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The Complex Intersection: Barriers to Gender Affirmation Surgery and Mental Health in Pakistan's Transgender Community

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ABSTRACT

This study aims to investigate the structural barriers to accessing gender affirmation surgery (GAS) and evaluate the resulting impact on the mental health of transgender individuals in Pakistan. Conducted through a cross-sectional survey from January to March 2025, the study engaged 500 transgender individuals across five major Pakistani cities: Karachi, Lahore, Islamabad, Peshawar, and Quetta. Data were gathered via a structured questionnaire encompassing demographics, healthcare barriers, and mental health metrics. Mental health indicators, including depression (42%), anxiety (38%), and PTSD (21%), were documented based on participant self-report of formal clinical diagnoses received prior to the study. The results reveal a stark reality: only 9% (n=45) of respondents had successfully undergone full GAS, while a substantial majority (61%, n=305) expressed a strong desire for the procedure but faced insurmountable obstacles. The most prominent barriers identified were the prohibitive high cost (73%) and a critical lack of specialized surgeons (56%). A mental health crisis is evident, with 74% of participants reporting regular symptoms of distress. A statistically significant association was established between the desire for surgery and heightened mental distress (x^2 = 17.94, df = 1, $p < 0.001$), with a Cramer's V of 0.19, indicating a moderate effect size. This research highlights a systemic failure at the intersection of healthcare, socio-legal policy, and mental health support, calling for urgent reforms such as financial subsidies and the integration of transgender health into medical education.

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INTRODUCTION

Gender-affirming healthcare, particularly gender affirmation surgery (GAS), represents a cornerstone of modern medical care for transgender individuals, offering a path to aligning one's physical body with their internal gender identity (Budge et al., 2013). This alignment is not merely cosmetic; it is fundamentally linked to a person's psychological well-being, self-worth, and ability to navigate the world with authenticity. While the recognition of transgender healthcare rights has seen progressive strides globally, a stark and often devastating gap persists in low- and middle-income countries, where cultural, economic, and political factors create formidable barriers. Pakistan, a nation with a rich and complex history of gender diversity, provides a compelling, yet troubling, case study. Here, the societal landscape is marked by rigid gender norms and the pervasive marginalization of transgender individuals, making access to safe, competent, and affirming healthcare profoundly limited (Hossain, 2012; Winter, 2012).

Pakistan's transgender community, often referred to as *khwaja sira*, occupies a unique socio-legal space. The Transgender Persons (Protection of Rights) Act of 2018 legally recognizes their gender identity and grants them rights including inheritance, education, and health (Government of Pakistan, 2018). However, a significant disjunction exists between the law's intent and its practical implementation. Despite legal recognition, transgender individuals are frequently excluded from mainstream medical and social services (Human Rights Watch, 2016; Niazi & Jafar, 2022).

Previous studies by Winter et al. (2016) and Javed et al. (2021) have documented elevated rates of depression, anxiety, and suicidal ideation among transgender populations, frequently associated with social stigma, discrimination, and family rejection. Nevertheless, empirical evidence remains limited regarding how specific structural barriers to gender affirmation surgery (GAS) in Pakistan are associated with psychological distress. Minority Stress Theory provides a relevant framework for interpreting this relationship. The theory proposes that members of stigmatized minority groups experience chronic and socially produced stressors beyond the general stressors encountered by the wider population, thereby increasing their vulnerability to adverse mental health outcomes (Meyer, 2003). Within this framework, distal stressors refer to external and relatively objective conditions, such as discrimination, rejection, institutional exclusion, violence, and unequal access to essential services, whereas proximal

stressors involve more internal psychological processes, including expectations of rejection, concealment, hypervigilance, and internalized stigma.

Transgender-specific adaptations of the minority stress model further identify gender-related discrimination, nonaffirmation, victimization, rejection, and barriers to gender-affirming healthcare as salient stressors affecting transgender and gender-nonconforming individuals (Hendricks & Testa, 2012; Testa et al., 2015). Moreover, transgender stigma can operate simultaneously at structural, interpersonal, and individual levels, linking discriminatory policies and inadequately prepared healthcare systems with repeated adverse healthcare encounters and psychological strain (White Hughto et al., 2015).

Within the present study, prohibitive costs, the shortage of specialized surgeons, legal and documentation barriers, and discriminatory healthcare experiences are therefore conceptualized as distal structural stressors that may contribute to proximal psychological distress. Specifically, the 73% cost barrier and 56% shortage of specialized surgeons indicate that unmet needs for GAS are embedded within broader institutional and socioeconomic inequalities rather than reflecting individual preferences alone. Minority Stress Theory is consequently used to interpret the observed association between unmet GAS needs and the high level of mental distress reported by participants. However, because the study employed a cross-sectional design and did not directly measure all proximal minority-stress processes, these findings should be interpreted as evidence of an association rather than as confirmation of a definitive causal pathway.

The final qualification is important because the model distinguishes theoretically proposed mechanisms from mechanisms directly tested in the study. The transgender-specific literature supports using the framework to explain how external stigma and healthcare exclusion may be associated with internal psychological distress, but causal or mediational claims require direct measurement and longitudinal or appropriately modeled data.

Study Objectives and Contributions

This research aims to achieve the following objectives:

- Identify and quantify the primary financial, medical, and social barriers preventing transgender Pakistanis from accessing GAS.
- Analyze the statistical relationship between unmet surgical needs and specific mental health outcomes, including suicidal ideation and regular distress.
- Evaluate the effectiveness of the 2018 Transgender Persons Act from the perspective of healthcare beneficiaries.

The **measurable contributions** of this study include providing an empirical dataset of 500 respondents to fill the current literature void and offering evidence-based policy implications–such as prioritized surgical subsidies and medical curriculum reform–grounded in the identified 73% financial and 51% knowledge gaps.

METHODS

Study Design and Geographic Scope

This research employed a cross-sectional survey design conducted from January to March 2025. The study was strategically carried out in five of Pakistan's largest urban centers: Karachi, Lahore, Islamabad, Peshawar, and Quetta. This selection was purposeful, as urban areas generally have a higher concentration of transgender individuals and established, albeit limited, healthcare infrastructure.

Recruitment and Sampling

A total of 500 participants were recruited using a combination of convenience and snowball sampling. Snowball sampling is a chain-referral recruitment strategy in which initial participants, commonly referred to as "seeds," facilitate access to other eligible individuals within their social networks. This approach was considered appropriate because the transgender community represents a socially marginalized and relatively hard-to-reach population for whom a complete sampling frame was unavailable and direct recruitment could entail privacy, stigma, and safety concerns (Biernacki & Waldorf, 1981; Goodman, 1961).

To improve the diversity of recruitment pathways and reduce excessive dependence on a single social network, five distinct seeds were identified in each study city through local non-governmental organizations and established community leaders. Seeds were purposively selected to represent variation in gender identity, educational attainment, employment status, and socioeconomic background. Recruitment was conducted through multiple channels, including community centers operated by partner organizations and closed transgender-specific groups on Facebook and WhatsApp. Participants recruited through these channels were permitted to refer a maximum of three eligible individuals. Restricting the number of referrals was intended to reduce network clustering and prevent a small number of participants from disproportionately determining the composition of the sample.

Nevertheless, snowball sampling remains a non-probability sampling strategy and may be affected by network homophily, seed dependence, differential network size, and the underrepresentation of individuals who are less connected to community organizations or online groups. Therefore, the resulting sample should not be interpreted as statistically representative of the entire transgender population of Pakistan. The findings primarily describe the experiences of transgender individuals reached through the participating urban community networks, and generalization beyond this population should be undertaken cautiously. Snowball sampling is methodologically defensible for hard-to-

Instrument Development, Translation, and Reliability

Data were collected using a structured questionnaire specifically developed and culturally tailored for the Pakistani context. The questionnaire covered participant demographics, experiences and intentions related to gender affirmation surgery, financial and healthcare-system barriers, healthcare discrimination, mental health indicators, and perspectives regarding policy and social support. The development process emphasized correspondence between the questionnaire domains and the study objectives, as well as the relevance, clarity, and comprehensibility of individual items. These procedures are consistent with recommended principles of instrument development, which emphasize construct definition, domain specification, item generation, expert or stakeholder review, pretesting, and subsequent evaluation of psychometric properties (Boateng et al., 2018).

To ensure linguistic accuracy and conceptual equivalence between the English and Urdu versions, the questionnaire underwent a formal forward–back translation process. First, two independent bilingual experts translated the original English questionnaire into Urdu. The two forward translations were reviewed by the research team and reconciled into a single preliminary Urdu version, with particular attention to differences in wording, cultural connotations, and potentially stigmatizing terminology. The reconciled Urdu version was subsequently back-translated into English by a third independent bilingual expert who had not reviewed the original English questionnaire. Blinding the back-translator to the original version was intended to facilitate the identification of changes in meaning that might otherwise have been overlooked.

The original English version and the back-translated version were then compared item by item. Discrepancies were discussed among the translators and the research team until agreement was reached regarding semantic, idiomatic, experiential, and conceptual equivalence. Semantic equivalence concerned whether words conveyed comparable meanings across languages; idiomatic equivalence concerned expressions that could not be translated literally; experiential equivalence concerned whether an item reflected experiences recognizable within the Pakistani context; and conceptual equivalence concerned whether the underlying construct retained the same interpretation in both languages. Particular care was taken with items addressing gender identity, healthcare discrimination, family and religious pressure, psychological distress, and suicidal ideation because literal translation of these concepts could produce ambiguity or culturally inappropriate wording. Such multi-stage translation and reconciliation procedures are recommended because direct word-for-word translation alone does not ensure cross-cultural equivalence of a health-related questionnaire (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

Before full data collection, the preliminary Urdu questionnaire was piloted with 10 transgender community members. Participants were asked to evaluate item comprehension, clarity of response options, cultural appropriateness, sensitivity of terminology, and the overall burden of completing the questionnaire. Feedback obtained during the pilot was reviewed by the research team and used to revise unclear wording, reduce ambiguity, and ensure that the questions were interpreted as intended. The pilot testing primarily provided evidence regarding feasibility, acceptability, and response-process clarity; it should not be interpreted as a complete evaluation of content or construct validity because of the small pilot sample and the absence of a reported formal psychometric validation procedure.

Internal consistency of the mental health distress items was evaluated using Cronbach's alpha. The resulting coefficient of $\alpha = 0.84$ indicates that the items demonstrated satisfactory internal consistency within the present sample. Cronbach's alpha estimates the degree of interrelatedness among items intended to contribute to a composite score; however, its magnitude may be influenced by the number of items and the average correlations among them (Cronbach, 1951; Tavakol & Dennick, 2011). Therefore, the coefficient of 0.84 should be interpreted as evidence that the mental health distress items functioned consistently in this sample, rather than as proof that the scale was unidimensional or that all forms of validity had been established. A more comprehensive psychometric evaluation would require additional evidence, such as examination of dimensionality, factor structure, convergent validity, discriminant validity, and measurement performance across relevant participant groups.

Ethical Considerations

Ethical approval for the study was obtained from the Ethical Research Committee of PNS Shifa Hospital, Karachi (ERC/2024/ANES). Prior to data collection, all prospective participants received a clear explanation of the study purpose, procedures, potential risks and benefits, and data protection measures. Written or electronic informed consent was obtained from each participant before enrollment, with explicit emphasis on voluntariness and the right to decline to answer any question or withdraw at any time without penalty or loss of services. To protect confidentiality, the study maintained a strict commitment to anonymity: no personally identifiable information (PII) was collected, and responses were recorded using non-identifying study codes only. Given that the research involved a vulnerable population and included sensitive items related to suicidal ideation (reported by 47% of respondents), the research team implemented a prespecified risk mitigation protocol to address participant safety. Participants who indicated high levels of psychological distress or suicidal thoughts were provided immediately with a printed or digital resource list containing contact information for transgender-affirming psychological helplines, crisis support, and NGO-based counseling and referral services. When data were collected via face-to-face interviews, trained research staff delivered this information in a supportive, nonjudgmental manner and, where appropriate and with participant permission, offered brief guidance on how to access services while maintaining privacy. All study procedures were designed to minimize potential harm, reduce stigma-related discomfort during participation, and ensure that participants had timely access to supportive resources if distress arose during or after the survey.

RESULTS OF STUDY

Table 1. Demographic Characteristics of Respondents (N = 500)

Characteristic	Frequency (n)	Percentage (%)
Gender Identity		
Transgender women	360	72
Transgender men	90	18
Non-binary/genderfluid	50	10
Age Group (years)		
18–25	220	44
26–35	180	36
36–45	70	14
>45	30	6
Education Level		
Primary or less	100	20
Secondary	175	35
Tertiary/University	140	28
Postgraduate	85	17
Employment Status		
Unemployed	240	48
Informal work	145	29
Formal employment	115	23

Table 1 indicates that the sample was predominantly composed of transgender women (72%), followed by transgender men (18%) and non-binary/genderfluid

participants (10%). In terms of age, most respondents were 18–25 years old (44%) or 26–35 years old (36%), suggesting that the sample largely represents young adults. Educational attainment was relatively diverse; however, a substantial proportion reported secondary education or below (primary or less: 20%; secondary: 35%), which may be consequential for employment opportunities and access to healthcare. This pattern is consistent with the employment profile, where unemployment was high (48%), while 29% reported informal work and only 23% held formal employment. Interpretation: These findings highlight a context of socioeconomic vulnerability that likely shapes respondents′ capacity to afford GAS, navigate healthcare systems, and manage psychosocial stressors.

Table 2 shows that only 9% of respondents had fully undergone GAS, whereas 22% were classified as having "partially undergone / hormone therapy" (this category should be operationally clarified because partial surgery and hormone therapy are clinically distinct). The largest group comprised respondents who desired GAS but had not undergone it (61%), underscoring a substantial gap between need/preference and realized access. The most frequently endorsed barriers were high cost (73%) and limited availability of specialized surgeons (56%), followed by sociocultural barriers such as fear of social rejection (49%), religious/familial pressure (43%), and structural barriers including legal/documentation issues (39%). Because multiple responses were permitted, barrier percentages do not sum to 100%, which is expected. Interpretation: Access to GAS appears to be constrained by layered barriers—financial, health-system capacity, and sociocultural/legal constraints—that jointly limit service uptake.

Table 2. Gender Affirmation Surgery (GAS) Status and Barriers

Variable	Frequency (n)	Percentage (%)
GAS Status		
Fully undergone	45	9
Partially undergone / hormone therapy	110	22
Desire GAS but not undergone	305	61
Do not desire GAS/Undecided	40	8
Barriers to GAS (Multiple Responses Allowed)		
High cost	365	73
Lack of specialized surgeons	280	56
Fear of social rejection	245	49
Religious/familial pressure	215	43
Legal/documentation issues	195	39
Fear of medical complications	140	28

Table 3. Experiences of Healthcare Discrimination

Discrimination Type	Frequency (n)	Percentage (%)
Misgendering by provider	295	59
Refusal of treatment	220	44
Overcharging	190	38
Lack of provider knowledge on transgender care	255	51

Table 3 documents a high burden of healthcare-related discrimination. The most commonly reported experiences were misgendering by providers (59%) and lack of provider knowledge regarding transgender care (51%), pointing to deficits in clinical competence and affirming communication. Nearly half of respondents reported more severe access-related harms, including refusal of treatment (44%), while 38% reported overcharging, suggesting inequitable or potentially exploitative cost practices. Interpretation: Discrimination and inadequate provider competence likely function as direct barriers to healthcare engagement, reduce trust in health services, and may exacerbate psychological distress, thereby indirectly undermining access to gender-affirming and mental health care.

Table 4 indicates a substantial mental health burden in the sample, with regular mental distress reported by 74% of respondents. Particularly concerning are the rates of suicidal ideation (47%) and suicide attempts (14%), indicating clinically meaningful risk in this population. The manuscript also reports "diagnosed" depression (42%), anxiety (38%), and PTSD (21%); however, interpretation depends critically on how "diagnosed" was defined (e.g., clinician diagnosis vs. self-reported prior diagnosis vs. symptom-scale thresholds). Notably, only 18% reported accessing professional mental health support, suggesting a substantial treatment gap. Interpretation: The pattern of high distress and suicide-related indicators, coupled with low service utilization, is consistent with a context of stigma and healthcare barriers, but causal inference is not warranted given the cross-sectional design.

Table 4. Mental Health Status

Mental Health Indicator	Frequency (n)	Percentage (%)
Regular mental distress	370	74
Depression diagnosed	210	42
Anxiety diagnosed	190	38
PTSD diagnosed	105	21
Suicidal ideation	235	47
Suicide attempt	70	14
Accessed professional mental health support	90	18

Table 5 reflects strong preferences for policy and structural support interventions. Most respondents endorsed subsidized surgeries (81%) and stronger legal protections (74%), aligning with the financial and documentation-related barriers reported in Table 2. System-level capacity-building priorities were also prominent, including the inclusion of transgender health in medical education (66%) and training of specialized physicians (61%), which is consistent with the lack of provider knowledge documented in Table 3. Additionally, peer and NGO support were identified as the primary resource by 84% of respondents, suggesting that community-based support functions as a critical safety net in the face of limited responsiveness within formal systems. Interpretation: Respondents′ priorities emphasize both immediate access solutions (financial support) and longer-term structural reforms (legal protection and workforce training), alongside sustained community-based support.

Table 6 reports a statistically significant association between desire for GAS and regular mental distress (χ^2 = 17.94, df = 1, $p < 0.001$), with Cramer′s V = 0.19, which is commonly interpreted as a small-to-approaching-moderate effect size. Substantively, this suggests that the proportion

reporting regular distress is higher among respondents who desire GAS than among those who do not. However, there is an internal inconsistency that requires correction: in the "No (Do not desire GAS)" row, the cell counts (95 + 105 = 200) do not match the reported row total (195). This discrepancy must be resolved because it affects the reported proportions and the reliability of the inferential test. Interpretation (conditional on corrected data): Desire for GAS may be a marker of unmet gender-affirmation needs and/or distress related to dysphoria and stigma. Nonetheless, because the data are cross-sectional, the association should not be interpreted causally; unmeasured factors (e.g., poverty, violence exposure, and healthcare discrimination) may contribute to both distress and the desire for GAS. Multivariable analyses would strengthen inference by testing whether the association persists after adjusting for plausible confounders.

Table 5. Policy and Support Perspectives

Policy/Support Need	Frequency (n)	Percentage (%)
Subsidized surgeries	405	81
Better legal protection	370	74
Inclusion of transgender health in medical education	330	66
Training of specialized doctors	305	61
Peer and NGO support as main resource	420	84

Table 6. Relationship Between Desire for Gender Affirmation Surgery (GAS) and Mental Distress

Desire for GAS	Regular Mental Distress	No/Occasional Distress	Total
Yes (Desire GAS)	280	25	305
No (Do not desire GAS)	95	105	195

Note: Chi-square = 17.94, df = 1, p < 0.001, Cramer's V = 0.19. Regular mental distress was significantly higher among those desiring GAS compared to those who did not.

DISCUSSION

The findings of this study reinforce the conclusion that transgender individuals in Pakistan are trapped in a cycle of social marginalization and economic vulnerability. High rates of unemployment (48%) and reliance on informal work (29%) create a state of perpetual financial instability, which directly impacts their ability to afford essential healthcare. This echoes the observations of Siddiqui (2022), who detailed the economic marginalization of the community. The data makes it clear that while 61% of participants desire GAS, structural barriers like exorbitant cost (73%) and legal ambiguities, as highlighted by Human Rights Watch (2016), act as a significant wall, preventing them from accessing care essential for their well-being.

The widespread discrimination reported by participants—including misgendering (59%), refusal of service (44%), and lack of professional knowledge (51%)—is not an anomaly but a reflection of a systemic problem. These experiences mirror previous findings by Poteat et al. (2013), who found that stigma in healthcare settings significantly discourages help-seeking behavior. However, the low utilization of government hospitals (21%) must also be interpreted through plausible confounders such as general healthcare access limitations in Pakistan and widespread poverty, which may compound the deep-seated distrust rooted in past negative experiences. This highlights the urgent need not just for more doctors but for culturally competent and affirming healthcare professionals. Without providers who are both knowledgeable and respectful, the healthcare system will continue to be a source of trauma rather than healing.

The prevalence of mental distress (74%) points to a crisis that is structural, not individual. As the Chi-square analysis demonstrated ($\chi^2 = 17.94, p = 0.000023$), the lack of access to care is a significant contributor to this distress. The leading factors—stigma (72%), financial insecurity (68%), and family rejection (66%)—are systemic issues that require systemic solutions. It is important to consider that violence exposure and general social isolation may act as confounders in these psychological metrics. The low rate of professional mental health service utilization (18%) underscores the need for accessible and affordable services. The dual stigma of being transgender and having a mental illness, as identified by the Government of Pakistan (2018), acts as a significant deterrent to seeking help. While community-based support networks provide a vital lifeline, they cannot replace formal, professional psychological care.

The research findings reveal a glaring gap between Pakistan's progressive legislation and its practical implementation, as 78% of participants felt a lack of government support. The **Transgender Persons Act of 2018** is a powerful legal instrument, but its impact is minimal if it is not actively enforced. The legal barriers, such as complex documentation requirements, create a labyrinth of red tape that discourages people from seeking the very rights the law guarantees. Participants' support for subsidized surgeries and the inclusion of transgender health in medical education aligns with international best practices and recommendations from academic studies (Dubin et al., 2018; Obedin-Maliver et al., 2011; Saeed et al., 2023) that emphasize the need for systemic educational reform.

Finally, the survey's findings on family rejection (66%) and religious pressure (43%) highlight cultural barriers that a purely legal or medical approach may not solve. Pakistan's cultural context, where gender non-conformity is often viewed as a moral failing, remains a challenge. Engaging religious leaders and promoting more inclusive interpretations, as suggested by Kugle (2013) and UNICEF (2021), could be a powerful way to reduce intra-community resistance and foster acceptance. This approach moves beyond simply legislating rights and works to change the social fabric that is the root cause of so much distress.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, regarding sample scope, participants were recruited using a combination of convenience and snowball sampling across five major urban centers. Although this approach enabled access to a hard-to-reach population, it may have introduced selection bias and limits the generalizability of the results, particularly to transgender individuals living in rural areas or in regions with substantially different healthcare infrastructure and sociocultural contexts. Second, the cross-sectional design supports the identification of statistical associations but does not allow for establishing temporal ordering or definitive causal pathways between barriers to gender affirmation surgery and mental health outcomes;

accordingly, causal language should be avoided. Third, the study relied on self-reported clinical diagnoses and personal experiences of healthcare discrimination, which may be vulnerable to recall bias, differential interpretation of survey items, and potential misclassification (e.g., whether reported "diagnoses" reflect clinician-confirmed diagnoses or perceived/previously communicated conditions). Finally, although the study identified several salient barriers, important confounding and contextual variables were not modeled as independent predictors, including broader economic pressures (e.g., inflation and cost-of-living changes), the absence of nationwide insurance coverage for gender-affirming care, and individual histories of physical violence or trauma exposure. These unmeasured factors may contribute both to limited access to care and to elevated psychological distress, and future research should incorporate multivariable modeling and longitudinal designs to better isolate pathways and strengthen inference.

Recommendations

Based on the study findings, the following recommendations are organized by implementation timeline and aligned with the most salient barriers to gender-affirming care and well-being among transgender individuals in Pakistan, particularly the prohibitive cost of services (73%), the shortage of specialized providers (56%), and the high prevalence of regular mental distress (74%). In the short term (0–1 year), immediate priorities should focus on reducing stigma, improving access to basic psychosocial support, and strengthening legal implementation mechanisms that directly affect service access. Nationwide public education campaigns should be launched through mass media and digital platforms to promote awareness of transgender rights and reduce stigma, thereby addressing the substantial proportion of individuals who report fear of social rejection (49%). Success can be monitored through measurable improvements in public sentiment using social media analytics and pre/post campaign survey indicators. In parallel, legal and administrative barriers should be targeted through advocacy and coordination with relevant authorities to ensure consistent enforcement of the Transgender Persons Act of 2018, with a practical emphasis on simplifying documentation processes for those reporting legal/documentation obstacles (39%). A feasible indicator of progress is a 20% increase in successfully updated legal identity documents within the first year. Given the high burden of psychological symptoms, an immediate and ethically necessary response is the establishment of accessible, transgender-affirming counseling and crisis-support pathways, including a network of trained counselors available at low or no cost to address the 74% reporting regular distress. Implementation success should be tracked through service utilization metrics, such as the number of transgender individuals accessing counseling and the continuity of care (e.g., follow-up attendance).

In the medium term (1–3 years), reforms should shift toward structural integration within health and social support systems, with a focus on building provider competence and strengthening community-based resource infrastructure. A central priority is implementing mandatory provider training by integrating transgender health content into medical school and residency curricula under the leadership of the Ministry of Health, directly addressing the reported lack of provider knowledge (51%). A concrete indicator of institutionalization is the formal inclusion of transgender health modules in national medical licensing examinations and standardized competency requirements for trainees. Because socioeconomic vulnerability is prominent (e.g., 48% unemployment), government support should also be directed toward strengthening community-based resources through sustained funding mechanisms for NGOs that provide financial counseling, navigation support, and referral services. Progress can be evaluated by the establishment of at least one funded community resource center in each major city and documented service uptake. In addition, expanding and formalizing peer support networks can reduce the psychosocial impact of stigma and family rejection by providing safe spaces and practical support. Success indicators may include increased enrollment and retention in registered peer support programs, as well as improved self-reported social support among participants.

In the long term (3+ years), efforts should prioritize systemic reforms that expand service capacity and remove structural financial barriers to gender-affirming care. The government should invest in specialized, confidential clinics that offer comprehensive gender-affirming services, including surgical pathways, to address the critical shortage of specialized surgeons (56%) and to reduce reliance on fragmented or informal care pathways. System performance can be monitored through reductions in the average distance or travel burden required to access specialized services and improvements in timely referral completion. Finally, to directly address the primary barrier of prohibitive cost (73%), gender affirmation surgeries should be incorporated into national health insurance and subsidy schemes. A key outcome indicator would be a statistically meaningful increase in the proportion of individuals successfully undergoing full GAS (currently 9%), alongside equity-focused monitoring to ensure improved access among unemployed and lower-income groups.

CONCLUSIONS AND RECOMMENDATION

This study has brought into sharp focus the profound crisis faced by transgender individuals in Pakistan at the nexus of gender identity, healthcare inequity, and mental health. While the country has taken a significant step forward with the Transgender Persons (Protection of Rights) Act, its promise remains largely unfulfilled. Our quantitative findings paint a stark picture: only 9% of respondents have successfully accessed full GAS, while 61% express a desire for surgery but are blocked primarily by prohibitive costs (73%) and a shortage of specialized surgeons (56%). The unmet need for surgical affirmation is a statistically significant contributor (chi2 = 17.94, p = 0.000) to the severe mental distress reported by 74% of the community, including a high prevalence of suicidal ideation (47%).

The findings serve as an urgent wake-up call to policymakers, healthcare professionals, and civil society. While these results underscore a critical need for reform, implications must be considered alongside the study's scope. To uphold the rights of transgender Pakistanis, concrete steps are required, including:

- Subsidizing gender-affirming care to address the 73% financial barrier.
- Integrating transgender health into medical curricula to improve the 51% reported lack of provider knowledge.
- Enforcing anti-discrimination laws to mitigate the 67% frequency of healthcare discrimination.

- Establishing accessible mental health support to assist 82% who currently do not access professional services.

It is important to note that because this study utilized convenience and snowball sampling within five major urban centers, the findings primarily reflect the experiences of urban-dwelling transgender individuals. These results may not be fully generalizable to those living in rural or remote areas of Pakistan, where healthcare infrastructure and social dynamics significantly differ. Community-based support systems remain vital, but they cannot substitute for state responsibility. The health, dignity, and lives of transgender Pakistanis depend on systemic change.

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Availability of data and materials
Data are available upon request.

Artificial Intelligence-Assisted Technology
Not Applicable

Authors' contributions:
Sana Abbas: Conceptualization, Data Collection, Writing – Original Draft.
Usman Saqib: Data Collection, Writing – Original Draft.

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ADDITIONAL INFORMATION

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APPENDIX

Questionnaire: Barriers to Gender Affirmation Surgery and Its Impact on Mental Health

Introduction

Thank you for participating in this survey. Your responses will help us understand the challenges you face in accessing gender affirmation surgery and how these challenges affect your mental health. Your responses are confidential and will be used solely for research purposes.

Section 1: Demographic Information

1. Age:
   - Under 18
   - 18-24
   - 25-34
   - 35-44
   - 45-54
   - 55 and above
2. Gender Identity:
   - Transgender Female
   - Transgender Male
   - Non-Binary
   - Other (please specify): _____
3. Location:
   - Urban Area
   - Rural Area
   - Specific city/town: _____
4. Educational Level:
   - No formal education
   - Primary School
   - Secondary School
   - Higher Secondary School
   - Bachelor's Degree
   - Master's Degree or higher
5. Employment Status:
   - Employed Full-Time
   - Employed Part-Time
   - Unemployed
   - Student
   - Retired
   - Other (please specify): _____

Section 2: Experiences with Gender Affirmation Surgery

6. Have you sought or considered gender affirmation surgery?
   - Yes
   - No
7. If yes, which type of surgery were you interested in? (Select all that apply)
   - Chest/Top Surgery
   - Genital Surgery
   - Facial Surgery
   - Voice Surgery
   - Other (please specify): _____
8. What specific barriers have you encountered in accessing gender affirmation surgery? (Select all that apply)
   - Cultural or social stigma
   - Financial constraints
   - Lack of specialized healthcare providers
   - Legal or bureaucratic obstacles
   - Geographic distance
   - Lack of insurance coverage
   - Other (please specify): _____
9. How did these barriers impact your ability to pursue gender affirmation surgery?
   - Delayed the process
   - Abandoned plans for surgery
   - Considered traveling abroad for surgery
   - None of the above
   - Other (please specify): _____

Section 3: Impact on Mental Health

10. How would you describe your current mental health status?
    - Excellent
    - Good
    - Fair
    - Poor
    - Very Poor
11. Have you experienced any of the following mental health issues related to the barriers in accessing GAS? (Select all that apply)
    - Anxiety
    - Depression
    - Suicidal thoughts
    - Low self-esteem
    - Social isolation
    - Emotional distress
    - Other (please specify): _____
12. How often do you experience the following due to barriers in accessing GAS?
    a. Persistent anxiety
       - Never
       - Rarely
       - Sometimes
       - Often
       - Always

    b. Depression
       - Never
       - Rarely
       - Sometimes
       - Often
       - Always

    c. Feelings of hopelessness
       - Never
       - Rarely
       - Sometimes
       - Often
       - Always
13. Have you sought any form of mental health support due to these issues?
    - Yes, from a mental health professional

- Yes, from a support group
- No, but I plan to
- No, and I do not plan to

14. What types of support or resources would be most helpful to you in managing mental health issues related to the barriers to GAS? (Select all that apply)
    - Counseling or therapy
    - Peer support groups
    - Financial assistance programs
    - Information and resources on accessing GAS
    - Legal assistance
    - Advocacy and awareness programs
    - Other (please specify): _____

Section 4: Recommendations and Feedback

15. What changes or improvements would you suggest to make gender affirmation surgery more accessible in Pakistan? (Select all that apply)
    - Increase public awareness and reduce stigma
    - Improve legal and healthcare policies
    - Provide financial support or insurance coverage
    - Increase the number of specialized healthcare providers
    - Develop local support networks
    - Other (please specify): _____
16. What additional comments or suggestions do you have regarding the barriers to accessing gender affirmation surgery and its impact on mental health?
    - [Open-ended response]

Thank you for your participation. Your input is invaluable in helping us understand and address the challenges faced by the transgender community in Pakistan.