (Items 12–18), stages of genetic counselling (Items 19–22), information to be conveyed during genetic counselling (Items 23–27), genetic disorders assessable through available tests (Items 28–31), identifying individuals in need of genetic counselling or testing (Items 32–36), assessing attitudinal scope (Items 37–46), evaluating performance scope (Items 47–49), and identifying cases appropriate for referral (referral experience; Items 50–60). **The instrument employs a 5-point Likert scale, with the response options** "Always," "Often," "Sometimes," "Rarely," and "Never." The maximum achievable score is 90 points, where elevated levels signify a more favourable attitude towards genetic counselling, while diminished numbers denote less favourable attitudes.

2.1.3. Validity and Reliability

The survey's validity and reliability were established through the evaluation of face validity, internal validity and consistency, as well as Cronbach's alpha and split-half reliability.

2.1.4. Face Validity

The study instruments were translated into Arabic and subsequently back-translated to assure reliability. A psychology expert analysed the back translation in relation to the original version. The questionnaire evaluating attitudes and performance in genetic counselling was examined by eight experts in relevant domains for clarity, relevance, and suitability. The comments was integrated, and the survey was amended to its final version.

2.1.5. Internal Validity and Consistency

The study instruments were testing on a pilot sample of 38 participants to assess their psychometric characteristics and internal consistency. All correlation coefficients were statistically significant, varying from .621 to .689 for the comprehensive scale. **The principal findings by dimension were** awareness of genetic counselling (.743–.811), genetic factors associated with specific symptoms (.733–.819), stages of genetic counselling (.617–.675), information conveyed during counselling (.615–.633), genetic disorders amenable to testing (.622–.687), attitudinal scope (.814–.855), and performance scope (.809–.826). The results validated the instruments' validity and reliability.

2.1.6. Reliability

The Cronbach's alpha for the whole scale was 0.77, signifying robust internal consistency. The split-half (Spearman–Brown) reliability coefficient was 0.79, hence reinforcing the reliability. **The Cronbach's alpha coefficients for the nine dimensions were as follows** 0.70 for awareness of genetic counselling, 0.83 for genetic factors contributing to symptoms, 0.71 for steps of genetic counselling, 0.73 for information communicated, 0.69 for examining genetic disorders through testing, 0.80 for identifying individuals requiring counselling, 0.68 for attitudinal scope, 0.72 for performance scope, and 0.77 for referral experience. The reliability coefficients for the overall scale and its dimensions were considered adequate for the present investigation, affirming the instrument's validity and appropriateness for evaluating psychologists' perspectives on genetic counselling.

2.4. Data Collection and Analysis

Data were gathered through a Google Form survey following the acquisition of participants' consent and the assurance of their comprehension of the instructions. Participation was optional, and the data were maintained in confidentiality. The research utilised SPSS 27 for data entry and analysis, implementing a multiple analysis of variance, arithmetic means, and the Least Significant Difference (LSD) test to discern differences.

3. RESULTS

3.1. Arithmetic Means and Standard Deviations of Psychologists' Attitudes toward Genetic Counseling

Descriptive statistics indicated discrepancies in psychologists' perspectives on genetic counselling (Table 2). The greatest mean was observed in referral experience (46.28), succeeded by awareness of genetic counselling (44.50) and attitudes towards genetic counselling (43.15). The minimum mean was for performance (12.89). The overall mean score of 249.01 indicated a moderately elevated level of positive attitudes, underscoring diverse perceptions across aspects.

Table 2: Arithmetic Means and Standard Deviations of Psychologists' Attitudes toward Genetic Counselling (N = 537).

N	Domains	Mean	Std. Deviation
1	Scope of awareness	44.5084	6.47155
2	Genetic factors are effective in causing which of the following diseases?	25.6480	4.16419
3	Which of the following is one of the steps in genetic counseling?	14.6462	3.08728
4	What information is passed on to people during genetic counseling?	23.1043	2.45412
5	Which genetic disorders can be examined with the available tests?	16.4637	3.13786
6	Which of the following would you recommend for someone who needs genetic counseling or testing?	22.3035	2.81703
7	Scope of attitude	43.1583	6.46280
8	Scope of performance	12.8976	2.05855
9	Please pay attention to the following issues and respond based on your referral experience in the last six months.	46.2849	4.57022
	Total score for the attitude and performance of general practitioners and specialists in relation to genetic counseling	249.0149	14.06302

3.2. Differences in Psychologists' Attitudes toward Genetic Counselling across Variables

Various demographic and occupational factors influence psychologists' views on genetic counselling, as illustrated in Table 3. The results indicated that female psychologists outperformed men psychologists in the awareness domain, signifying a notable gender disparity. Distinct disparities existed between the two workplace types; school psychologists exhibited lower scores on awareness and genetic factor assessments, whereas psychologists in mental health hospitals and clinics demonstrated superior scores on overall performance metrics. Psychologists with over ten years of experience exhibited considerably higher scores on assessments of genetic variables, performance scope, referral cases, and general attitudes than those with less than five years of practice. Genetic counselling was more prevalent among psychologists managing over 50 cases per month, indicating a connection between monthly patient volume and awareness levels. Significant discrepancies arose from specialisation; for instance, educational psychologists performed poorly compared to clinical and counselling psychologists for referral cases, genetic variables, and awareness. Conversely, other from a little influence on ethical considerations, no statistically significant changes were observed in the overall score or domain scores based on residency. Overall, these findings demonstrate the substantial influence of demographic and occupational characteristics on the attitudes, knowledge, and practices of psychologists involved in genetic counselling.

Table 3: Differences in Psychologists' Attitudes toward Genetic Counseling across Variables.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Sex	Domain1	433.371	1	433.371	11.212	.001	.021
	Domain2	1.863	1	1.863	.122	.727	.000
	Domain3	.228	1	.228	.024	.878	.000
	Domain4	17.858	1	17.858	2.974	.085	.006
	Domain5	1.408	1	1.408	.143	.705	.000
	Domain6	8.534	1	8.534	1.083	.299	.002
	Domain7	.029	1	.029	.001	.979	.000
	Domain8	.479	1	.479	.115	.735	.000

	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
	Domain9	13.536	1	13.536	.649	.421	.001
	Total score	398.534	1	398.534	2.096	.148	.004
Workplace	Domain1	702.973	3	234.324	6.062	.001	.033
	Domain2	220.073	3	73.358	4.793	.003	.027
	Domain3	2.684	3	.895	.093	.964	.001
	Domain4	9.628	3	3.209	.534	.659	.003
	Domain5	49.836	3	16.612	1.692	.168	.010
	Domain6	19.612	3	6.537	.829	.478	.005
	Domain7	52.755	3	17.585	.427	.734	.002
	Domain8	1.031	3	.344	.082	.970	.000
	Domain9	82.778	3	27.593	1.324	.266	.008
	Total score	1,689.001	3	563.000	2.961	.032	.017
Experience	Domain1	195.556	2	97.778	2.530	.081	.010
	Domain2	359.396	2	179.698	11.740	.001	.043
	Domain3	7.681	2	3.841	.398	.672	.002
	Domain4	17.053	2	8.526	1.420	.243	.005
	Domain5	17.070	2	8.535	.869	.420	.003
	Domain6	3.991	2	1.995	.253	.776	.001
	Domain7	93.394	2	46.697	1.134	.323	.004
	Domain8	31.548	2	15.774	3.782	.023	.014
	Domain9	125.608	2	62.804	3.013	.050	.011
	Total score	1,438.596	2	719.298	3.783	.023	.014
Patients	Domain1	355.267	2	177.634	4.596	.011	.017
	Domain2	38.904	2	19.452	1.271	.281	.005
	Domain3	4.188	2	2.094	.217	.805	.001
	Domain4	10.549	2	5.274	.878	.416	.003
	Domain5	19.678	2	9.839	1.002	.368	.004
	Domain6	25.881	2	12.941	1.642	.195	.006
	Domain7	160.338	2	80.169	1.947	.144	.007
	Domain8	6.721	2	3.361	.806	.447	.003
	Domain9	30.146	2	15.073	.723	.486	.003
	Total score	1,037.457	2	518.728	2.728	.066	.010
Specialization	Domain1	265.092	2	132.546	3.429	.033	.013
	Domain2	398.123	2	199.061	13.005	.001	.047
	Domain3	28.804	2	14.402	1.494	.225	.006
	Domain4	25.810	2	12.905	2.149	.118	.008
	Domain5	24.250	2	12.125	1.235	.292	.005
	Domain6	35.163	2	17.582	2.230	.109	.008
	Domain7	85.709	2	42.854	1.041	.354	.004
	Domain8	35.181	2	17.590	4.217	.015	.016
	Domain9	26.152	2	13.076	.627	.534	.002
	Total score	1,030.269	2	515.134	2.709	.068	.010
Residence	Domain1	66.199	1	66.199	1.713	.191	.003
	Domain2	17.179	1	17.179	1.122	.290	.002
	Domain3	1.575	1	1.575	.163	.686	.000
	Domain4	12.317	1	12.317	2.051	.153	.004
	Domain5	3.719	1	3.719	.379	.538	.001
	Domain6	5.696	1	5.696	.723	.396	.001
	Domain7	366.656	1	366.656	8.904	.003	.017
	Domain8	2.149	1	2.149	.515	.473	.001
	Domain9	2.568	1	2.568	.123	.726	.000
	Total score	261.287	1	261.287	1.374	.242	.003
Total	Domain1	1,086,243.000	537				
	Domain2	362,545.000	537				
	Domain3	120,301.000	537				
	Domain4	289,883.000	537				
	Domain5	150,833.000	537				
	Domain6	271,383.000	537				

	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
	Domain7	1,022,624.000	537				
	Domain8	91,600.000	537				
	Domain9	1,161,607.000	537				
	Total score	33,404,525.000	537				

Domain1 Extent of awareness, **Domain2** Which diseases are influenced by genetic factors? **Domain3** Which of the following constitutes a step in genetic counselling? **Domain4** What information is conveyed to individuals during genetic counselling? **Domain5** Which genetic abnormalities are assessable with the existing tests? **Domain6** What would you recommend for an individual requiring genetic testing or counselling? **Domain7** Attitudinal Scope, **Domain 8** Performance Scope, **Domain9** Kindly address the subsequent topics and provide feedback based on your referral experiences from the past six months, as well as the overall assessment of the attitudes and performance of general practitioners and specialists concerning genetic counselling.

4. DISCUSSION

This study found that referral experience had the highest mean score (46.28), indicating practitioners' proficiency with the referral procedures to specialised counselling. This highlighted the existence of explicit frameworks that stress the significance of varied approaches in providing specialised care.

Research has demonstrated that explicit and efficient referral protocols for pertinent services, together with a considerable knowledge level (44.50) regarding genetic advocacy, are bolstered by awareness campaigns. This corresponds with educational initiatives aimed at enhancing understanding of the significance of genetics in illness prevention and management. MacLeod and Chomsky (2019); Ormond et al. (2018); Sherif (1935); and Thom & Haw (2021) indicated that heightened awareness among healthcare practitioners results in improved utilisation of genetic counselling services, consequently enhancing patient outcomes. The relatively high score for attitudes towards genetic counselling indicated a predominantly favourable impression of the service. Positive perceptions of genetic counselling are frequently influenced by exposure to evidence-based results (Madlensky et al., 2017; Mousavinasab et al., 2022) and correlate with enhanced patient-provider communication and heightened patient satisfaction.

The subpar score in the performance category (12.89) underscored a deficiency in the practical implementation of genetic counselling skills, notwithstanding their theoretical comprehension. The overall mean score of 249.01 indicated positive involvement; however, variability across aspects suggested inconsistent progress. This aligns with the diffusion of innovation theory (Rogers et al., 2014), which asserts that various elements of a system embrace new practices at differing rates, affected by factors such as perceived ease of use, relative advantage, and compatibility (Mousavinasab et al., 2022). A mean score of 249.01 for psychologists' attitudes towards genetic counselling indicates its increasing acknowledgement as an essential resource for managing psychological and emotional issues associated with genetic diseases (Costa et al., 2024; Zhao et al., 2024). Genetic counsellors provide dual functions by offering emotional support to patients and aiding them in making informed decisions. Despite the participants' predominantly favourable attitudes, additional education and training are required to comprehensively incorporate genetic findings into psychological practice.

This outcome corresponds with overarching theoretical frameworks like the biopsychosocial care model, which promotes a comprehensive approach to patient well-being by incorporating genetic, psychological, and social factors. Glenn (2024) and McInnes□Dean et al. (2024) emphasised that professionals acknowledge the ethical, emotional, and cognitive ramifications of genetic testing for patients, highlighting their essential role in mitigating suffering and promoting resilience. Khalil et al. (2024) discovered that deficiencies in genetic counselling education among mental health practitioners may impede their efficacy. The marginally increased score for attitude emphasised the increasing acknowledgement of the significance of genetic counselling, while also highlighting the necessity for training and interdisciplinary collaboration (Ternby et al., 2024; Wainstein, 2024). These findings collectively underscore the growing recognition of genetic counselling as a vital element of holistic mental healthcare, pushing for its incorporation into regular psychological therapy.

This study shown that psychologists' perspectives on genetic counselling were affected by their gender, employment setting, experience level, patient volume, area of specialisation, and knowledge. The heightened awareness of female professionals corresponds with

their increased empathy and sensitivity in therapeutic environments. This sex discrepancy in awareness may exacerbate the imbalance in the field, with 95% of genetic counselors being female reflecting the influence of gendered socialization. Professionals in psychiatric hospitals possess a deeper comprehension of hereditary factors and performance due to their engagement with intricate cases.

Hospital and clinic personnel exhibited superior knowledge of genetic variables and enhanced performance compared to school-based professionals, suggesting that varied clinical exposure improves genetic counselling competencies. Clearly, hands-on experience in medical environments enhances professional growth in genetic counselling (Barnett et al., 2020). More seasoned clinicians had a superior comprehension of the facets of genetic counselling, including performance and decision-making, aligning with research indicating that substantial clinical experience deepens familiarity with genetic intricacies. The observation that practitioners managing over 50 clients monthly exhibited elevated awareness scores corresponds with other research emphasising the influence of clinical burden on competence enhancement (Nguyenton, 2020). Clinical and counselling psychology specialists surpassed educational psychologists in both awareness and application, likely due to their emphasis on individual psychological needs rather than broader educational objectives. This trend highlights the necessity of specialised training in various psychological domains to address the distinct requirements of genetic counselling.

5. CONCLUSION

Psychologists are progressively acknowledging the significance of genetic counselling in tackling the psychological and emotional aspects of genetic health. Integrating genetic counselling into psychological practice enables practitioners to improve personalised patient treatment, facilitate informed decision-making, and address the ethical issues related to hereditary illnesses. This study emphasised that psychologists' perspectives on genetic counselling are affected by factors including gender, professional experience, workplace setting, and area of specialisation. Female psychologists and those with substantial clinical experience shown an increased recognition of the importance of genetic counselling and underscored the necessity for specialised training. Furthermore, healthcare professionals in hospitals and psychological clinics, who encounter more intricate genetic problems, demonstrated a higher level of involvement in genetic counselling compared to their counterparts in educational or non-specialist positions. This pattern indicates that practical experience cultivates proficiency and assurance in confronting the psychological problems associated with heredity.

5.1. Recommendations, Strengths, and Limitations

Advancing research on psychologists' perspectives about genetic counselling necessitates the prioritisation of specialised training, the promotion of varied studies, and the examination of cultural, geographical, and demographic influences. The incorporation of marginalised communities and healthcare systems can offer a holistic global viewpoint. Incorporating genetic counselling into mental health frameworks is essential for improving accessibility.

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