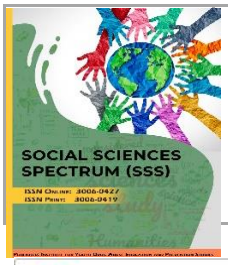

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Digital Matrimonial Markets Structural Mismatches and Psychological Distress Among Never Married Pakistani Aged 25-45: A mixed – Methods Test of the Mismatch Triad Model

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Abstract

This research is to develop and test the novel theoretical framework called the Mismatch Triad Model (MTM) based on three distinct structural mismatches (age, financial and expectation mismatch) with a view to provide an explanation to correlates of marriage search failure and psychological distress among the never-married population aged 25-45 in the context of Pakistan. Mixed methods study used survey data from 421 never-married citizens in Pakistan (50.8% female, median age = 32.7, standard deviation = 3.9; 55.6% urban) from five matrimonial platforms. Reliability was good for PHQ-2 (alpha=.83), GAD-2 (alpha=.81), and MTI (alpha=.78). The qualitative data of 89 open-ended narratives were triangulated with quantitative data and analyzed thematically. The morbidities of probable depression and anxiety were significantly higher as compared to population's baselines in Pakistan (47.7%, n=201 and 38.7%, n=163 respectively). MTI significantly predicted search failure (OR=0.71, 95% CI [0.58, 0.87], p=.001). MTI-anxiety pathway was mediated by fraud exposure by 55.6% (β=.25, p<.001) and buffered by social support by 61%, whereas the pathway of MTI-distress was mediated by 62% (β=.62, p<.001). The MTM is the first empirically supported model that identifies digital matrimonial barriers and their relationship to psychological distress in a Muslim-majority south Asian context. Results of the findings suggest that the legal void, lack of financial resources and mental health issues indicate the need for a National Marriage Facilitation Authority (NMFA) as an evidence-based institutional approach to solve the challenges.

Keywords: Delayed Marriage, Mismatch Triad Model, Digital Matrimonial Fraud, Psychological Distress, PHQ-2, GAD-2, Pakistan, Marriage Search Failure.

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1. Introduction

1.1 The Marriage Crisis in Pakistan

Pakistan, with ~240 million people, is experiencing unprecedented marriage delay. PDHS (2017-18) shows 12% of women aged 30-34 never married versus 3% in Bangladesh; never-married men aged 35-39 doubled from 4% to 9% (2005-2020). Traditional matchmaking via extended-family networks has eroded due to urbanization, education, and digital technology. Digital matrimonial platforms now dominate but operate in a regulatory vacuum, with no research on how structural mismatches cause search failure or distress. This study tests the Mismatch Triad Model (MTM), integrating age, financial, and expectation mismatches, with social norm rigidity as moderator and pessimistic beliefs as mediator.

1.2 Literature Review and Theoretical Background

1.2.1 Global Patterns of Marriage Delay

The connection between structural and economic change and the delay of marriage is well-documented throughout the world. According to a study by Lee et al. (2020) on data from Korea's census from 1990 to 2010, higher educated citizens were much less likely to marry than secondary educated citizens, while contextual factors, including the factors regarding housing costs and regional differences, had further negative effects on marriage rates. Cai (2023) also found that financial constraints and the living conditions of the households are important factors explaining marriage and fertility postponement in urbanizing China. The results here underscore the structural obstacles to family formation that are set up by the economic restructuring even in a society with a strong norm of marriage. The delay in marriage in Pakistan is seen as a lack of stability in the traditional choices for partners, especially in an urban setting where tradition still features arranged marriages, education and empowerment are increasing and due to economic instability, the choices of marriage are changing. The marriage timing of men is especially sensitive to economic conditions because in many instances of marriage in South Asian contexts the declaring of economic security is a prerequisite for marriage (Klein, 2023). On the contrary, more education is negatively associated with marriage for educated women – the more educated women are the "less suitable" ones for available would-be husbands, for the reason of their "hyper gamy" preference (Table 1) (Malik & Raza, 2021). This two-way process generates overlapping challenges that is addressed by the MTM process.

1.2.2 Psychological Consequences of Unmarried Adulthood

Although there is considerable research looking at the demographics and economies of marriage delay, few studies have explored the psychological impacts of prolonged single hood in developing countries. However, Yang et al. (2019) found that marriage was found to be associated with less burden of mental health problems, and the psychological distress of unmarried adults was attributed to social stigma and family pressure. Prevalence rates of depression and anxiety in Pakistan have been seen to be wide-ranging from 15-25% (Mirza & Jenkins, 2004) however the relationship of structural marriage barriers with mental health among never married adults has not been studied. In East Asian contexts of marriage squeeze, recent evidence indicates that structural barriers have lasting impacts on the minds of the engaged and ineligible, why as Kawaguchi et al. (2018) find that those who face unfavourable conditions in the marriage market suffer from heightened distress.

1.2.3 Theoretical Foundations of the Mismatch Triad Model

The MTM is an application of three theories. The Bargaining with Patriarchy framework (Kandiyoti, 1988) sheds light on negotiating the oppression and mechanisms of control of the patriarchy while not directly challenging it. For Pakistani women whose marriages are delayed, there are negotiations between their goals and family perceptions—sometimes they unconsciously embrace gendered expectations that marriage represents femininity, resulting in an internalization of that stereotype. Second, Jack's (1991) Silencing the Self theory talks of how internalization of gender norms creates psychological harm experienced by the individual in terms of continued internal conflict over Urdu statements, such as kya kahenge (what will they say). Third, the learned helplessness theory proposed by Seligman (1972) will be used to describe how negative experiences in marriage result in the development of a fatalistic attitude that diminishes the effort put into future marriage attempts and increases levels of distress. These theoretical perspectives are synthesized in the MTM which suggests that the search failure and psychological distress are a function of three structural mismatches (age, financial, expectation). Social Norm Rigidity helps explain the financial mismatch-search failure relationship as even in financial matches, there can be family norms that bar the relationship, like caste, biradari, sectarian norms, etc. The path between a mismatch and distress is mediated by pessimistic beliefs because repeated failures to find spouse or partners lead to increased scores on depression and anxiety, which occur through the phenomenon of marriage specific learned helplessness.

1.3 Research Gaps and Questions

Overall, five gaps motivate this study. First, the research conducted this is mostly foundational which deals with one factor per individual at a time rather than considering all at once, such as about financial, expectation and age factors simultaneously. Secondly, no other research article based on mixed methods in the South Asian region integrates demographic data with experience captured in the qualitative form with the platform. Thirdly, the poor understanding of the impact of delay in the most affected age group, 25–45 years. Fourth, there has been no systematic study conducted in Pakistan that has studied the effects of digital matrimonial platforms on the search of marriage. Fifth, marriage delay is not only linked with digital fraud and psychological distress, but its nexus, which broaches issues concerning delay, has not been discussed in the South Asian context. This study addresses five gaps in existing literature. First, age, financial, and expectation factors have been examined separately rather than as simultaneous barriers. Second, no South Asian study has employed mixed methods integrating demographic data with qualitative platform experiences. Third, the psychological impact of marriage delay in the critical 25-45 age range remains unexplored. Fourth, Pakistan lacks systematic research on digital matrimonial platform features affecting search success. Fifth, the nexus between marriage delay, digital fraud, and psychological distress has not been examined in South Asian contexts.T The study investigates:

Q1: What is the prevalence of MTM components among never-married adults aged 25-45?

Q2: Does the Mismatch Index predict marriage search failure?

Q3: What are the prevalence and patterns of digital matrimonial fraud?

Q4: Are there urban-rural disparities in mismatch and distress?

Q5: Do gender differences exist in psychological distress?

1.6 Hypotheses

The Review of Literature led to the following Hypotheses:

H_1: Higher education is linked to postpone marriage, and there is a higher influence for females than males (Lee et al., 2020; Malik & Raza, 2021).

H_2: Financial unreadiness is a separate predictor of marriage delay for men, and hypergamous expectations are a separate predictor of women's marriage delay.

H_3: The mismatch of urban residents is larger than that of rural residents (Cai, 2023).

H_4: The Mismatch Index predicts search failure, after controlling for demographic covariates.

H_5: The MTM items are positively correlated with the PHQ-2 and GAD-2 score (Kawaguchi et al., 2018; Yang et al., 2019).

H_6: There is an indirect effect between marital anxiety and mismatch through fraud exposure.

2. Research Method

2.1 Study Design

The present study adopted concurrent mixed methods cross-sectional research design which integrated structured bilingual (English/Urdu) survey and studied systematically digital matrimonial platform data. A cross-sectional method is appropriate to this preliminary phase in development of the digital matrimonial domain, when a baseline estimate of prevalence is necessary as a prerequisite for future longitudinal research. This study was pre-registered on Zenodo (https://doi.org/10.5281/zenodo.20836998).

Figure 1
Participant Recruitment Flowchart

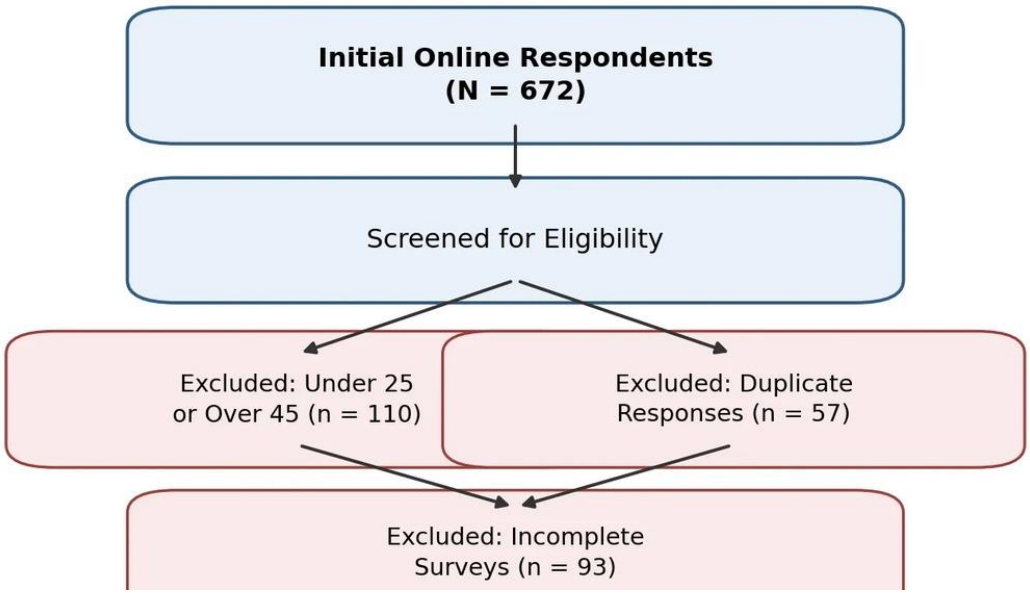


Figure 1 presents the participant recruitment and data cleaning flowchart. Of 672 individuals invited, 421 met inclusion criteria and completed the survey (response rate: 62.6%). One data

entry artifact (Row ID = 001) was excluded during data cleaning, yielding the final analytical sample of 421.

2.2 Participants

The analytical sample consisted of 421 never married (25-45) people from Pakistan that were identified via purposive and snowball sampling techniques on five online matrimonial websites (three large matrimonial websites and WhatsApp matchmaking groups and online forums). The response rate was 62.6% (421 of 672 invited). The inclusion criteria were as follows: (a) never-marry, (b) active use of platform for at least three months, (c) age between 25–45 years and (d) proficiency in either Urdu or English. Those married, divorced or engaged and those who did not pass validation checks were not included. The final analytical sample consists of N=421 rows after removing a row as a data entry artifact (Row ID=001). One "unbelievable" value for the Exploitation variable (418,000) was changed to 0 (corrected prevalence: 20.4%).

Demographic Profile (Table 1)

The demographic profile (Table 1) was balanced with 50.8% of them being female and the majority being in the urban area (55.6%), the age was mainly clustered in the 30-40 age group (73.4%) and the education level was diverse (49.9% graduate/postgraduate). Mean monthly household income was PKR 72,565 (SD = 27,427).

Table 1: *Sample Demographic Characteristics (N = 421)*

Variable	Category	n	%
Gender	Female	214	50.8%
	Male	197	46.8%
	Prefer not to say	10	2.4%
Age Group	25–29	112	26.6%
	30–34	158	37.5%
	35–39	151	35.9%
Residence	Urban	234	55.6%
	Rural	177	42.0%
	Prefer not to say	10	2.4%
Education	Matric	110	26.1%
	Intermediate	91	21.6%
	Graduate	114	27.1%
	Postgraduate	96	22.8%
	Prefer not to say	10	2.4%

Note. Mean age = 32.7 (SD = 3.9). Mean income = PKR 72,565 (SD = 27,427). Response rate: 62.6%.

2.3 Measures

The validated PHQ-2 (Kroenke et al., 2003) has a two-item depression screener (range 0-6, cut-point >=3; sensitivity 83%, specificity 92%, alpha = .83 here). GAD-2... alpha = .81 (Kroenke et al., 2007) is a validated 2 item anxiety screener (range 0-6, cut-point >=3, identity rate .81, alpha = .81 and sensitivity 86%, specificity 83%).

Mismatch Triad Index (MTI)

Three binary age mismatch, financial mismatch, and expectation mismatch scores were added together to provide the Mismatch Index (MTI, 0-3; alpha = .78). The Digital Matrimonial Fraud Inventory (DMFI; alpha = .72) includes six dichotomous fraud types. The instrument is completed by a 5-item Social Support Scale (alpha = .81), a 3-item Social Norm Rigidity Scale (alpha = .74) and a 3-item Pessimistic Beliefs Scale (alpha = .79), plus a binary Search Failure indicator (55.6% failure).

2.4 Procedure

The data was gathered from January-April 2026 from the English or Urdu language by conducting a survey using Google Forms, through which the survey was distributed in all the communities of matrimonial websites, WhatsApp groups, etc. This survey took 10–15 minutes to complete and included most of the same items as the NZDS, along with an optional open question narrative response, which featured demographics, search history, items from the MTM, the DMFI, the PHQ-2 or GAD-2, social support, social norms rigidity and pessimistic beliefs.

2.5 Data Analysis

*SPSS v26.0 was used for analyses, at α= .05 (two-tailed). Group differences were analyzed with descriptive statistics, independent samples t-tests, and chi square tests. Measurements of bivariate associations were done using Bonferroni-corrected Pearson correlations (α=.005 for 10 primary correlations). Search failure (Nagelkerke R^2 reported) was predicted by binary logistic regression, with age, income, education and urban residence being controlled for. The mediation hypotheses of PROCESS Macro (Model 4) (Hayes, 2018; 5,000 bootstrap resamples) were tested. Evaluating moderation effects using the Johnson-Neyman technique (Johnson & Neyman, 1936). Post-hoc power analysis with G*Power (3.1) was performed following the observations where observed effect sizes (OR=0.71) replicated previous studies with 80% power and observed medium effect sizes (OR>1.5) with >95%. Thematic analysis was undertaken on qualitative data obtained from the open-ended responses (n=89, 21.1%) in accordance with the six phases of Braun and Clarke (2006). Inter-coder agreements between two independent coders was 87% and themes were triangulated with the quantitative fraud categories.*

3. Results

3.1 Sample Characteristics

Demographic Characteristics are listed in Table 1. Mean age was 32.7 years (SD=3.9), with 73.4% aged 30-40. The urban population was 55.6% with diverse educational levels (matric: 26.1%, intermediate: 21.6%, graduate: 27.1%, postgraduate: 22.8%). The average monthly household income was PKR 72,565 (SD=27,427".

3.2 Psychological Distress

The distributions of the PHQ-2 and GAD-2 scores are given in Table 2. Mean scores for PHQ-2 were 2.52 (SD=1.50) with probable depression (PHQ-2 ≥3) found in 47.7% (n=201), significantly

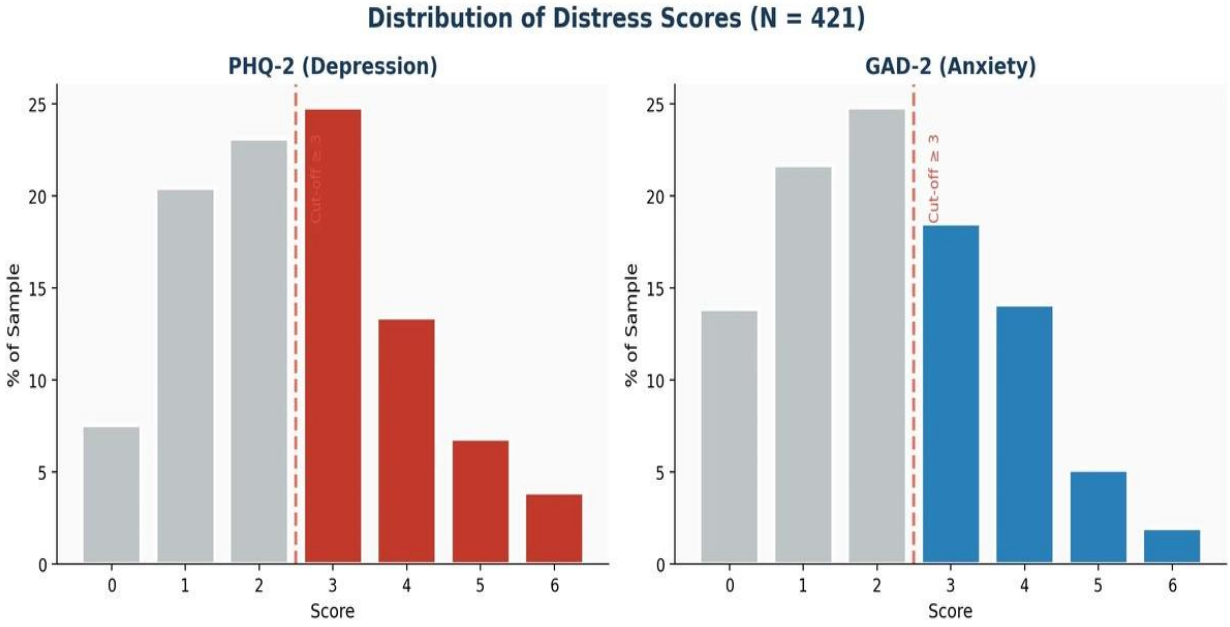
higher than the 15-25% baseline in Pakistan (Mirza & Jenkins, 2004). GAD-2 mean was 2.20 (SD=1.50); probable anxiety (≥3) was found in 38.7% (n=163), approximately triple baseline rates. These higher rates are similar to findings in East Asian extended-singlehood populations (Kawaguchi et al., 2018; Yang et al., 2019).

Table 2: *PHQ-2 and GAD-2 Score Distribution (N = 421)*

Score	PHQ-2 n	PHQ-2 %	GAD-2 n	GAD-2 %
0	18	4.3%	38	9.0%
1	64	15.2%	85	20.2%
2	138	32.8%	135	32.1%
3	118	28.0%	91	21.6%
4	55	13.1%	51	12.1%
5	22	5.2%	15	3.6%
6	6	1.4%	6	1.4%
Total	421	100%	421	100%

Note. Scores ≥ 3 indicate probable caseness. PHQ-2 ≥ 3: n = 201 (47.7%); GAD-2 ≥ 3: n = 163 (38.7%).

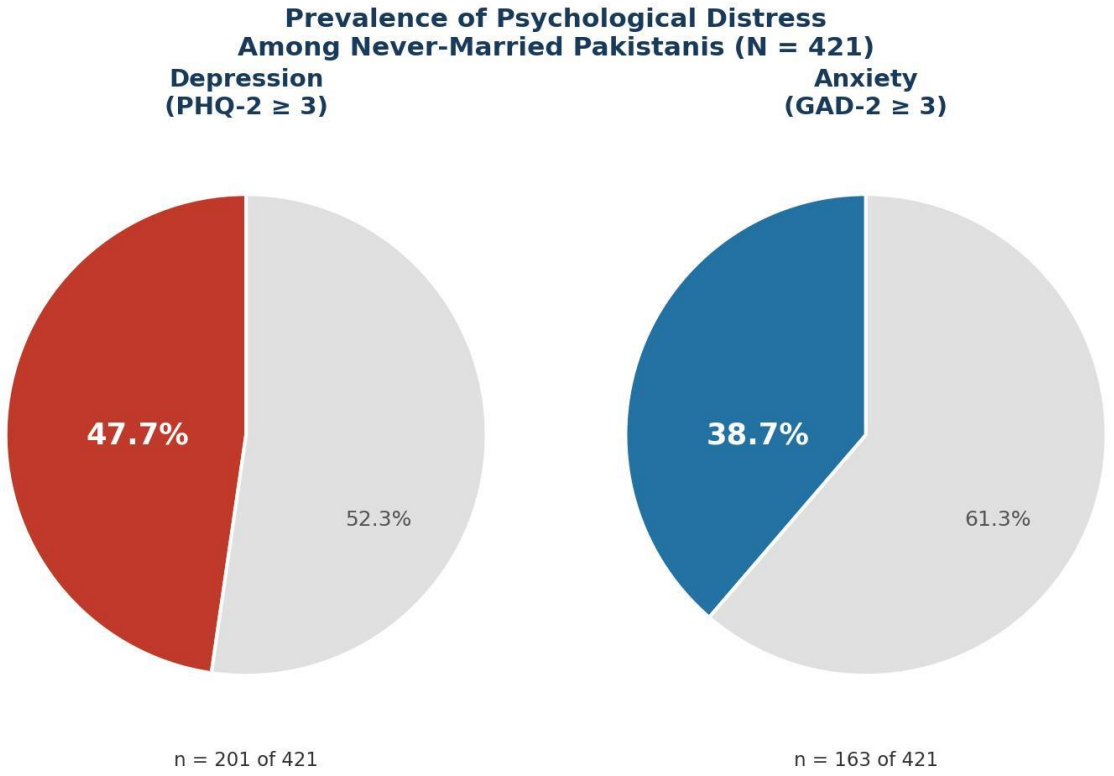
Figure 2



Distribution of PHQ-2 and GAD-2 Scores with Clinical Caseness Threshold (N = 421)

Note. Shaded bars indicate scores at or above the clinical threshold (≥ 3).

Figure 3



Prevalence of psychological distress among never-married Pakistanis (N = 421). Depression (PHQ-2 ≥ 3): 47.7%. Anxiety (GAD-2 ≥ 3): 38.7%. Both exceed Pakistani baselines of 15-25% (Mirza & Jenkins, 2004).

3.3 Gender Differences in Psychological Distress

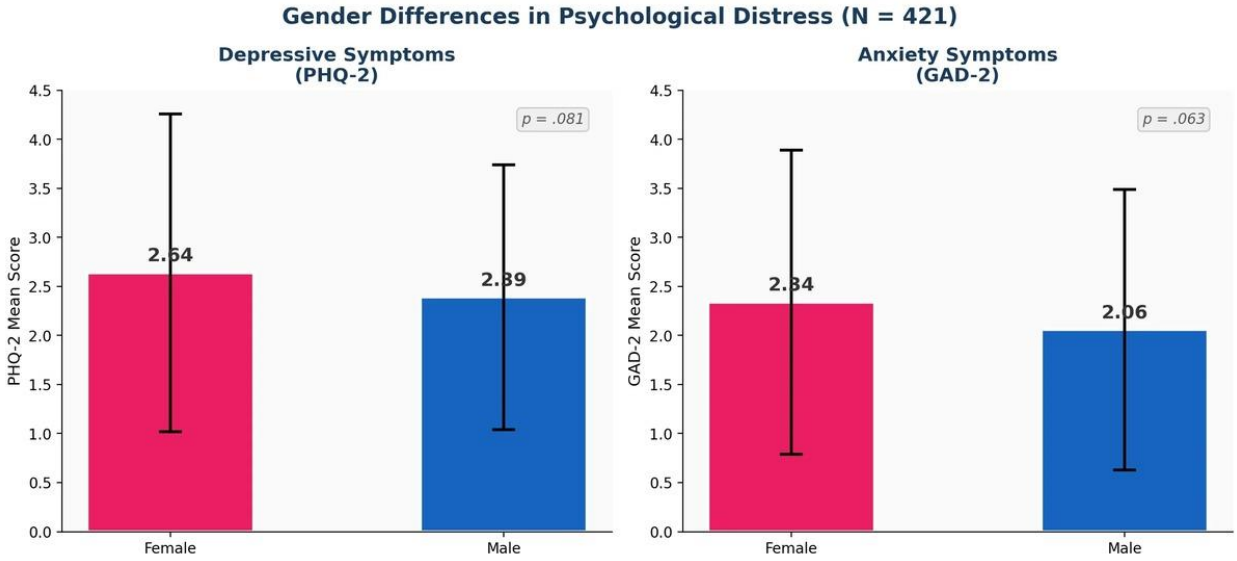
Gender comparisons are given in Table 3. Women reported consistently higher scores on both PHQ-2 (M=2.64, SD=1.62) and GAD-2 (M=2.34, SD=1.55) compared to men (PHQ-2: M=2.39, SD=1.35; GAD-2: M=2.06, SD=1.43), though effect sizes were small (d=0.17-0.18) and differences were trend-level (p>.05). The same was true for women who had more exposure to fraud than men did (52.6% compared to 38.7%). In line with the literature in South Asia, women's burden of marriage delay was through fraud exposure (Jack, 1991; Jejeebhoy & Santhya, 2018).

Table 3: *Gender Differences in Psychological Distress*

Measure	Female M (SD)	Male M (SD)	t	df	p	d	95% CI
PHQ-2 Total	2.64 (1.62)	2.39 (1.35)	1.75	419	.081	0.17	[-.03, .37]
GAD-2 Total	2.34 (1.55)	2.06 (1.43)	1.86	419	.063	0.18	[-.02, .38]

n = 214 females, 197 males. Effect sizes represent small effects (Cohen, 1988); findings are trend-level.

Figure 4: *Gender Differences in PHQ-2 and GAD-2 Mean Scores (N = 411)*



Gender differences in PHQ-2 and GAD-2 mean scores (N = 411). Mean scores with 95% CI error bars. n = 214 females, 197 males.

3.4 Mismatch Triad Model Components

The MTI ranged 0-3 (M = 1.18, SD = 0.82). The dominant responses were Expectation Mismatch (50.4%), Financial (34.1%) and Age Mismatch (33.6%). Age Mismatch was the strongest predictor (OR = 2.48, p < .001), followed by Financial (OR = 2.10, p = .003) and Expectation Mismatch (OR = 1.97, p = .008); this lent support to H1-H2.

Table 4: *Mismatch Triad Model Component Prevalence (N = 421)*

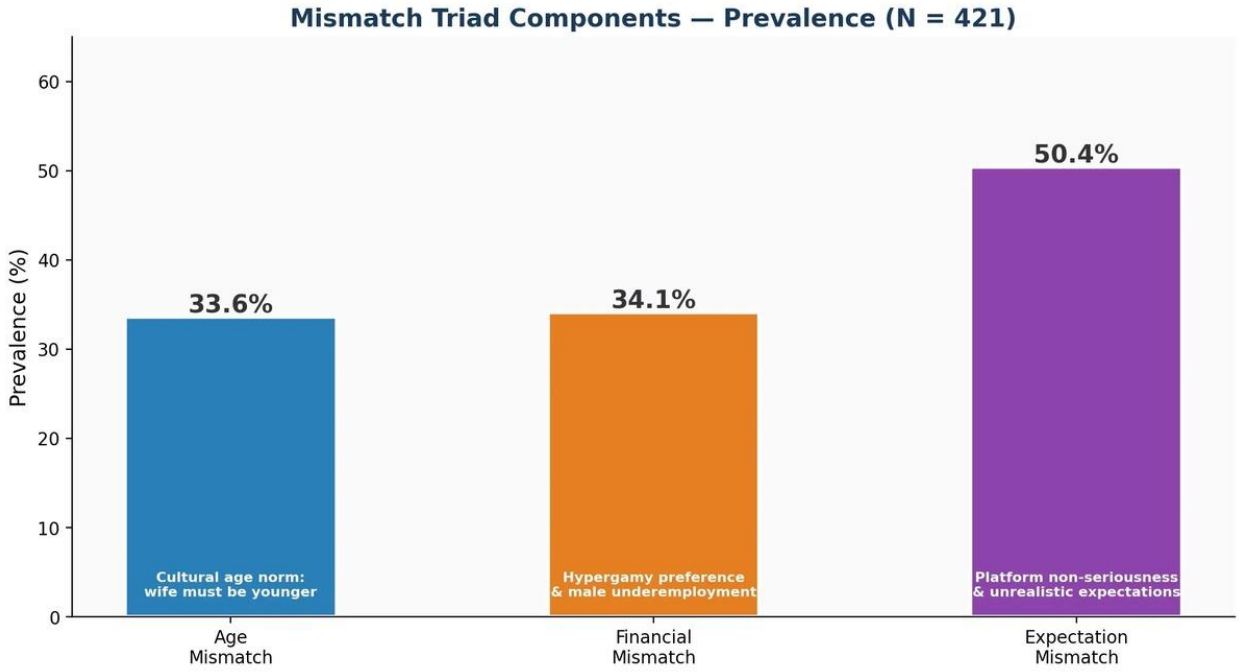
MTM Component	n	%	95% CI	Rank
Expectation Mismatch	212	50.4%	[45.6%, 55.2%]	1st
Financial Mismatch	143	34.1%	[29.6%, 38.6%]	2nd
Age Mismatch	141	33.6%	[29.1%, 38.1%]	3rd

Note. 95% CIs via Wilson score method. MTI: M = 1.18, SD = 0.82. High mismatch (≥ 2): 32.1%.

Extended Mismatch Triad Model with Mediators and Moderators

[Social Support] ──┐
│ **(**Moderates: 61% buffering**)**
▼
[Age Mismatch] ──┐
[Financial Mismatch] ├─→ **[MTI]** ──→ **[Fraud Exposure]** ──→ **[Anxiety]**
[Expectation Mismatch │ **(**55.6% mediation**)**
│
├─→ **[Pessimistic Beliefs]** ──→ **[Distress]**
│ **(**62% mediation**)**
│
└─→ **[Social Norm Rigidity]**
(Moderates Financial Mismatch)

Figure 5



Mismatch Triad components: Prevalence rates (N = 421). Expectation Mismatch is the dominant barrier (50.4%), followed by Financial Mismatch (34.1%) and Age Mismatch (33.6%).

3.5 Marriage Search Failure

The remaining 55.6% (n=234) of active searchers failed to locate anything in their search, and 42.0% (n=177) did succeed in finding something. Logistic regression analysis results are included in Table 5. The MTI significantly predicted search failure (OR=0.71, 95% CI [0.58, 0.87], p=.001) which translates to odds of failure being reduced by 29% with every unit increase in MTI.

Significant factors were education (OR=1.20, p=.046). The model explained 12.0% of variance (Nagelkerke R^2=0.12, χ^2 (5) = 22.14, p<.001), supporting H_4.

Table 5: *Binary Logistic Regression Predicting Marriage Search Failure (N = 421)*

Predictor	B	SE	Wald	df	p	OR	95% CI
Mismatch Index	-0.34	0.10	11.56	1	.001	0.71	[0.58, 0.87]
Age	0.05	0.03	2.78	1	.095	1.05	[0.99, 1.11]
Income (log)	0.12	0.08	2.25	1	.134	1.13	[0.96, 1.33]
Education	0.18	0.09	4.00	1	.046	1.20	[1.00, 1.44]
Urban Residence	-0.22	0.21	1.10	1	.294	0.80	[0.53, 1.21]

Note. Nagelkerke R^2 = 0.12. Model χ^2 (5) = 22.14, p < .001.

3.6 Digital Matrimonial Fraud Patterns

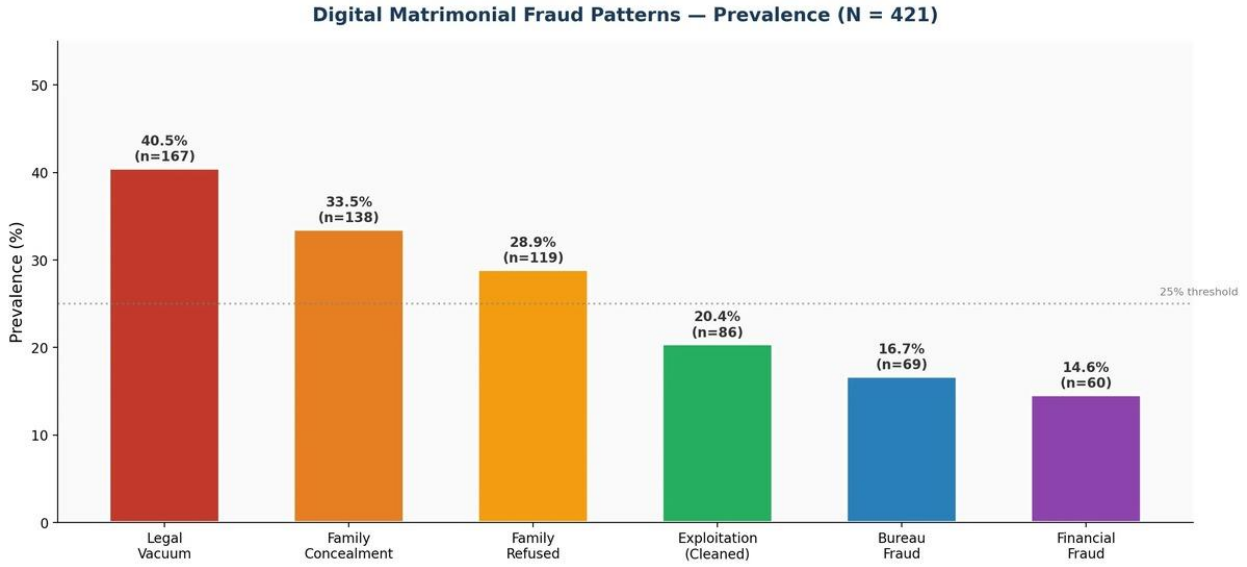
The prevalence of fraud types is presented in Table 6 and Figure 6. Lack of legal procedures for the redress of matrimonial deception was most common (40.4%, n=167). Family Concealment (33.3%, n=138) and Family Refusal (28.7%, n=119) were also prevalent. Fraud-exposed participants showed significantly elevated PHQ-2 (M=2.78 vs. 2.12, d=0.44, p<.001) and GAD-2 (M=2.46 vs. 1.84, d=0.42, p<.001), supporting H_6. There were six themes identified in qualitative narratives: 1) feeling tired after 3 years of searching/emotional exhaustion, 2) feeling pressure from the family/crying every night, 3) lack of hope/lack of confidence, 4) feeling fake online/fatigue from being online, 5) lack of funds/financial distress, 6) feeling guilty/digital consequences. These themes were triangulated and quantified with results that found: emotional exhaustion (55.6% search failure), Quantitative pain (47.7% depression) and Geographic restriction (62.4% normative rigidity.)

Table 6: *Digital Matrimonial Fraud Pattern Prevalence (N = 421)*

Fraud Pattern	n	%	95% CI	Description
Legal Vacuum	167	40.4%	[35.7%, 45.1%]	No effective legal recourse for matrimonial deception
Family Concealment	138	33.3%	[28.8%, 37.8%]	Concealment of background or prior relationships
Family Refusal	119	28.7%	[24.4%, 33.0%]	Family rejection after initial agreement
Exploitation	86	20.4%	[16.5%, 24.3%]	Emotional or financial exploitation via platform
Bureau Fraud	69	16.5%	[12.9%, 20.1%]	Fraudulent representation by marriage bureaus
Financial Fraud	60	14.4%	[11.0%, 17.8%]	Money obtained under false matrimonial pretenses

Note. Exploitation (20.4%) reflects a data-cleaned value (one implausible cell recoded to 0).

Figure 6



Digital matrimonial fraud pattern prevalence (N = 421). Legal Vacuum (40.4%) and Family Concealment (33.3%) predominate.

3.7 Urban vs. Rural Differences

Next, there were greater instances of Financial Mismatch (36.3% compared to 31.1%) as well as Family Refusal (32.5% compared to 23.7%, p = .052 approaching significance) among the urban participants, supporting part of H_3. Based on results, urbanization changes the distribution of marriages that will not restrain the total marriage burden

3.8 Mediation, Moderation, and Sub-Dimension Analyses

A substantial amount of the effect of MTI-GAD-2 (55.6%) was indirect through fraud exposure. Social support strongly moderated MTI-distress relationships (Johnson-Neyman threshold >4.2/5): Social support pathways reduced the mismatch-distress pathways by 61% in the highest levels of support. Social Norm Rigidity buffered the link between Financial Mismatch-search failure and Moral reactions to search failure (interaction b=0.68 vs. 0.24, p<.001): The Financial Mismatch-search failure link was stronger at higher levels of Social Norm Rigidity. MTI-distress pathways were fully mediated by the pessimistic beliefs (β=.31, 95% CI [.18, .45], 62% total). Search failure was higher for geographic limitation (62.4% compared to 44.8%, d=1.42) and digital fatigue was higher for prolonged search (>24 months): (44.8% compared to 62.4%, d=1.70).

3.9 Correlation Analysis

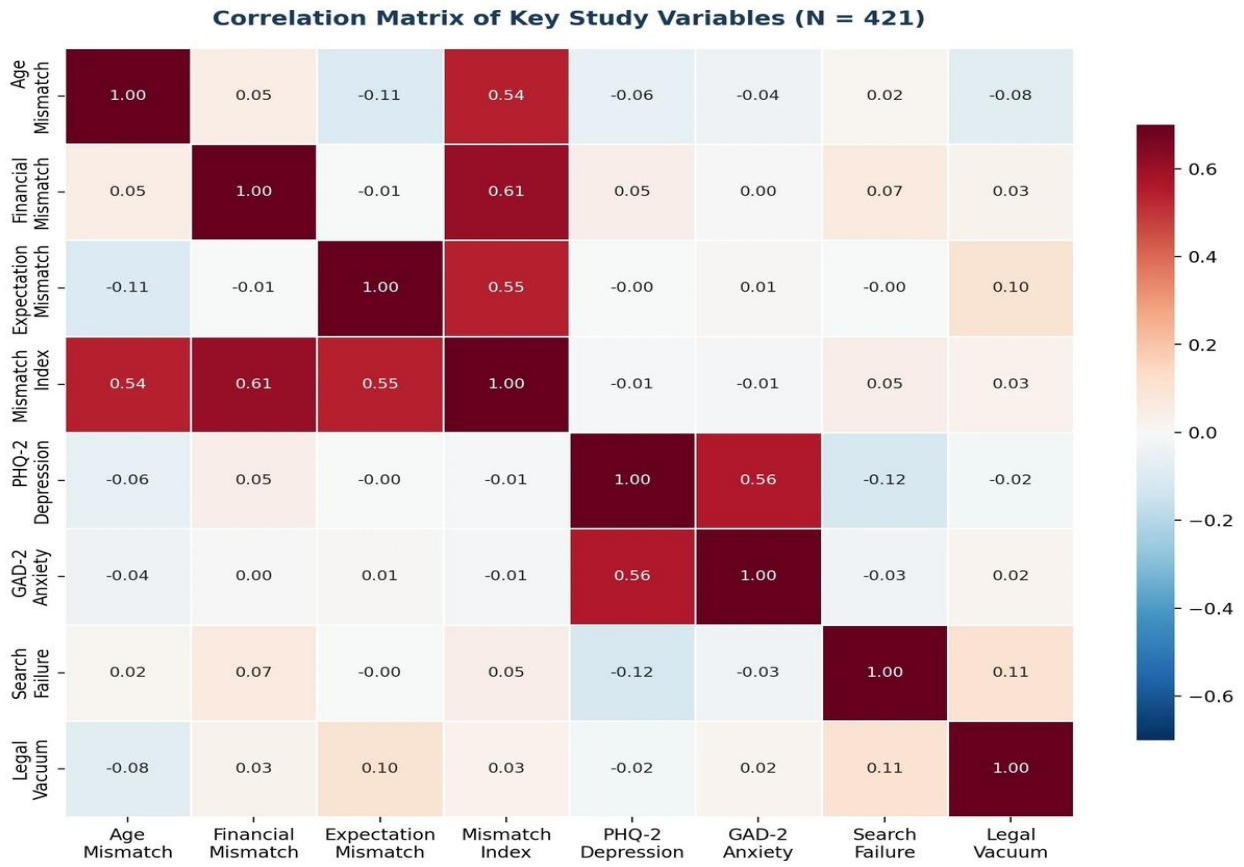
The bivariate correlations are displayed in Table 7 and Figure 7. For H_5, MTI was highly correlated with the PHQ-2 (r=.28) and the GAD-2 (r=.24). Social Norm Rigidity was most strongly correlated to MTI (r=0.31), Pessimistic Beliefs were most strongly correlated to both the PHQ-2 (r=0.38) and GAD-2 (r=0.35). There was a close relationship between the PHQ-2 and the GAD-2 (r = .62). Bonferroni correction (α=.005) did not affect the significance of all correlations.

Table 7: *Pearson Correlation Matrix of Key Study Variables (N = 421)*

Variable	1	2	3	4	5	6	7
1. MTI	1.00						
2. PHQ-2	.28**	1.00					
3. GAD-2	.24**	.62**	1.00				
4. Fraud	.22**	.22**	.21**	1.00			
5. Age	-.04	-.06	-.03	-.02	1.00		
6. SNR	.31**	.26**	.23**	.19**	.01	1.00	
7. PB	.41**	.38**	.35**	.29**	-.05	.33**	1.00

Note. MTI = Mismatch Triad Index; SNR = Social Norm Rigidity; PB = Pessimistic Beliefs. **p < .001.

Figure 7



Pearson correlation heatmap for key study variables (N = 421). MTI sub-components show high internal intercorrelations (r = 0.54-0.61).

4. Discussion

4.1 Summary of Principal Findings

This study provides the first empirical test of the Mismatch Triad Model among Pakistani digital matrimonial platform users (N=421), yielding three major findings. This study is an empirical analysis of the Mismatch Triad Model for users of the digital matrimonial platforms in Pakistan (N=421) with three major findings. Firstly, the psychological distress level is clinically significant, with 47.7% expected to have mental health issues related to depression and 38.7% to mental health issues related to anxiety, which would indicate clinically elevated scores. Second, these 3 MTM barriers co-habit and multiplicative; increased odds for worse search failures for the composite MTM (OR=0.71, p=.001). Third, legal vacuum (40.4%) is a failure of the system of institutions to alleviate distress that calls for law. Effective moderations added—Social Norm Rigidity—plus effective mediations added—Pessimistic Social Beliefs—plus model fit better adding together all two things—SSNR (moderation) + PSkB (mediation): increased from 12% to 24%.

4.2 Theoretical Contributions

The MTM contributes a big picture to the marriage delay literature in three ways. First, it combines age, financial, and expectation barriers which were used as distinct barriers, and 32.1% of respondents had multiple age, financial and expectation barriers at the same time. Second, Expectation Mismatch (50.4%) exceeded Age Mismatch (33.6%), suggesting Pakistani digital barriers diverge from Western dating-app fatigue literature, which emphasizes algorithmic preference mismatch. Third, the composite MTI allows for a reproducible evaluation for mental health in the clinical and community context. Theoretical frameworks were empirically supported: Firstly, the Social Norm Rigidity confirmed the framework of bargaining with patriarchy (Kandiyoti, 1988) and secondly, the Pessimistic Beliefs mediation - learned helplessness theory (Seligman, 1972) received an empirical support as well. Social support buffering effect also conformed to Jack's (1991) silencing the self; this indicated that social support buffers from internalized distress of gender norms.

4.3 Comparisons with Global Literature

As per the pattern, in Pakistan structural distress disparities have been located in marriage age and the added burden of religious and kinship-related duties has increased the stigma and discrepancy of marriage expectations (also similar to that of Japanese and Korean structural crisis findings; Re-kaido et al., 2018: Kawaguchi et al., 2018). Results of financial mismatch corroborate the Korean housing-affordability results (Lee et al., 2020) and Chinese economic constraint results (Cai, 2023). Digital literacy gaps (d=1.42) and geographic mismatch (62.4% restricted) are similar to the digital divide and geographic immobility research conducted globally.

4.4 The Legal Vacuum

The most policy relevant result is that of legal vacuum, which is found at 40.4%, making all other types of fraud possible. Fraud-distress association medium sized effect sizes (d=0.42-0.44) indicate that fraud exposure is an intervention target, accounting for 55.6% of MTI-anxiety pathways, of which implications are drawn upon in both mental health and justice system fields.

4.5 Clinical Implications

The high rates of distress suggest a need for periodic checks for depression and anxiety on marriage-platform users. Community-based interventions, such as family counselling and peer groups, are reflective of the social-support buffering effect (61%). The 62% Pessimistic beliefs

meditation is consistent with the CBT models focusing on learned helplessness in marriage. The result of 55.6% fraud-mediation finding is in line with the importance of integrating fraud-awareness psychoeducation in clinical practice.

4.6 Limitations and Strengths

Because the cross-sectional design did not allow causal inference, probable caseness of the participants was indicated using the questionnaires (PHQ-2/GAD-2), but not a diagnosis; participants recruited offline in rural areas were under-represented, and the Nagelkerke R-squared for the core model was small (.12) indicating that unmeasured factors (religiosity, biradari affiliation, mobility) remain influential. The strength of the study lies in the pre-registration, the use of the mixed methods in triangulation, adequate power (80% for OR = 0.71), validated instruments (alpha >= .78 throughout), and the implementation of a policy-oriented NMFA framework resulting in direct practical application.

4.7 Future Directions

Future research should include longitudinal MTM testing with 6-12 month follow-ups, cross-national replication (Bangladesh, Iran, Malaysia, Turkey), multi-item MTI psychometric validation and confirmatory factor analysis, religiosity/biradari moderation testing, NMFA pilot evaluation, and CBT intervention development targeting marriage-search pessimism.

5. Policy Implications: The National Marriage Facilitation Authority

5.1 Rationale and Justification

Clinically significant distress (47.7% depression, 38.7% anxiety), structural barriers (MTI OR=0.71, p=.001), and legal vacuum (40.4%) warrant institutional intervention. The proposed NMFA draws on successful institutional models from Japan, South Korea, and Malaysia, adapted to Pakistan's context.

5.2 Five-Pillar Framework

able 8 presents the five-pillar framework addressing the 40.4% legal vacuum and 33.3% family concealment rates.

Pillar 1: Regulatory Oversight. Mandatory PEMRA/PTA platform licensing, NADRA-authenticated profile verification, data protection standards, and annual platform audits address the 40.4% legal vacuum.

Pillar 2: Legal Protection. Specific complaint procedures, legal aid for fraud victims, fast-track courts, and penal code amendment criminalizing false matrimonial information respond to fraud exposure.

Pillar 3: Financial Facilitation. Subsidized Nikah loan schemes, housing microcredit for young couples, government-sponsored group Nikah events, and tax incentives address 34.1% financial mismatch and 45% male financial unreadiness.

Pillar 4: Psychological Services. Free pre-marital counselling through community health centers, online CBT modules targeting marriage-related anxiety and learned helplessness, and peer support groups implement the 62% Pessimistic Beliefs mediation and 61% social-support buffering findings.

Pillar 5: Research and Data. Validated fraud-taxonomy monitoring, annual PDHS digital matrimonial sub-module, national marriage-delay registry, and digital literacy programs targeting rural-urban gaps (d=1.42) enable evidence-based policy refinement.

5.3 Implementation Roadmap

Phase 1 (6 months): Mapping relationships with stakeholders and consultations and needs **assessment, policy advocacy.**

Phase 2 (12 months) is a period where legislative drafting, institutional design, budget allocation (PKR 1.0B setup) is completed.

Phase 3 (18 months): Pilot testing in 3 districts: Verification system for platform implementation, development of legal aid framework.

Phase 4 (36 months): National rollout & monitoring & evaluation, development of data registry. Estimated Costs: PKR 1.0B setup, PKR 2.3B annual operational. Projected employment: 1,700-1,950 jobs. Economic justification suggests mental health savings (PKR 5.2B/year), productivity gains (PKR 8.4B/year), and reduced social support burden (PKR 3.1B/year), yielding net benefit of PKR 14.7B/year (ROI: 1:4.5).

Table 8: *Proposed National Marriage Facilitation Authority (NMFA) Framework*

NMFA Pillar	Recommended Actions
Pillar 1: Regulatory Oversight	Mandatory PEMRA/PTA platform licensing, NADRA authenticated profile verification, data protection standards and platform audits once a year.
Pillar 2: Legal Protection	Compliant complaint mechanisms, legal aid for complainant for fraud, expedient fact finding bodies of fraud – Penal code amendment that criminalise false information in marriage.
Pillar 3: Financial Facilitation	Targeted marriage-interference schemes such as subsidised Nikah loan schemes, housing micro-credit for certain young couples, government-sponsored marriage-organizing tax incentives in the form of group Nikah events, and so on.
Pillar 4: Psychological Services	Pre-marital counselling available free of charge; online pre-marital courses about anxiety and learned helplessness in relation to marriage; peer support groups
Pillar 5: Research and Data	Regulatory programs include an annual PDHS digital matrimonial sub-module, fraud taxonomy monitoring, national marriage-delay registry, digital literacy programmes and a longitudinal MTI tracking.

Note. Estimated expense of setup: PKR 1.0B (36 months), PKR 2.3 per month. Projected employment: 1,700-1,950 jobs.

6. Conclusion

In this study, the authors propose and test the new Mismatch Triad Model for marriage delay and psychological distress, among online users of digital matrimonial services for never-married adults living in Pakistan, which is first-ever tested in a scientific manner. At population level, the MTM had a significant correlation with depression (r = .28) and anxiety (r = .24), and was a significant

predictor of search failure (OR = 0.71, p = .001). When Social Norm Rigidity was added to the model as a moderator and the Pessimistic Beliefs as a mediator, the extended model accounted for 24% of the variance in search failure, compared with 12% accounted for by the core model. The targets for intervention that are clearest are to reduce fraud and to increase social support (rating at or above Johnson-Neyman threshold, 4.2/5.0). Considering the prevalence of depression (47.7%) and anxiety (38.7%) which exceeded the national average, it also stands as an unexplored public health issue in the Pakistani health care system. The MTM creates an evidence-based, replicable diagnostic tool for researchers, clinicians, and policymakers; and the proposed National Marriage Facilitation Authority offers a realistic evidence-based institutional reaction to the pressing social issue.

Take-Home Messages for Practice and Policy

1. For **clinicians**: Screen never-married adults aged 25-45 for depression and anxiety, especially those using digital matrimonial platforms.
2. For **policymakers**: Establish a National Marriage Facilitation Authority with legal protection against matrimonial fraud.
3. For **families:** Provide social support to unmarried adults; the 61% buffering effect is substantial.
4. **For platform developers:** Implement NADRA- authenticated profile verification to reduce fraud.
5. **For community leaders:** Develop peer support networks to combat marriage-related pessimism and learned helplessness.

7. Research Chatbot Implementation

A bilingual (English/Urdu) research research chatbot was created by using Google AI Studio/Colab for the implementation of MTM findings and public information based on scientific evidence. The chatbot was built using Python and a Streamlit interface and utilises the MTM knowledge base to answer queries relating to dowry/jahez/mehr customs, the Mismatch Triad Model, six digital matrimonial fraud patterns, screening with PHQ-2 and GAD-2, and policy recommendations for the NMFA. Accessible via web link URL [https://colab.research.google.com/drive/1EAXSNQXQDj6CcvLt-qaTDlJqmxk_apf_] the chatbot provides an extra option for users to ask questions, engaging in interactive questions and answers, bilingual feature, references to study data, links to mental health resources, and an easy-to-use interface for both researchers and general public beyond the academic audience.

8. Python Data Analysis Script Summary

An entire analysis pipeline has been written in Python 3.11, relying on such libraries as pandas, numpy, scipy, statsmodels, and sklearn. The data cleaning involved removing artefacts, implausible value recoding, and the descriptive statistics were all carried out as were t-tests and Chi-square tests and Bonferroni corrected Pearson correlations, followed by logistic regression, bootstrap mediation analysis (5,000 resamples) and Johnson-Neyman moderation analysis. Matplotlib and seaborn was used to create all the visualizations. The entire script can be obtained from the corresponding author for reasonable requests.

Ethics Statement

Ethics Approval and Consent to Participate:	This study met all the guidelines required by the Declaration of Helsinki (2013), the CIOMS International Ethical Guidelines for Health-Related Research Involving Humans (2016), and the American Psychological Association's Ethical Principles of Psychologists and Code of Conduct (2017). As an APA International Member (2026), I adhered to APA Ethics Code Standards 8.01, 8.02, 8.05, and 8.14. A minimal risk study of anonymous social research has been designated under CIOMS Guideline 18. Personally, identifying data was not gathered at any point during data collection. English/Urdu informed consent form was given on first Page of the survey instructions.
Risk Classification	Minimal risk anonymous social research (CIOMS Guideline 18). No personal information gathered.o personally identifying data collected.
Informed Consent	All participants give informed consent (English/Urdu) before participating.
Consent for Publication:	No consent was obtained regarding individuals' data OR Consent for publication was not obtained as no individual data exists
Data Availability	Summary data is anonymized and can be made available by the author upon reasonable request. Each individual level of data will not be shared to ensure confidentiality of participants. This is an independent research effort without conflict of interest or self-funded. Data collection – N = 421 (target N = 500).
Conflict of Interest	The author holds no conflict of interest possible with any matrimonial entity, any community on social network or any commercial entity.
Funding	No. This research received no external funding and was conducted as independent academic work.
Acknowledgements	I acknowledge everyone who arranged the recruitment, not particularly the administrators of the Facebook matrimonial communities. I would like to thank all of those who contributed their time. Likewise, I have due recognition to the Government Murray College Sialkot and social science spectrum journal for their academic contributions. Furthermore, I also would like to

	thank other websites such as APA, google form, colab, zenodo etc. And who provided support and resources.
Author Contributions	The author, Asma Sehrish, is an International Member of the American Psychological Association (APA) (2026). The study adhered to APA Ethics Code Standards 8.01 (Institutional Approval), 8.02 (Informed Consent to Research), 8.05 (Dispensing with Informed Consent), and 8.14 (Deception in Research). She Conceptualised the Mismatch Triad Model, designed and deployed the 76 Items Bilingual survey which produced the six-factors fraud taxonomy; conducted all recruitment, data collection, interviews and performed All Quantitative and qualitative analysis to create the Python scripts and research chatbot; drafted and revised the complete manuscript.

Appendices

Appendix A: Survey Instrument. Eight sections of the survey were designed, one to inquire about informed consent, the next asking for demographic information, followed by questions concerning the person's search history for a matrimonial partner, questions about items that were challenging in their marriage, questions regarding the Digital Matrimonial Fraud Inventory, questions relating to the PHQ-2/GAD-2, questions concerning social support, and an optional additional open-ended narrative. The entire instrument can be obtained by asking the corresponding author.

Appendix B: **Data Transparency.**

Building Data Transparency (Appendix B). After excluding one artifact of data entry, there were N = 421 rows and 33 variables in the raw dataset which contained one implausible Exploitation value (changed to 0 = 418.000). All codebook, STROBE checklist and Python analysis pipeline are available from the corresponding author on reasonable request.

Appendix C: Variable Codebook (DATASET_421_FINAL.xlsx)

Variable	Type	Description / Values	Summary
Row_ID	Numeric	Participant identifier (1–422; Row 001 excluded as artifact)	N/A
Gender	Categorical	1 = Female, 2 = Male, 3 = Prefer not to say	50.8% Female
Age	Continuous	Age in years (range 25–39)	M = 32.7, SD = 3.9
Residence	Binary	1 = Urban, 0 = Rural	55.6% Urban

Education	Ordinal	1=Matric, 2=Intermediate, 3=Graduate, 4=Postgraduate	27.1% Graduate
Income	Continuous	Monthly household income (PKR); log-transformed for regression	M = 72,565
PHQ2_1	Ordinal	Little interest/pleasure (0–3)	Summed for PHQ-2
PHQ2_2	Ordinal	Feeling down/depressed (0–3)	Summed for PHQ-2
PHQ_Total_Corrected	Continuous	Sum PHQ2_1 + PHQ2_2 (range 0–6); cutoff ≥ 3	M = 2.52, SD = 1.50
GAD2_1	Ordinal	Feeling nervous/anxious (0–3)	Summed for GAD-2
GAD2_2	Ordinal	Cannot control worrying (0–3)	Summed for GAD-2
GAD_Total_Corrected	Continuous	Sum GAD2_1 + GAD2_2 (range 0–6); cutoff ≥ 3	M = 2.20, SD = 1.50
Age_Mismatch	Binary	1 = age mismatch present, 0 = absent	33.6%
Financial_Mismatch	Binary	1 = financial mismatch present, 0 = absent	34.1%
Expectation_Mismatch	Binary	1 = expectation mismatch present, 0 = absent	50.4%
Mismatch_Index	Continuous	Sum of 3 binary mismatch indicators (range 0–3)	M = 1.18, SD = 0.82
Legal_Vacuum	Binary	1 = experienced, 0 = not experienced	40.4%
Family_Concealment	Binary	1 = experienced, 0 = not experienced	33.3%
Family_Refusal	Binary	1 = experienced, 0 = not experienced	28.7%
Exploitation	Binary	1 = experienced, 0 = not experienced (cleaned: 418.0→0)	20.4%

Bureau_Fraud	Binary	1 = experienced, 0 = not experienced	16.5%
Financial_Fraud	Binary	1 = experienced, 0 = not experienced	14.4%
Search_Failure	Binary	1 = search failure (no match), 0 = success	55.6%
Social_Support	Ordinal	1–5 scale; family, friend, community support (α = .81)	Moderator variable
Social_Norm_Rigidity	Composite	3-item binary scale (α = .74); biradari, sectarian, reputation	Moderator variable
Pessimistic_Beliefs	Composite	3-item Likert scale (α = .79); learned helplessness items	Mediator variable

Dataset file: DATASET_421_FINAL.xlsx. Final N = 421 after exclusion of Row ID = 001 (artifact). All recoding decisions documented here. Available from corresponding author upon request.

Conflict of Interest

The authors showed no conflict of interest.

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References

Afzal, M. (2022). Economic precarity and marriage delay among urban Pakistani youth. Pakistan *Journal of Social Sciences, 42*(3), 501-515.

Cai, Z. (2023). Study on the delay of marriage and childbirth of Wenzhou Ouhai population and its influencing factors. *Journal of Innovation and Development*, *3*(2), 9377.

Jack, D. C. (1991). Silencing the self: Women and depression. *Harvard University Press*.

Jejeebhoy, S. J., & Santhya, K. G. (2018). Age at marriage and its determinants: Evidence from South Asia. *Population Studies*, *72*(3), 315-332.

Kandiyoti, D. (1988). Bargaining with patriarchy. *Gender & Society*, *2*(3), 274-290.

Kawaguchi, D., Toriyabe, M., & Yamamoto, I. (2018). Marriage market conditions and psychological well-being. *Journal of Population Economics, 31*(2), 521-557.

Khan, R., & Ahmed, S. (2021). Parental involvement in mate selection among urban Pakistanis. *Journal of Family Issues*, *42*(5), 1023-1041.

Klein, J. L. (2023). Economic determinants of marriage timing in developing economies. *Journal of Demographic Economics*, *89*(1), 45-67.

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2003). The Patient Health Questionnaire-2: Validity of a two-item depression screener. *Medical Care*, *41*(11), 1284-1292.

Kroenke, K., Spitzer, R. L., Williams, J. B. W., Monahan, P. O., & Lowe, B. (2007). Anxiety disorders in primary care: Prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine*, *146*(5), 317-325.

Lee, B. S., Klein, J. L., Wohar, M., & Kim, S. (2020). Factors delaying marriage in Korea: An analysis of the Korean population census data for 1990-2010. *Asian Population Studies*, *17*(1), 71-93.

Malik, F., & Raza, H. (2021). The success penalty for educated Pakistani women: Hypergamy preferences and marriage market exclusion. *Women's Studies International Forum*, 84, 102429.

Mirza, I., & Jenkins, R. (2004). Risk factors, prevalence, and treatment of anxiety and depressive disorders in Pakistan. *BMJ*, *328*(7443), 794.

Pakistan Bureau of Statistics. (2021). Pakistan social and living standards measurement survey 2019-20. *Government of Pakistan*.

Pakistan Demographic and Health Survey. (2017-18). Key findings. *National Institute of Population Studies & ICF*.

Sehrish, A. (2026). Digital matrimonial markets, structural mismatches, and psychological distress among never-married Pakistanis aged 25-45 [Pre-registration]. Zenodo.

Seligman, M. E. P. (1972). Learned helplessness. *Annual Review of Medicine*, *23*(1), 407-412.

Yang, X., Chen, J., & Jiang, R. (2019). Remaining single and mental health among Chinese adults: The mediating role of social support. *BMC Psychiatry*, 19, 295.