

# Structural Relationships Between Metacognitive Beliefs and Willingness to Marry: The Mediating Roles of Interpersonal Communication Skills and Cognitive Flexibility

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### ABSTRACT

Marriage, as one of the most fundamental social institutions, plays a central role in individuals' physical, psychological, and social health. The present study aimed to test a structural model of willingness to marry based on metacognitive beliefs, with interpersonal communication skills and cognitive flexibility as mediating variables among unmarried young adults. In terms of purpose, this was an applied study, and in terms of data collection, it employed a correlational design based on structural equation modeling. The statistical population consisted of all unmarried male and female students at the West Tehran Branch of Islamic Azad University during 2025–2026, from whom 350 participants were selected using convenience sampling. The research instruments included the Marriage Willingness Questionnaire (Heidari, Mazaheri, & Pour-Etemad, 2003), the Metacognitions Questionnaire (Wells & Cartwright-Hatton, 2004), the Cognitive Flexibility Inventory (Dennis & Vander Wal, 2010), and the Communication Skills Questionnaire (Queendom, 2004). Data were analyzed using SPSS version 26 and PLS version 3. The results indicated that metacognitive beliefs had significant positive direct effects on interpersonal communication skills, cognitive flexibility, and willingness to marry ( $p < .05$ ). Interpersonal communication skills also had a significant positive direct effect on willingness to marry ( $p < .05$ ), whereas the direct effect of cognitive flexibility on willingness to marry was not significant ( $p > .05$ ). Interpersonal communication skills significantly mediated the relationship between metacognitive beliefs and willingness to marry ( $p < .05$ ), whereas cognitive flexibility did not demonstrate a significant mediating role ( $p > .05$ ). The model-fit indices, including SRMR,  $d\_ULS$ ,  $d\_G$ , and NFI, were all within acceptable ranges and supported the satisfactory fit of the model. Based on these findings, marriage and family counselors and specialists are recommended to focus on modifying dysfunctional metacognitive beliefs and enhancing clients' interpersonal communication skills in premarital interventions, thereby increasing their willingness to marry.

**Keywords:** willingness to marry, metacognitive beliefs, interpersonal communication skills, cognitive flexibility

## 1. Introduction

Marriage is one of the most enduring interpersonal and social institutions and has traditionally been associated with emotional companionship, family formation,

social integration, mutual support, and the organization of intimate life. Although the meaning and functions of marriage differ across societies and historical periods, it remains an important developmental and relational transition for many young adults. Contemporary approaches

increasingly regard marriage not merely as a formal or legal union, but as a dynamic interpersonal system in which expectations, communication patterns, cognitive appraisals, emotional capacities, and social conditions interact over time. Stable marital relationships are generally characterized by reciprocal commitment, constructive interaction, mutual understanding, and the ability to manage disagreements and developmental transitions (de la Rosa Vazquez & Cabello-Tijerina, 2023; Siregar, 2025; Wallerstein, 2019). At the same time, marriage is a culturally layered phenomenon whose meaning extends beyond its interpersonal function and may also involve symbolic, moral, and existential interpretations within broader cultural traditions (William, 2026). Accordingly, willingness to marry should be understood as a multidimensional psychological orientation that is influenced not only by external opportunities and socioeconomic conditions, but also by individuals' beliefs, cognitive processes, interpersonal competencies, and perceptions of intimate relationships.

In recent decades, changes in the timing of family formation, educational trajectories, employment patterns, gender roles, and expectations regarding intimate relationships have made willingness to marry an increasingly important subject of psychological and family research. Desire for marriage is not necessarily stable across early adulthood; rather, it may change according to age-related expectations, relationship opportunities, perceived readiness, and the perceived costs and benefits of entering a committed union (Yu & Hara, 2023). Evidence also indicates that gender-role attitudes are associated with marriage desires among never-married adults, suggesting that willingness to marry is embedded within broader systems of beliefs about gender, work, family responsibilities, and relational expectations (Yoon & Park, 2025). From a psychological perspective, therefore, reluctance or willingness to marry cannot be adequately explained through demographic variables alone. Instead, it is necessary to examine the internal cognitive and interpersonal processes through which young adults interpret marriage, evaluate their readiness for it, anticipate its consequences, and assess their ability to establish and maintain an intimate partnership.

The psychological importance of marriage attitudes is also evident in research showing that willingness to marry is associated with perceived quality of life, family functioning, and mental health. Individuals who perceive their family environments as more functional and experience higher quality of life may develop more favorable orientations

toward marriage because they possess more positive relational models and greater confidence in the possibility of establishing a satisfactory family system (Abooei et al., 2024). Similarly, a systematic review of youth willingness to marry and have children has emphasized the contribution of mental health to decisions and attitudes concerning family formation, indicating that psychological well-being can influence how young people evaluate marriage as a future life choice (Ghodrati et al., 2024). Conversely, evidence regarding harmful or developmentally inappropriate forms of marriage demonstrates that marriage itself is not inherently protective; its psychological consequences depend substantially on readiness, autonomy, relational quality, and the developmental context in which it occurs. Research on child marriage, for example, has documented a range of adverse mental health outcomes when marriage occurs under coercive, premature, or structurally disadvantageous conditions (Burgess et al., 2022). These findings reinforce the importance of studying psychological readiness and willingness rather than treating marriage merely as a demographic event.

One potentially important cognitive determinant of willingness to marry is metacognition. Metacognition broadly refers to knowledge, beliefs, monitoring processes, and regulatory strategies concerning one's own thinking. It influences how individuals evaluate their thoughts, allocate cognitive resources, respond to uncertainty, and regulate repetitive or distressing cognition. In higher education settings, metacognitive strategies have been associated with the development of critical thinking and more deliberate cognitive regulation, highlighting the importance of awareness and management of one's own thought processes (Rivas et al., 2022). More recent evidence also suggests that metacognitive training can improve the regulation of cognitive activity by helping individuals make more adaptive decisions regarding when and how to rely on internal versus external cognitive resources (Ngai & Gilbert, 2026). These findings are relevant to intimate decision-making because marriage involves complex judgments about oneself, potential partners, anticipated responsibilities, future uncertainty, and the perceived controllability of relational challenges.

Metacognitive beliefs are particularly important because they shape the way individuals interpret and respond to their own cognitive and emotional experiences. Dysfunctional metacognitive beliefs may include assumptions that worrying is uncontrollable or dangerous, excessive concern about the need to control thoughts, low confidence in

memory or judgment, and heightened self-focused cognitive monitoring. Such beliefs can intensify perseverative thinking and emotional distress and have been systematically associated with anxiety and depression across a variety of physical and psychological conditions (Capobianco et al., 2020). In the context of marriage, maladaptive metacognitive beliefs may increase preoccupation with possible relational failure, amplify uncertainty regarding commitment, and reduce confidence in one's ability to cope with future interpersonal challenges. Conversely, more adaptive metacognitive functioning may facilitate realistic appraisal, flexible decision-making, and more constructive management of concerns about marriage.

Emerging evidence directly supports the relevance of metacognition to marriage-related attitudes. A recent structural investigation found that attitudes toward marriage could be explained partly by metacognitive beliefs and perceived social support, with emotion regulation and ego strength operating as mediating psychological mechanisms (Etesami et al., 2025). This finding suggests that metacognitive beliefs may influence marriage attitudes both directly and through other intrapersonal capacities. Furthermore, interventions targeting metacognitive processes have been shown to influence interpersonal outcomes. For example, metacognitive therapy has been associated with improvements in anxiety and communication skills, suggesting that modifications in the way individuals relate to their thoughts may extend beyond symptom reduction and contribute to more effective interpersonal functioning (Atayi et al., 2023). Nevertheless, the pathways through which metacognitive beliefs may shape willingness to marry remain insufficiently specified, particularly with respect to interpersonal communication skills and cognitive flexibility as potential mediating variables.

Interpersonal communication skills constitute another central factor in the development and maintenance of intimate relationships. Communication enables individuals to express needs, clarify expectations, negotiate differences, convey emotional states, and interpret the verbal and nonverbal behavior of others. From an interpersonal communication perspective, relational quality depends not simply on the quantity of interaction but on the effectiveness with which messages are encoded, received, interpreted, and responded to (West & Turner, 2022). Within marriage, communication becomes especially important because partners must repeatedly coordinate decisions, resolve disagreements, provide emotional support, and adapt to

changing responsibilities. Consequently, interpersonal relationships in married life are strongly dependent on patterns of interaction that facilitate trust, mutual responsiveness, and relational stability (Siregar, 2025). Communication therefore represents not only a characteristic of successful marriages but also a competence that may shape whether unmarried individuals perceive themselves as capable of entering marriage.

Empirical research has consistently demonstrated the broader psychological relevance of communication skills. Communication competence has been linked to emotional and interpersonal functioning in student populations, with emotional intelligence contributing to more effective communication skills (Miri et al., 2019). Communication skills have also been incorporated into structural models of social adjustment and psychological distress, demonstrating that deficient communication processes may contribute to maladaptive interpersonal experiences (Salimi et al., 2018). Similarly, perceived social support and communication skills have been shown to predict aggression, underscoring the role of interpersonal competence in regulating social behavior and reducing dysfunctional relational responses (Atadokht & Taherifard, 2024). Within marital contexts, relationship skills and their components are significantly associated with couple burnout, suggesting that inadequate communication may progressively undermine emotional engagement and relationship quality (Shamshirgaran & Homaei, 2018). Collectively, these findings support the proposition that communication skills may function as an important mechanism connecting individual cognitive characteristics to attitudes toward intimate commitment.

The relevance of communication skills may be particularly pronounced during the transition from single adulthood to marriage. Marriage readiness involves more than a general desire for companionship; it requires the perceived ability to communicate effectively, manage emotional exchanges, resolve conflict, and participate in reciprocal decision-making. Recent evidence among final-year university students indicates that interpersonal communication skills, together with emotional maturity, significantly contribute to marriage readiness (Setyowati et al., 2026). Qualitative evidence on stable and satisfactory marriages likewise identifies relational and communicative processes as fundamental components of enduring marital functioning (Nazemi et al., 2023). From this perspective, individuals who perceive themselves as more capable of listening, asserting needs, regulating emotional exchanges, and understanding interpersonal processes may evaluate

marriage as less threatening and more manageable, thereby increasing their willingness to enter a committed relationship. Communication skills may therefore mediate the association between metacognitive beliefs and willingness to marry by translating cognitive self-regulation into effective relational competence.

Cognitive flexibility represents a second mechanism that may be relevant to marriage attitudes. Cognitive flexibility refers to the capacity to shift perspectives, generate alternative interpretations or solutions, adapt cognitive strategies to changing environmental demands, and perceive difficult situations as potentially controllable. It is widely regarded as an important component of adaptive learning and problem solving because it allows individuals to move beyond rigid cognitive patterns when circumstances change (Clément, 2022). In intimate relationships, this capacity may be particularly valuable because partners frequently encounter discrepant expectations, ambiguous interpersonal cues, changing roles, and problems for which no single fixed solution is sufficient. A cognitively flexible individual may be better able to reinterpret disagreements, consider a partner's perspective, develop alternative responses, and revise expectations when relational circumstances change.

Research on marriage and close relationships provides increasing support for this proposition. Cognitive flexibility has been incorporated into structural models of marital adjustment, in which it is associated with adaptive relational outcomes alongside self-differentiation and coping strategies (Hamzei & Aghayousefi, 2023). More recently, cognitive flexibility has been related to marital satisfaction through interpersonal and psychological mechanisms, including authenticity in relationships and mental health, indicating that flexibility may promote relationship quality partly by supporting healthier self-expression and psychological adaptation (Rahandaz et al., 2026). In young adults, cognitive flexibility has also been identified as a mediator in the association between romantic relationship satisfaction and attitudes toward marriage, directly linking flexible cognition to the way individuals evaluate marriage as a prospective life choice (Ekinci & Canpolat, 2025). These findings suggest that cognitive flexibility may be especially important when individuals must reconcile personal expectations with uncertainty about future relationships.

The measurement of cognitive flexibility also has particular relevance in the Iranian context. Psychometric research on the Persian version of the Cognitive Flexibility Inventory has supported its factorial structure and reliability

and has identified dimensions related to problem-solving processing and perceived controllability (Kohandani & Abolmaali Alhosseini, 2017). These dimensions are conceptually relevant to marriage decisions because willingness to marry may depend partly on whether individuals believe they can generate alternative solutions to relational difficulties and maintain a sense of control when confronted with interpersonal uncertainty. Cognitive flexibility may therefore serve as a psychological resource that reduces rigid, catastrophic, or all-or-nothing appraisals of marriage and enables individuals to imagine multiple adaptive ways of responding to marital challenges.

The proposed relationships among metacognitive beliefs, communication skills, cognitive flexibility, and willingness to marry can also be understood as part of an integrated cognitive-interpersonal process. Metacognitive beliefs influence how individuals appraise and regulate their thoughts, while cognitive flexibility determines the extent to which they can modify interpretations and strategies in response to changing circumstances. Communication skills, in turn, provide the behavioral and interpersonal means through which these cognitive capacities are expressed in relationships. A person who is capable of evaluating thoughts more adaptively but lacks communication skills may still experience difficulty translating cognitive insight into effective relational behavior. Similarly, a person with adequate communication abilities but highly rigid cognitive patterns may struggle to adjust when relational expectations are challenged. Evidence that metacognitive interventions can improve communication outcomes (Atayi et al., 2023), that cognitive flexibility contributes to marriage-related attitudes (Ekinci & Canpolat, 2025), and that communication competence predicts marriage readiness (Setyowati et al., 2026) provides a theoretical basis for examining these variables simultaneously rather than in isolation.

Despite these developments, several gaps remain. First, much of the existing literature has focused on married individuals and outcomes such as marital satisfaction, adjustment, burnout, and relational stability rather than on unmarried adults' willingness to marry (Hamzei & Aghayousefi, 2023; Rahandaz et al., 2026; Shamshirgaran & Homaei, 2018). Second, studies concerning willingness or attitudes toward marriage have frequently emphasized family functioning, mental health, social support, gender roles, or relationship satisfaction rather than integrating metacognitive and interpersonal mechanisms within a single structural model (Abooei et al., 2024; Etesami et al., 2025;

Ghodrati et al., 2024; Yoon & Park, 2025). Third, although communication skills and cognitive flexibility have each been associated with marriage readiness or relationship functioning, their simultaneous mediating roles in the association between metacognitive beliefs and willingness to marry have received limited empirical attention. Establishing such pathways is important because a statistically significant association between metacognitive beliefs and willingness to marry does not, by itself, explain the psychological mechanisms through which cognitive beliefs may influence marriage-related motivation.

Methodologically, evaluating these relationships through a structural modeling framework allows direct and indirect effects to be considered concurrently and provides a more comprehensive test of the proposed theoretical model. Adequate sample size is particularly important for producing stable parameter estimates and maintaining sufficient statistical power in multivariable models (Seabrook, 2025). Examining these pathways among unmarried university students is also developmentally appropriate because university years often coincide with increased autonomy, identity consolidation, career planning, and more active consideration of long-term intimate relationships. In such a context, understanding the cognitive and interpersonal factors associated with willingness to marry may have practical implications for premarital counseling, university counseling programs, relationship education, and preventive family interventions. Rather than attempting to increase willingness to marry indiscriminately, psychologically informed interventions can focus on helping individuals develop more realistic metacognitive appraisals, greater cognitive flexibility, and stronger interpersonal communication capacities so that decisions about marriage are more deliberate, adaptive, and consistent with personal readiness.

Accordingly, the aim of the present study was to test the structural relationships between metacognitive beliefs and willingness to marry, with interpersonal communication skills and cognitive flexibility as mediating variables among unmarried young adults.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present study was applied in terms of purpose and correlational in terms of data collection, using structural equation modeling. The statistical population consisted of all unmarried male and female students at the West Tehran

Branch of Islamic Azad University during 2025–2026 who had no previous history of marriage at the time of the study and were between 25 and 40 years of age. According to sample-size guidelines for structural equation modeling, a sample of 300–500 participants may be considered adequate (Sabrook, 2025). In addition, considering 15 participants per estimated parameter and the presence of 22 parameters in the proposed model, 350 participants were selected through convenience sampling to ensure sampling adequacy. Accordingly, eligible unmarried students who expressed willingness to participate voluntarily in the study were recruited. The inclusion criteria were being unmarried with no previous history of marriage, being between 25 and 40 years of age, currently studying at the West Tehran Branch of Islamic Azad University, providing informed consent to participate in the study, and having attended no counseling or psychotherapy sessions during the previous three months, based on participants' self-reports. The exclusion criteria consisted of failing to respond to at least 20% of questionnaire items or demonstrating a random or inconsistent response pattern.

Following approval of the research proposal by the Abhar Branch of Islamic Azad University and receipt of the necessary authorization from the Research Department of the West Tehran Branch of Islamic Azad University, the study procedures commenced. First, the research instruments were prepared for distribution among students. Subsequently, in coordination with the heads of academic departments and different faculties of the West Tehran Branch of Islamic Azad University, a list of eligible unmarried students was prepared. Sampling was then conducted according to the inclusion criteria of being unmarried, having no previous history of marriage, being between 25 and 40 years of age, and currently studying at the West Tehran Branch of Islamic Azad University. The questionnaires were administered as a package containing four questionnaires and a demographic information form. Before questionnaire completion, the objectives of the study were fully explained to participants, and written informed consent was obtained. Participants were assured that their information would remain confidential and that questionnaires would be completed anonymously. The average time required to complete each questionnaire package was approximately 30 minutes. Following questionnaire collection, the data were screened for incomplete questionnaires, defined as those with more than 20% missing responses, and for random response patterns.

Ultimately, 350 valid questionnaires were retained for statistical analysis.

## 2.2. Data Collection Tools

**Marriage Willingness Questionnaire (MWQ).** This questionnaire was developed by Heidari, Mazaheri, and Pour-Etemad (2003) and consists of 24 items. Items are scored on a 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Items 3, 4, 5, 8, 10, 12, 14, 16, 17, 20, and 21 are reverse-scored, such that strongly agree receives a score of 1 and strongly disagree receives a score of 5. The questionnaire was administered to 779 individuals, and factor analysis with Varimax rotation identified four factors, all with eigenvalues greater than 1. These four factors were: (1) attitudes toward marriage, (2) readiness and willingness to marry, (3) attitudes toward the consequences of marriage, and (4) barriers to marriage. To examine construct validity, the developers reported factor loadings greater than .50 for all items. Reliability coefficients of .77 using the test-retest method and .92 using Cronbach's alpha for internal consistency were reported. In the present study, the Cronbach's alpha coefficient for this questionnaire was .75.

**Metacognitions Questionnaire-30 (MCQ-30).** This questionnaire was developed by Wells and Cartwright-Hatton (2004) and consists of 30 items rated on a 4-point Likert scale ranging from do not agree (1), agree slightly (2), agree moderately (3), to agree very much (4). The questionnaire assesses metacognitive domains across five separate subscales: (1) positive beliefs, (2) uncontrollability and danger of thoughts, or negative beliefs about worry, (3) beliefs regarding cognitive competence, or cognitive confidence, (4) beliefs regarding the need to control thoughts, and (5) cognitive self-consciousness. The developers reported a Cronbach's alpha coefficient of .93 for the total scale and coefficients ranging from .72 to .93 for the five subscales. Test-retest reliability was reported as .74 for the total questionnaire and as .79 for positive beliefs about worry, .59 for negative beliefs about worry, .69 for cognitive confidence, .74 for beliefs concerning the need to control thoughts, and .87 for cognitive self-consciousness. Convergent validity coefficients obtained using the Spielberger inventory and the Penn State Worry Questionnaire were .73 and .69, respectively, supporting the convergent validity of the instrument. In Iran, the questionnaire was standardized by Shirinzadeh et al. (2008) in a sample of 258 participants, including 118 females and

140 males. Factor loadings for all items were reported to be greater than .50, indicating satisfactory construct validity. Regarding concurrent validity, correlations between all factors and the Spielberger Trait Anxiety Inventory were positive and statistically significant. Test-retest reliability was .73 for the total questionnaire and .59, .83, .81, .64, and .65 for the uncontrollability, positive beliefs, cognitive self-consciousness, cognitive confidence, and need for control subscales, respectively. In the present study, the Cronbach's alpha coefficient was .76.

**Cognitive Flexibility Inventory (CFI).** This questionnaire was developed by Dennis and Vander Wal (2010) and consists of 20 items rated on a 7-point Likert scale ranging from strongly disagree (1), disagree (2), slightly disagree (3), neutral (4), slightly agree (5), agree (6), to strongly agree (7). Total scores range from 20 to 140, with higher scores indicating greater cognitive flexibility. Items 2, 4, 7, 9, 11, and 17 are reverse-scored. The questionnaire includes three components: Alternatives (Items 3, 5, 6, 12, 13, 14, 16, 18, 19, and 20), Control (Items 1, 2, 4, 7, 9, 11, 15, and 17), and Alternatives for Human Behavior (Items 10 and 18). Concurrent validity of the instrument was examined in a sample of 530 American university students using the Beck Depression Inventory ( $r = -.49$ ) and a cognitive flexibility measure ( $r = .75$ ). Internal consistency, assessed using Cronbach's alpha in the same sample of 530 American students, was .90. In Iran, Kohandani and Abolmaali Al-Hosseini (2017) selected 490 participants using multistage random sampling. Their findings indicated that 19 items of the Cognitive Flexibility Inventory loaded on two factors. These factors were labeled Problem-Solving Processing, consisting of 13 items, and Perceived Controllability, consisting of six items. Internal consistency coefficients for the total questionnaire, Problem-Solving Processing, and Perceived Controllability were .893, .779, and .81, respectively. The total Cognitive Flexibility Inventory score and its two factors, Problem-Solving Processing and Perceived Controllability, were significantly correlated with the total Beck Depression Inventory score, with coefficients of  $-.665$ ,  $-.577$ , and  $-.597$ , respectively. In the present study, the internal consistency of the questionnaire, assessed using Cronbach's alpha, was .81.

**Communication Skills Test-Revised (CST-R).** This questionnaire was developed by Queendom (2004) and contains 34 items assessing five subscales: message reception (Items 5, 8, 10, 22, 26, 32, and 36), emotional regulation (Items 1, 3, 5, 11, 30, 33, 41, 46, 52, and 56), listening (Items 7, 15, 21, 28, 31, 43, 48, 51, 59, and 60),

insight into the communication process (Items 6, 9, 23, 25, 38, and 40), and assertiveness (Items 4, 12, 18, 29, and 34; Salimi et al., 2011). The questionnaire is scored on a 5-point scale in which never receives a score of 1, rarely 2, sometimes 3, most of the time 4, and always 5. Items 2, 3, and 4 are reverse-scored (Attarha, Shamsi, & Akbari Torkestani, 2011). Individual scores range from 60 to 300; scores from 60 to 130 indicate poor communication skills, scores from 130 to 210 indicate moderate communication skills, and scores above 210 indicate good communication skills (Miri et al., 2011). In the study by Shamshirgaran and Homayi (2011), split-half reliability was .71 and statistically significant at the .01 level, whereas Cronbach's alpha for all questionnaire items was .84. Construct validity was examined using confirmatory factor analysis and principal component procedures, with a Kaiser–Meyer–Olkin (KMO) index of .75 being reported. In the present study, Cronbach's alpha was .82.

### 2.3. Data Analysis

For data analysis, descriptive statistics, including frequency, percentage, mean, standard deviation, minimum, and maximum, were initially calculated for the demographic characteristics and the principal study variables. At the inferential level, prior to path analysis, the relevant assumptions were examined, including independence of observations using the Durbin–Watson test, absence of multicollinearity among predictor variables using the variance inflation factor (VIF), and normality of the data

distribution using skewness and kurtosis coefficients. After confirming the assumptions, model fit was evaluated using the normed fit index (NFI), with a cutoff value greater than .90; the standardized root mean square residual (SRMR), with a cutoff value below .06; the squared Euclidean distance (d\_ULS); the geodesic distance (d\_G); and the goodness-of-fit index (GOF). Spearman's correlation coefficient was also used to examine associations among the variables, and bootstrapping was employed to estimate indirect, or mediating, effects within the structural model. All statistical analyses were conducted using SPSS version 26 and PLS version 3, and the alpha level for hypothesis testing was set at .05.

### 3. Findings and Results

Based on the demographic findings, of the 350 participants, 128 (36.6%) were male and 222 (63.4%) were female, indicating a higher proportion of female participants. Regarding educational level, the largest group consisted of bachelor's degree students, with 224 participants (64%), whereas 91 participants (26%) were at the master's level and 35 (10%) were doctoral students. The participants' mean age was 31.69 years ( $SD = 8.14$ ), with an age range of 25–45 years. These findings indicate that the study sample consisted predominantly of female participants and individuals studying at the bachelor's level, with the mean age falling within the fourth decade of life. The means, standard deviations, and normality statistics for the study variables are presented in Table 1.

**Table 1**

*Means, Standard Deviations, and Normality Statistics for the Study Variables*

| Variable                          | M      | SD    | Normality Statistic | p      |
|-----------------------------------|--------|-------|---------------------|--------|
| Positive beliefs                  | 17.27  | 3.83  | .07                 | .001   |
| Cognitive confidence              | 12.17  | 4.34  | .10                 | < .001 |
| Need to control thoughts          | 10.40  | 2.79  | .13                 | .002   |
| Uncontrollability                 | 20.79  | 4.50  | .08                 | < .001 |
| Cognitive self-consciousness      | 17.87  | 3.54  | .12                 | < .001 |
| Total metacognitive beliefs score | 78.50  | 15.32 | .07                 | < .001 |
| Message reception ability         | 26.60  | 5.39  | .11                 | < .001 |
| Emotional control                 | 28.11  | 6.79  | .08                 | < .001 |
| Listening                         | 21.52  | 4.08  | .09                 | < .001 |
| Insight                           | 15.81  | 4.32  | .11                 | < .001 |
| Assertiveness                     | 15.62  | 4.15  | .11                 | < .001 |
| Total interpersonal skills score  | 107.67 | 19.32 | .13                 | < .001 |
| Alternatives                      | 35.80  | 7.45  | .09                 | < .001 |
| Control                           | 37.71  | 7.26  | .11                 | < .001 |
| Alternatives for human behavior   | 7.38   | 2.38  | .09                 | < .001 |
| Total cognitive flexibility score | 80.89  | 16.96 | .07                 | < .001 |
| Attitudes toward marriage         | 20.97  | 4.71  | .06                 | < .001 |

|                                           |       |       |     |        |
|-------------------------------------------|-------|-------|-----|--------|
| Attitudes toward consequences of marriage | 18.33 | 6.09  | .09 | < .001 |
| Readiness for marriage                    | 14.50 | 3.55  | .13 | < .001 |
| Barriers to marriage                      | 7.20  | 2.10  | .14 | < .001 |
| Total willingness to marry score          | 61.00 | 15.38 | .08 | < .001 |

The means and standard deviations of the study variables presented in Table 1 indicate that the mean levels of metacognitive beliefs, interpersonal skills, and cognitive flexibility were moderate to high, whereas willingness to marry was at a moderate level.

To examine the assumption of absence of multicollinearity among the predictor variables, the variance inflation factor (VIF) and condition index were used. The VIF values for metacognitive beliefs (1.49), cognitive flexibility (1.72), and interpersonal skills (1.81) were all substantially lower than the critical cutoff value of 10. Moreover, the corresponding condition indices for these three variables were 12.86, 12.93, and 15.49, respectively, all of which were below the critical value of 30. The Durbin–Watson test was used to evaluate the assumption of

independence of observations. The results showed that the Durbin–Watson statistics for metacognitive beliefs (1.97), cognitive flexibility (2.03), and interpersonal skills (1.86) were all within the acceptable range of 1.5–2.5; therefore, the assumption of independence of observations was supported. Given that the eigenvalues for these variables were also close to zero and that the VIF, condition index, and Durbin–Watson values were within acceptable ranges, it can be concluded that the assumption concerning the absence of problematic multicollinearity among predictor variables was satisfied and that the data met the necessary conditions for structural equation modeling. The results of Spearman’s correlations examining the relationships among the study variables are reported in Table 2.

**Table 2**

*Spearman Correlation Matrix for the Relationships Among the Study Variables*

| Variable                              | 1     | 2     | 3     | 4 |
|---------------------------------------|-------|-------|-------|---|
| 1. Metacognitive beliefs              | 1     |       |       |   |
| 2. Cognitive flexibility              | .49** | 1     |       |   |
| 3. Interpersonal communication skills | .53** | .61** | 1     |   |
| 4. Willingness to marry               | .41** | .35** | .46** | 1 |

The Spearman correlation coefficients presented in Table 2 indicate significant positive relationships between metacognitive beliefs and willingness to marry, interpersonal communication skills, and cognitive flexibility

( $p < .05$ ). Subsequently, the direct and indirect path coefficients and the results of their significance tests are presented in Table 3.

**Table 3**

*Direct and Indirect Path Coefficients of the Structural Model*

| Path                                                                 | $\beta$ | 95% CI      | t     | p      |
|----------------------------------------------------------------------|---------|-------------|-------|--------|
| Metacognitive beliefs → Interpersonal skills                         | .53     | [.45, .62]  | 12.29 | < .001 |
| Metacognitive beliefs → Cognitive flexibility                        | .50     | [.41, .58]  | 13.07 | < .001 |
| Metacognitive beliefs → Willingness to marry                         | .30     | [.16, .44]  | 4.14  | < .001 |
| Interpersonal skills → Willingness to marry                          | .26     | [.10, .42]  | 3.40  | < .001 |
| Cognitive flexibility → Willingness to marry                         | .05     | [−.08, .18] | .90   | .35    |
| Metacognitive beliefs → Interpersonal skills → Willingness to marry  | .14     | [.05, .23]  | 3.09  | .002   |
| Metacognitive beliefs → Cognitive flexibility → Willingness to marry | .03     | [−.03, .09] | .84   | .41    |

The results presented in Table 3 indicated that metacognitive beliefs had significant positive direct effects on interpersonal skills, cognitive flexibility, and willingness to marry ( $p < .05$ ). Interpersonal skills also had a significant

positive direct effect on willingness to marry ( $p < .05$ ); however, the direct effect of cognitive flexibility on willingness to marry was not supported ( $p > .05$ ). Regarding the indirect effects, interpersonal skills significantly

mediated the relationship between metacognitive beliefs and willingness to marry ( $p < .05$ ). The model goodness-of-fit indices are reported in Table 4.

**Table 4**

*Model Fit Indices*

| Fit Index                                     | Value |
|-----------------------------------------------|-------|
| Standardized root mean square residual (SRMR) | .002  |
| Squared Euclidean distance (d_ ULS)           | .95   |
| Geodesic distance (d_ G)                      | .91   |
| Normed fit index (NFI)                        | .91   |

As shown in Table 4, given that the standardized root mean square residual (SRMR) was below .06, the proposed model demonstrated a satisfactory fit. In addition, bootstrap-based statistical inference was employed to evaluate the indirect effects and the exact fit of the model. In this procedure, the discrepancy between the empirical covariance matrix and the covariance matrix predicted by the composite-factor model was evaluated using the squared Euclidean distance (d\_ ULS) and the geodesic distance (d\_ G). Given that the upper confidence-interval bounds for these two indices exceeded .95, the proposed model was considered to demonstrate satisfactory fit for the assessment of indirect effects. Furthermore, because the chi-square ( $\chi^2$ ) value of the proposed model alone does not provide sufficient information for evaluating model fit, the normed fit index (NFI), which is calculated on the basis of the chi-square statistic, was used. Given that the NFI value was .91, the model demonstrated satisfactory fit.

#### 4. Discussion

The present study examined the structural relationships between metacognitive beliefs and willingness to marry, with interpersonal communication skills and cognitive flexibility considered as mediating variables among unmarried young adults. The findings indicated that metacognitive beliefs had significant positive direct effects on interpersonal communication skills, cognitive flexibility, and willingness to marry. Interpersonal communication skills also had a significant positive direct effect on willingness to marry and significantly mediated the relationship between metacognitive beliefs and willingness to marry. In contrast, the direct effect of cognitive flexibility on willingness to marry was not statistically significant, and cognitive flexibility did not significantly mediate the relationship between metacognitive beliefs and willingness to marry. Overall, the structural model demonstrated

satisfactory fit, suggesting that the proposed pattern of relationships among the variables was generally consistent with the empirical data.

The significant direct relationship between metacognitive beliefs and willingness to marry is consistent with previous findings showing that higher-order cognitive beliefs and regulatory processes are associated with marriage-related attitudes and broader psychological adjustment. In particular, Etesami et al. reported that attitudes toward marriage could be explained in part by metacognitive beliefs, with emotion regulation and ego strength contributing to the underlying mechanism (Etesami et al., 2025). The present finding extends that evidence by demonstrating that metacognitive beliefs are also directly associated with willingness to marry among unmarried young adults. From a theoretical perspective, metacognitive beliefs influence the manner in which individuals evaluate, monitor, and regulate their own thoughts, especially thoughts related to uncertainty, threat, control, and future-oriented decision-making. Because marriage involves commitment under conditions of incomplete predictability, individuals who are able to relate to their thoughts in a more adaptive, regulated, and reflective manner may be less likely to interpret marriage primarily through uncontrollable worry, anticipated failure, or cognitive threat.

This interpretation is also compatible with evidence demonstrating that metacognitive beliefs are systematically associated with anxiety and depression and can shape the persistence of maladaptive emotional and cognitive responses (Capobianco et al., 2020). Dysfunctional metacognitive beliefs may intensify rumination, worry, doubt, and excessive self-monitoring, all of which can influence major life decisions such as entering a marital relationship. Conversely, more adaptive metacognitive functioning may help individuals assess concerns about marriage in a more balanced manner and distinguish realistic

challenges from exaggerated or repetitive threat-based thinking. Research indicating that metacognitive strategies contribute to critical thinking and more reflective information processing further supports the idea that metacognition can influence complex evaluative decisions (Rivas et al., 2022). Similarly, evidence that metacognitive training improves the regulation and deployment of cognitive resources suggests that metacognitive processes can influence how individuals respond to demanding or uncertain situations (Ngai & Gilbert, 2026). Taken together, these findings provide a plausible explanation for the positive association observed between metacognitive beliefs and willingness to marry in the present study.

The significant positive effect of metacognitive beliefs on interpersonal communication skills was also theoretically meaningful. Metacognition is not restricted to intrapersonal thought regulation; it can influence social behavior because individuals must monitor and modify their interpretations, reactions, expectations, and communication strategies during interpersonal exchanges. The present result is aligned with findings indicating that metacognitive therapy can improve communication skills while reducing anxiety (Atayi et al., 2023). A person who is better able to evaluate thoughts rather than react automatically to them may be more capable of listening carefully, delaying impulsive responses, reconsidering interpretations of another person's behavior, and expressing thoughts in a more organized and constructive manner. In intimate relationships, these capacities can directly affect the quality of interpersonal exchanges and perceived readiness for commitment.

The significant relationship between metacognitive beliefs and cognitive flexibility further supports the conceptual overlap between reflective cognitive regulation and adaptive cognitive shifting. Cognitive flexibility requires the ability to consider alternative perspectives, revise interpretations, and perceive difficult situations as manageable rather than fixed or uncontrollable. These capacities are likely facilitated when individuals can monitor and regulate their own thinking effectively. Cognitive flexibility has been described as a foundational capacity for adaptive learning and adjustment because it enables individuals to modify cognitive strategies when conditions change (Clément, 2022). The present findings are therefore consistent with the assumption that adaptive metacognitive beliefs may promote greater openness to alternative interpretations and more flexible problem solving.

The direct positive effect of interpersonal communication skills on willingness to marry was one of the central findings

of the study. This result is consistent with evidence identifying communication competence as an important predictor of marriage readiness among university students (Setyowati et al., 2026). Individuals who possess stronger interpersonal communication skills may feel better prepared to manage the relational demands associated with marriage, including expressing needs, understanding a partner's perspective, regulating difficult conversations, resolving disagreement, and sustaining emotional closeness. Marriage is inherently communication-intensive, and willingness to enter marriage may therefore partly depend on whether individuals believe they possess the interpersonal resources needed to maintain a close partnership.

This finding is also consistent with broader interpersonal communication theory, which emphasizes that relational outcomes depend substantially on the quality of message exchange, mutual interpretation, feedback, and responsiveness (West & Turner, 2022). Research on married relationships similarly highlights the role of communication in maintaining closeness, resolving conflict, and supporting relational stability (Siregar, 2025). Stable and satisfactory marriage has also been conceptually associated with relational competencies that enable partners to negotiate differences and maintain reciprocal emotional engagement (Nazemi et al., 2023). Moreover, poor relationship skills have been associated with couple burnout, indicating that deficits in communication may gradually undermine intimacy and relational investment (Shamshirgaran & Homaei, 2018). The present finding therefore suggests that unmarried young adults with stronger communication abilities may anticipate marriage as a more manageable and potentially successful relationship context and consequently express greater willingness to marry.

The observed association between interpersonal communication skills and willingness to marry can also be interpreted in light of evidence linking communication competence with broader emotional and social functioning. Communication skills have been associated with emotional intelligence among students (Miri et al., 2019), and they have been incorporated into explanatory models of social adaptation and psychological distress (Salimi et al., 2018). Communication competence has also been related to lower maladaptive interpersonal behavior when considered together with perceived social support (Atadokht & Taherifard, 2024). These findings suggest that communication skills may function as a general interpersonal resource that increases self-efficacy in social relationships. For young adults considering marriage, such

interpersonal confidence may reduce perceived relational risk and strengthen the expectation that disagreements and emotional challenges can be managed constructively.

Importantly, interpersonal communication skills significantly mediated the relationship between metacognitive beliefs and willingness to marry. This finding suggests that one pathway through which metacognitive beliefs may influence willingness to marry operates through interpersonal competence. In other words, metacognitive functioning may not affect marriage-related motivation solely at the level of private cognition; it may also influence how effectively individuals interact with others, and this improved interpersonal competence may in turn increase their readiness or willingness to form a marital relationship. This interpretation is supported by the evidence that metacognitive intervention can improve communication outcomes (Atayi et al., 2023) and that communication skills predict marriage readiness (Setyowati et al., 2026). The mediation result therefore provides a more process-oriented account of the association between metacognitive beliefs and willingness to marry.

From a relational perspective, this mediation pathway is also compatible with the idea that healthy marriage depends on transforming internal cognitive and emotional capacities into observable interpersonal behavior. Adaptive thinking alone may be insufficient if individuals cannot express themselves, understand a partner, communicate boundaries, or regulate difficult exchanges. Similarly, positive intentions toward marriage may remain unstable when individuals doubt their ability to function effectively in intimate relationships. The present findings suggest that metacognitive beliefs may contribute to willingness to marry partly because they support more effective interpersonal communication, which in turn increases perceived relational capability. This interpretation is congruent with broader accounts of marriage as an interpersonal system requiring mutual understanding, communication, and negotiation (de la Rosa Vazquez & Cabello-Tijerina, 2023; Wallerstein, 2019).

In contrast to the findings for interpersonal communication skills, the direct effect of cognitive flexibility on willingness to marry was not statistically significant. This result differs to some extent from previous studies indicating that cognitive flexibility is related to marital and relationship outcomes. For example, Ekinici and Canpolat found that cognitive flexibility mediated the association between romantic relationship satisfaction and marriage attitudes in young adults (Ekinici & Canpolat,

2025). Cognitive flexibility has also been incorporated into structural models of marital adjustment (Hamzei & Aghayousefi, 2023), and recent evidence suggests that it is associated with marital satisfaction through authenticity in relationships and mental health (Rahandaz et al., 2026). However, these studies largely focused on participants already involved in romantic or marital relationships, whereas the present study examined unmarried young adults' willingness to marry. This distinction may help explain the discrepancy.

Cognitive flexibility may be more strongly related to how individuals manage an existing relationship than to whether they desire marriage in the first place. Once individuals are involved in a romantic or marital relationship, they are repeatedly required to reconsider interpretations, adapt expectations, negotiate incompatible preferences, and develop alternative solutions to interpersonal problems. Under these conditions, cognitive flexibility may have a direct and observable effect on relationship satisfaction and adjustment. In contrast, willingness to marry may be influenced more immediately by beliefs about marriage, family experiences, perceived readiness, socioeconomic concerns, relational opportunities, gender-role expectations, and communication self-efficacy. Evidence that marriage desires vary as a function of age norms and opportunities for partnership supports the importance of contextual and developmental influences (Yu & Hara, 2023). Similarly, gender-role attitudes have been associated with marriage desires among never-married adults, indicating that cultural and normative beliefs may exert stronger direct effects on marriage motivation than cognitive flexibility alone (Yoon & Park, 2025).

The nonsignificant indirect effect of metacognitive beliefs on willingness to marry through cognitive flexibility is consistent with the nonsignificant direct path from cognitive flexibility to willingness to marry. Although metacognitive beliefs significantly predicted cognitive flexibility, greater flexibility did not independently translate into stronger willingness to marry after the other variables in the structural model were taken into account. One interpretation is that cognitive flexibility may function as a general adaptive capacity whose influence on marriage-related motivation depends on other psychological or contextual conditions. For example, flexibility may become more relevant when individuals are already engaged in close relationships or when they encounter actual relational conflict. It may also influence marriage attitudes indirectly through other variables such as relationship satisfaction,

emotion regulation, coping strategies, authenticity, or perceived partner compatibility, as suggested by previous structural studies (Ekinci & Canpolat, 2025; Hamzei & Aghayousefi, 2023; Rahandaz et al., 2026).

Another possible explanation concerns the multidimensional nature of willingness to marry. Willingness to marry includes not only cognitive evaluation but also emotional readiness, anticipated costs and benefits, perceived barriers, family expectations, social norms, and personal life goals. Studies have shown that quality of life and family functioning are associated with willingness to marry (Abooei et al., 2024), while mental health is also implicated in young people's marriage and family-formation decisions (Ghodrati et al., 2024). Consequently, the unique contribution of cognitive flexibility may become relatively small when stronger proximal predictors are simultaneously modeled. This may explain why cognitive flexibility correlated with willingness to marry at the bivariate level but failed to produce a statistically significant direct path in the structural model.

The satisfactory model-fit indices support the overall plausibility of the proposed structural framework. Although model fit does not establish causality, it indicates that the hypothesized configuration of relationships was reasonably compatible with the observed data. The strong paths from metacognitive beliefs to both mediators, together with the significant interpersonal communication pathway, suggest that cognitive and interpersonal variables should be examined jointly in research on marriage-related motivation. At the same time, the absence of a significant cognitive-flexibility mediation effect illustrates the importance of testing theoretically plausible mechanisms empirically rather than assuming that all adaptive psychological capacities necessarily translate directly into greater willingness to marry.

The findings may also be interpreted within a developmental framework. University students and young adults are often simultaneously dealing with educational demands, employment uncertainty, identity development, changing family expectations, and emerging intimate relationships. Willingness to marry during this period may therefore reflect an evolving evaluation rather than a fixed personal preference. Research shows that marriage desires can remain sensitive to age-related norms and opportunities for partnership (Yu & Hara, 2023). In this context, metacognitive beliefs and interpersonal communication skills may be especially salient because they affect how individuals process uncertainty and assess their capacity to

build and maintain a future relationship. Accordingly, the results support viewing willingness to marry as a psychologically mediated construct rather than merely a demographic preference.

The present study had several limitations. First, the cross-sectional correlational design prevents causal conclusions regarding the direction of relationships among metacognitive beliefs, interpersonal communication skills, cognitive flexibility, and willingness to marry. Second, participants were recruited through convenience sampling from a single university branch, which restricts the generalizability of the findings to other university populations, nonstudent young adults, or individuals from different geographical and socioeconomic contexts. Third, all variables were assessed using self-report questionnaires and may therefore have been affected by social desirability, self-perception bias, and common-method variance. Fourth, the sample contained a larger proportion of women than men, and potential gender differences in the structural relationships were not examined. In addition, factors such as socioeconomic status, employment, previous romantic relationship experience, family expectations, religiosity, perceived financial readiness, and parental marital quality were not included in the model despite their possible relevance to willingness to marry.

Future research should test the proposed relationships using longitudinal and prospective designs to determine whether metacognitive beliefs and communication skills predict subsequent changes in willingness to marry over time. Replication with probability-based and more socioeconomically and geographically diverse samples is also recommended. Future studies could examine whether the structural pathways differ according to gender, age, relationship history, employment status, or educational level using multigroup analysis. It would also be valuable to test more complex models in which cognitive flexibility influences willingness to marry indirectly through variables such as emotion regulation, romantic relationship quality, attachment security, authenticity, coping strategies, perceived partner availability, or marriage self-efficacy. Experimental and intervention studies could further determine whether improving metacognitive regulation or communication competence produces measurable changes in marriage-related attitudes and readiness.

From a practical perspective, the findings suggest that premarital counseling and university-based relationship education programs may benefit from placing greater emphasis on metacognitive and interpersonal processes.

Counselors can assess dysfunctional beliefs concerning worry, control, uncertainty, and relational failure and help clients develop more reflective ways of responding to such thoughts. Training in listening, assertiveness, emotional regulation during interaction, perspective taking, message reception, and constructive conflict management may also improve perceived relational competence and readiness for marriage. Because cognitive flexibility did not independently predict willingness to marry in the structural model, interventions should not assume that flexibility alone will alter marriage motivation; instead, it may be more useful to integrate flexibility exercises with communication training, realistic evaluation of marriage expectations, decision-making support, and individualized exploration of perceived barriers to marriage.

### Authors' Contributions

Authors equally contributed to this article.

### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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The authors report no conflict of interest.

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The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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